USER MANUAL

Netbiter® Remote Access

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1 Preface

1.1 About This Document

This document describes installation and configuration of the Netbiter Remote Access service. It does not describe how to physically install a Netbiter EasyConnect gateway or how to set up an account in Netbiter Argos.

For additional related documentation and file downloads, please visit the Netbiter support website at www.netbiter.com/support.

1.2 Related Documents

Related documents

Document	Author
Netbiter Argos Administration Manual	HMS
Netbiter EasyConnect Gateway Installation Guides	HMS
Netbiter EasyConnect User Manual	HMS

1.3 Document history

Summary of recent changes (version 1.20 to 2.00)

Change	Where (section/page)
Updated description of onsite indication and key	*Onsite Indication & Key, page 10*
Added information about latency with mobile connection.	
Misc. corrections and updates of text and screenshots	—
New document structure and layout	—

Revision list

Version	Date	Author	Description
1.00	March 2014	SDa	Initial release
1.10	August 2014	SDa	Update for Netbiter Services
1.20	Nov 2014	SDa	Updates for proxy server support, Netbiter Services. Added info on signal strength LED indication.
2.00	August 2015	ThN	Major update

1.4 Conventions

Unordered (bulleted) lists are used for:

- Itemized information
- Instructions that can be carried out in any order

Ordered (numbered or alphabetized) lists are used for instructions that must be carried out in sequence:

1. First do this,
2. Then open this dialog, and
   a. set this option...
   b. ...and then this one.

Bold typeface indicates interactible parts, such as connectors and switches on the hardware, or menus and buttons in a graphical user interface.

```
Monospaced text is used to indicate program code and other
kinds of data input/output such as configuration scripts.
```

This is a cross-reference within this document: *Conventions, page 4*

This is an external link (URL): www.netbiter.com/support

This is additional information which may facilitate installation and/or operation.

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

Caution
This instruction must be followed to avoid a risk of personal injury.

2 Overview

2.1 General Description

Netbiter Remote Access provides a remote connection via Netbiter Argos to the serial and Ethernet ports on a Netbiter EC300 series gateway. This makes it possible to use personal computer software to remotely interact with industrial devices, just as if they were connected locally to the computer.

To establish the remote connection, a driver called *QuickConnect* is installed on the local computer. The driver creates a secure VPN "tunnel" via Netbiter Argos between the Netbiter gateway and the software application on the computer.

Each tunnel can contain up to 50 individual "channels" for the actual connections to the remote devices. Three types of channel are supported:

Serial	Creates a virtual serial port which is mapped to the RS-232 or RS-485 port on the Netbiter gateway.
Network bridge	Enables a remote connection to the Ethernet LAN port of the Netbiter gateway, allowing access to any device on the remote network.
TCP/UDP port forwarding	Maps the channel to a specific remote IP address and port for TCP/UDP messaging.

*Netbiter Remote Access is designed for connections that are open only for a limited time (8 hours maximum) while the user performs the required tasks. Permanent connections, for example between a SCADA application and equipment in the field, are **not** supported.*

2.2 Supported Equipment

Netbiter Remote Access can remotely connect with almost any industrial application with a serial or Ethernet port, and the list of tested and verified applications is constantly being revised and amended.

Please visit www.netbiter.com for up-to-date information about supported applications.

2.3 Requirements

Using the Netbiter Remote Access function requires:

- A Netbiter EC300 series gateway and a Netbiter Argos account
- The Netbiter QuickConnect driver installed on your computer
- General knowledge of TCP/IP networks
- Specific knowledge of the remote network setup

2.4 Installation overview

Setting up Netbiter Remote Access comprises the following basic steps:

1. Physical installation of a Netbiter gateway at the location of the remote device
2. Activation of the Netbiter gateway in Netbiter Argos
3. Configuration of Remote Access functionality in Netbiter Argos
4. Installation of QuickConnect on the local computer to use for Remote Access
5. Configuration of one or more remote access channels to the device to be accessed
6. Initiation/opening of the connection to the remote device

This document does not describe how to physically install a Netbiter EasyConnect gateway or how to set up an account in Netbiter Argos. Please refer to the documentation available at the Netbiter support website, www.netbiter.com/support.

2.5 Connection Examples

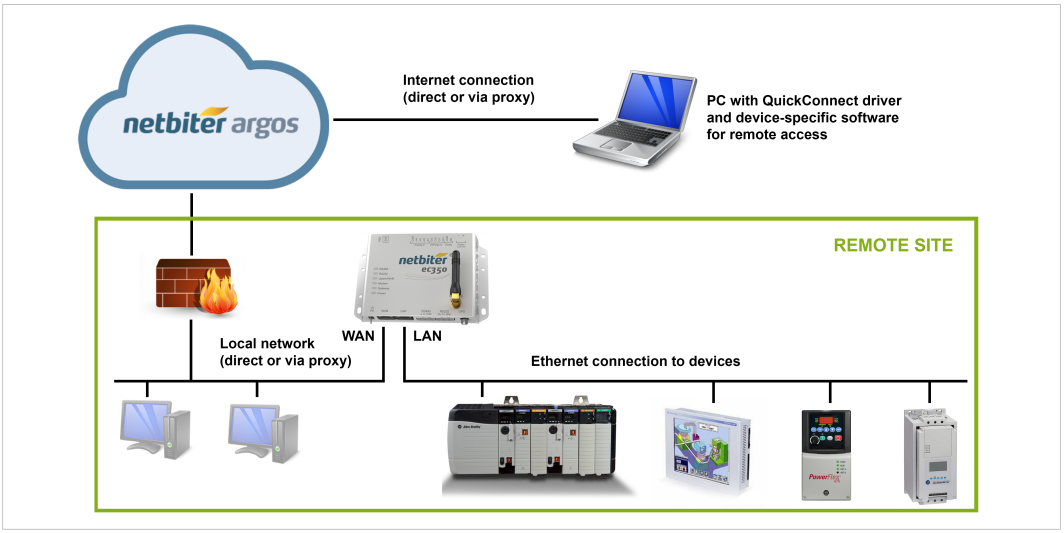

Fig. 1 WAN link to Ethernet LAN

Remote access to an Ethernet-based control network via a LAN network at the remote site, using an Ethernet-based connection over the Internet.

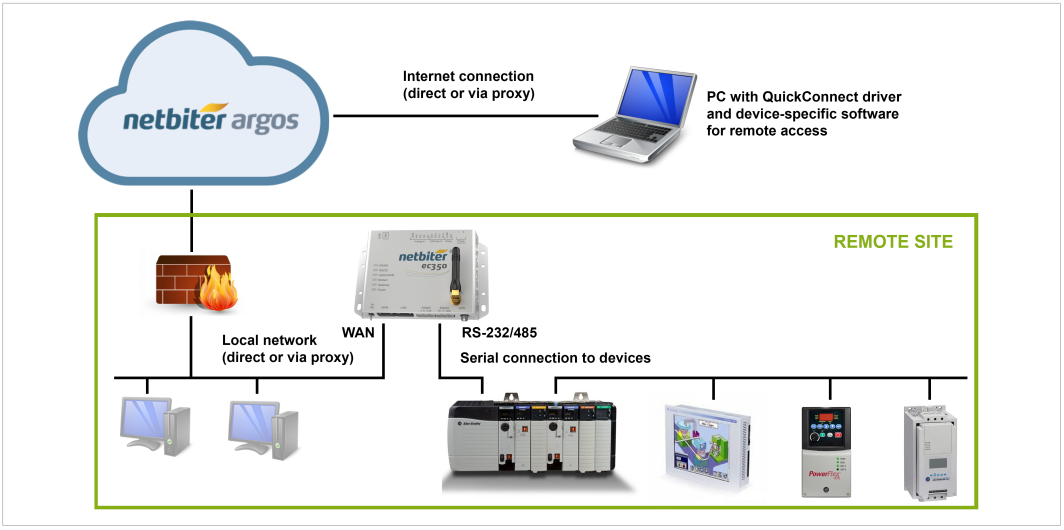

Fig. 2 WAN link to serial

Remote access to a serial control network via a LAN network at the remote site, using an Ethernet-based connection over the Internet.

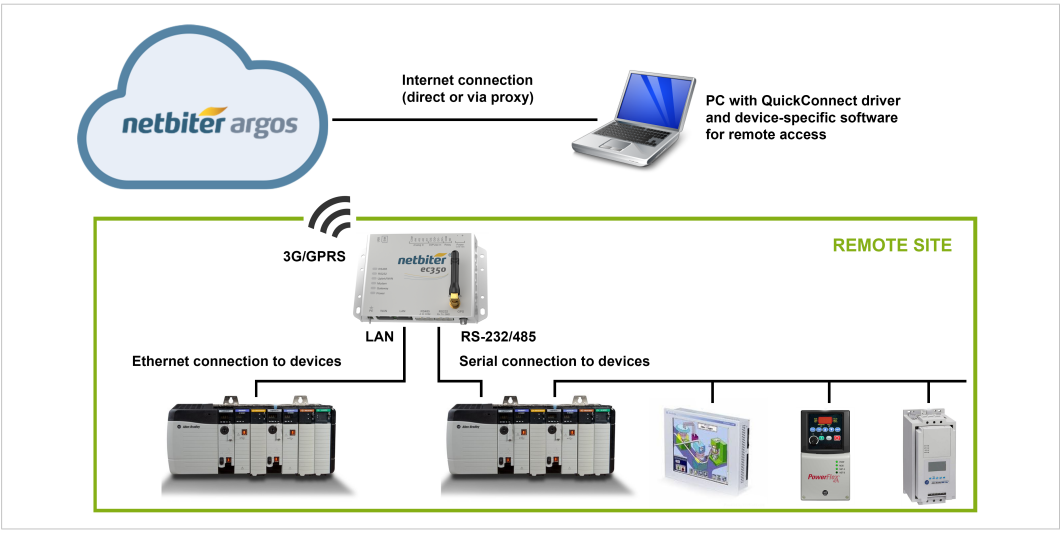

Fig. 3 Mobile link to serial and Ethernet

Remote access to both serial and Ethernet-based device networks using Netbiter Argos over a mobile connection (EC350 only).

3 Configuring Remote Access in Netbiter Argos

3.1 Activating Remote Access Mode

On the **Management** page, select **Configuration** (in *Manage and Analyze* accounts you also have to select a system) and enable **Use this system for remote access**.

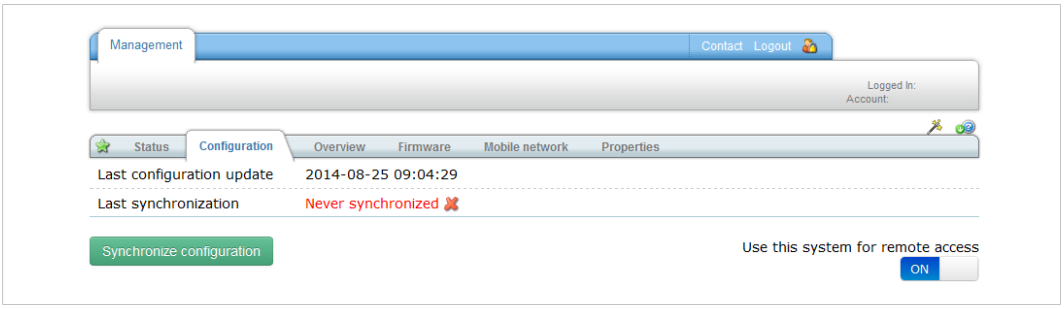

Fig. 4 Enabling Remote Access

The Configuration page will now only contain one tab, **Gateway settings**, which contains settings for the Remote Access service and for LAN configuration.

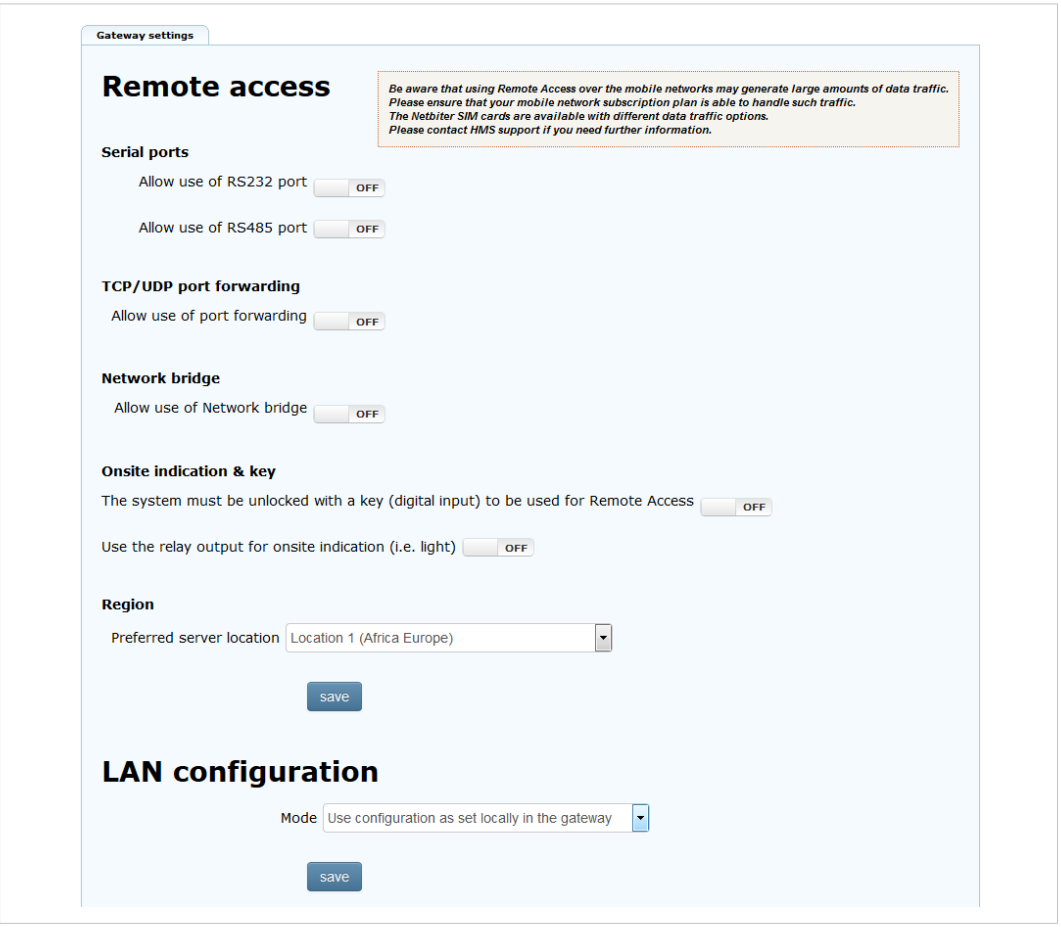

Fig. 5 Gateway settings tab

3.2 Remote Access Settings

After changing these settings, click on **Save** to apply the changes.

3.2.1 Serial Ports

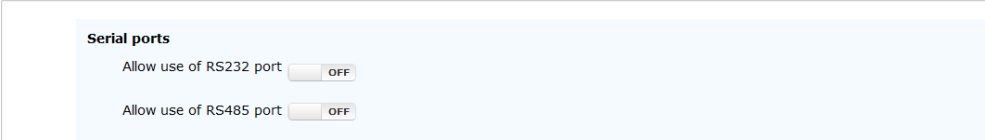

Fig. 6 Selecting serial ports

Enables/disables the required serial ports on the Netbiter EasyConnect gateway.

3.2.2 TCP/UDP Port Forwarding

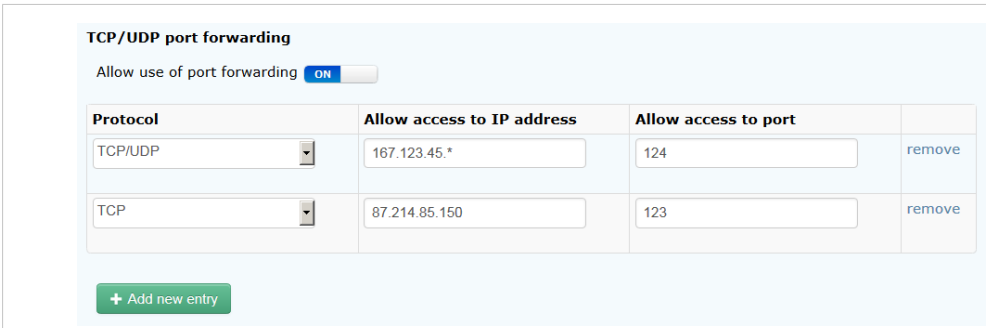

Fig. 7 TCP/UDP port forwarding mode

Restricts which IP addresses, ports and protocols (TCP, UDP, or both) to use for accessing remote devices. Wildcards (*) can be used to indicate a range of IP addresses or ports.

Click on **Add new entry** to add to the list. To delete an entry, click on **remove**.

3.2.3 Network Bridge

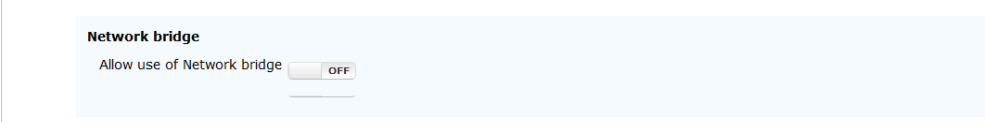

Fig. 8 Network bridge mode

If the remote device has no support for access via a specified network (TCP/UDP) port, the remote network can be set to bridged mode. This will enable a channel functioning as a VPN connection, meaning that the client accessing the device will have secure access to the entire network on the remote side.

Enabling the Network Bridge setting will allow access to all IP addresses and ports on the remote network.

3.2.4 Onsite Indication & Key

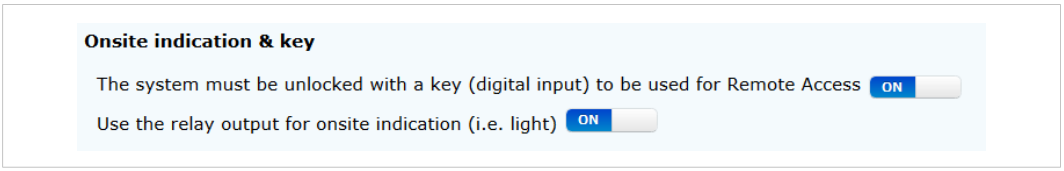

Fig. 9 Onsite indication & key

For greater physical security it is possible to locally enable/disable Remote Access directly from the hardware, and also to visually indicate whether the function is currently in use.

The operator of a machine could for example temporarily allow maintenance personnel to use Remote Access. The operator will be notified when the technician is connected. When maintenance has completed, the operator can disable Remote Access again.

Key

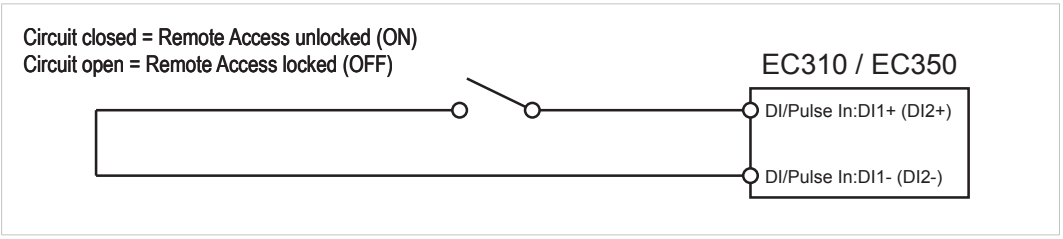

Fig. 10 Wiring diagram- digital input

Set **The system must be unlocked...** to **ON** and connect a switch or relay to the digital input on the Netbiter gateway as shown in the diagram.

Onsite Indication

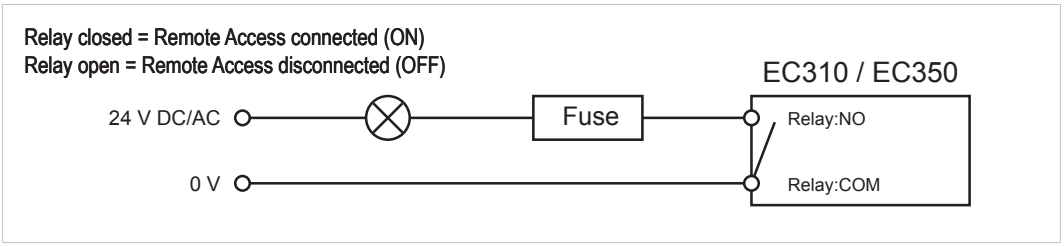

Fig. 11 Wiring diagram- relay output

Set **Use the relay output...** to **ON** and connect a lamp or other indication device to the relay output on the Netbiter gateway as shown in the diagram.

3.2.5 Region

This will be the tunnel server used for secure communication. To minimize latency, select a server location closest to where the Netbiter gateway is located.[1]

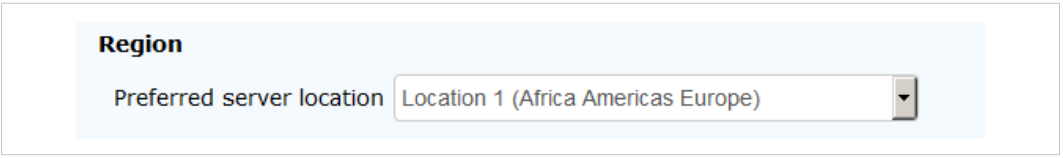

Fig. 12 Server location setting

1. When using a mobile connection, the optimal location can also depend on the country origin of the SIM card in combination with the location of the Netbiter gateway.

3.3 LAN Configuration

These settings affect the **LAN** port on the Netbiter EasyConnect gateway, which is the port used for connecting to the Ethernet network on the remote side of the tunnel.

Fig. 13 LAN configuration

Use configuration as set locally in the gateway	The LAN port will use the configuration set in the gateway. See the Netbiter EasyConnect User Manual.
LAN interface not in use	Disables the LAN port.
Get IP address automatically from a DHCP server	Use a DHCP server on the remote network.
Manually set a fixed IP address and netmask	Set a static IP address and netmask. Contact your network administrator for help.

After changing these settings, click on **Save** to apply the changes.

3.4 Synchronizing

The final step to perform is to *synchronize* the configuration — to upload the changes made in Netbiter Argos to the Netbiter EasyConnect gateway.

Click on **Synchronize configuration** to start the synchronization. The system may be shown as offline until synchronization has completed.

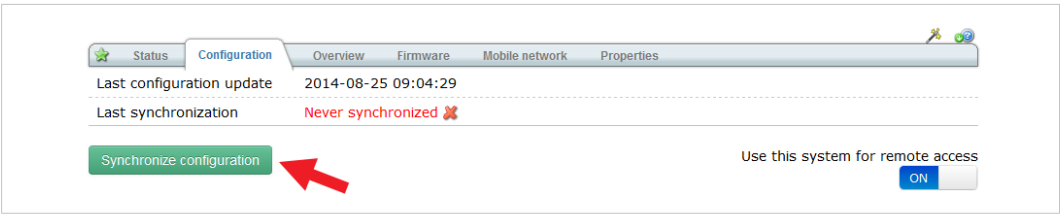

Fig. 14

3.5 Configuring Users (Manage and Analyze)

Netbiter Argos *Manage and Analyze* accounts can have multiple users with different levels of access. To be able to use the Remote Access function, users other than the system administrator must have this access level granted by the administrator.

See the ***Netbiter Argos Administration Manual*** on how to manage user rights.

4 QuickConnect

4.1 Installing and Starting QuickConnect

QuickConnect is the driver required for a computer to be used for Remote Access.

When Remote Access mode is enabled for a field system, the QuickConnect driver can be downloaded directly from the Presentation page in Netbiter Argos. QuickConnect can also be downloaded from the Netbiter support website www.netbiter.com/support.

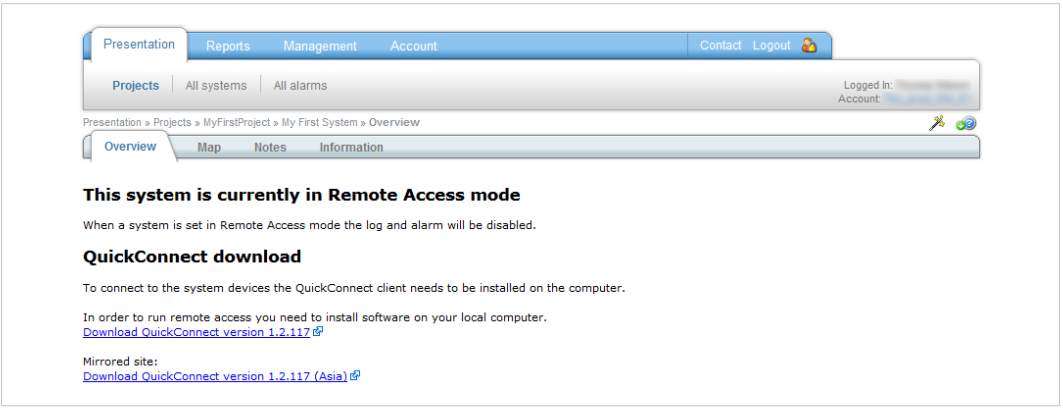

Fig. 15 QuickConnect download links

Save the file to the computer and unzip the contents to your desktop, then double-click on the executable file and follow the on-screen instructions to install QuickConnect.

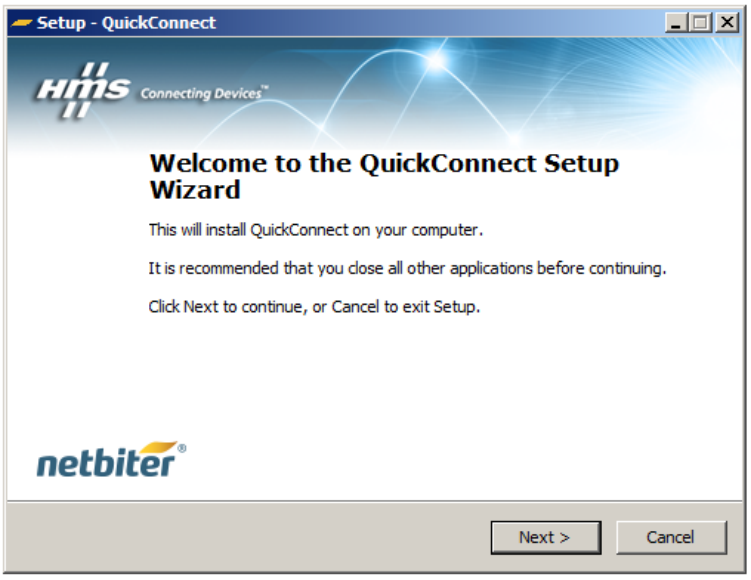

Fig. 16 The QuickConnect installer

The QuickConnect installer will also install 3 additional software components: *OpenVPN*, *Serial IP* and *Windows TAP*. These components normally do not require configuration and do not need to be opened or run manually.

You may have to restart your computer to complete the installation.

After installing QuickConnect, start the configuration program from the shortcut in the start menu or on your desktop and log in using the same username and password as in your Netbiter Argos account.

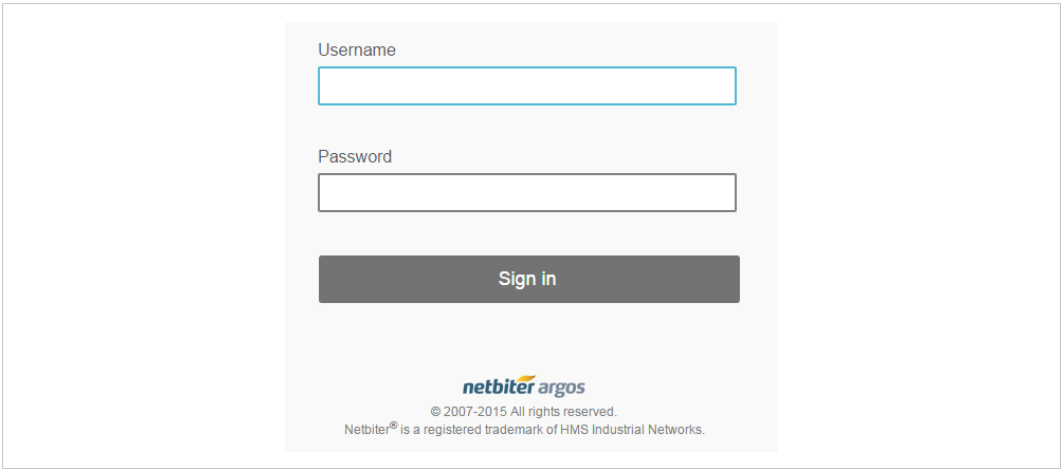

Fig. 17 QuickConnect login window

After logging in to QuickConnect, the **Systems overview** page will be displayed.

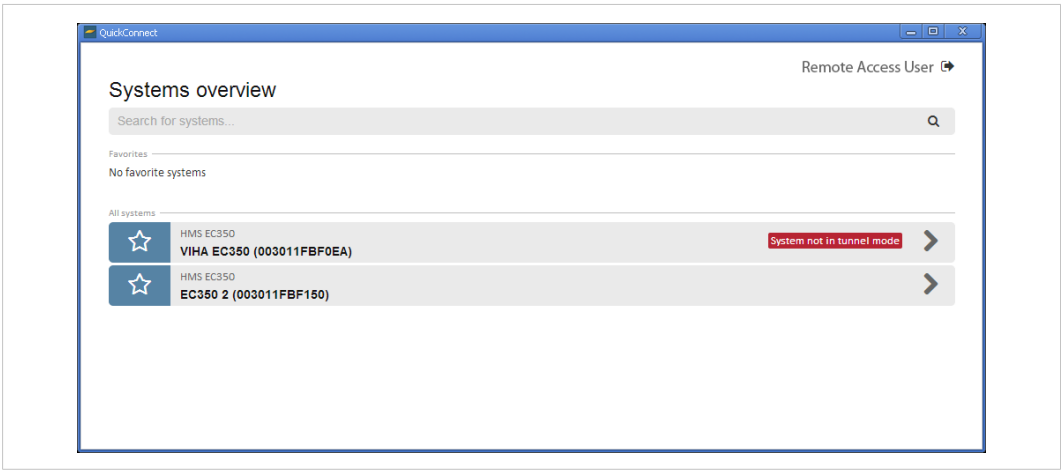

Fig. 18 QuickConnect Systems overview

- Field systems marked as **Favorites** will be listed at the top of the overview page. To mark/unmark a system as a favorite, click on the star next to it.
- Use the search field at the top of the page to search for a specific field system.
- Click on any system to open its configuration page and start adding and configuring devices.

4.2 Configuring a System for Remote Access

4.2.1 Adding a New Device

1. Click on **Add new device** to add a new configuration for a remote device. A list of available pre-configured devices will be displayed.

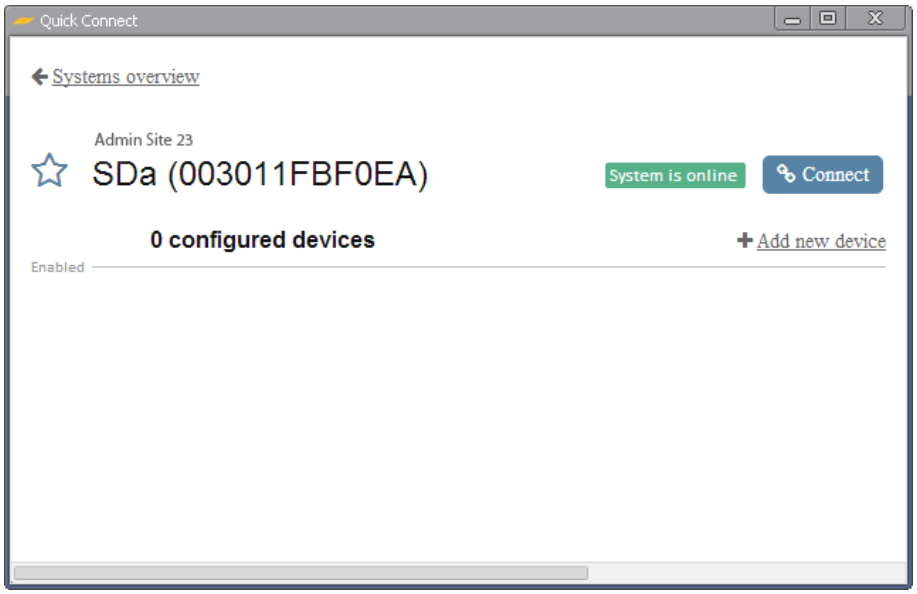

Fig. 19 System configuration page

2. Click on a device in the list to start configuring the connection. If the device to be used is not in the list, select the **Custom** device. See *Custom Device, page 18*

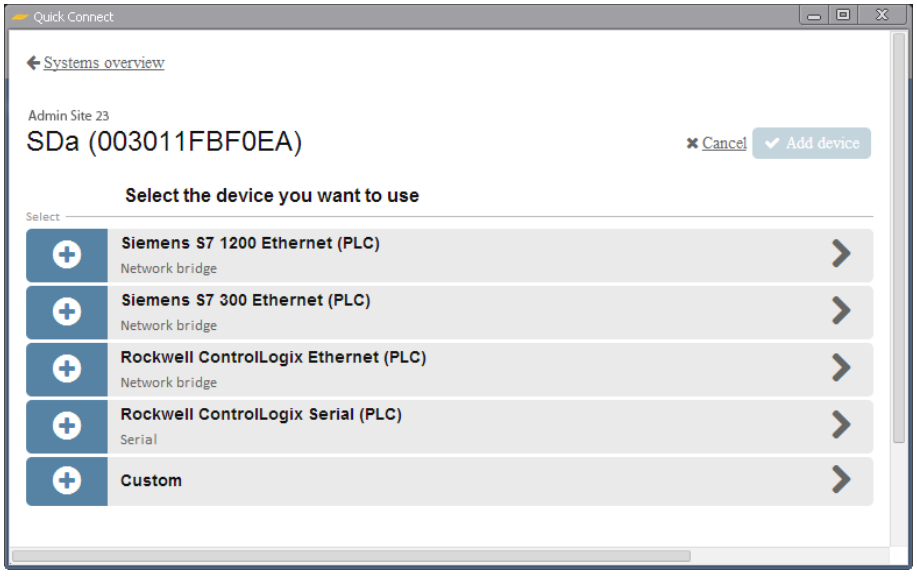

Fig. 20 Device list

4.2.2 Serial Channel

In a serial channel configuration, you need to select the virtual serial port on the computer and the physical serial port at the other end of the connection (the RS-232 or RS-485 port on the Netbiter EasyConnect gateway)

Adding a Serial Channel Configuration

1. Enter a descriptive name for the new configuration.

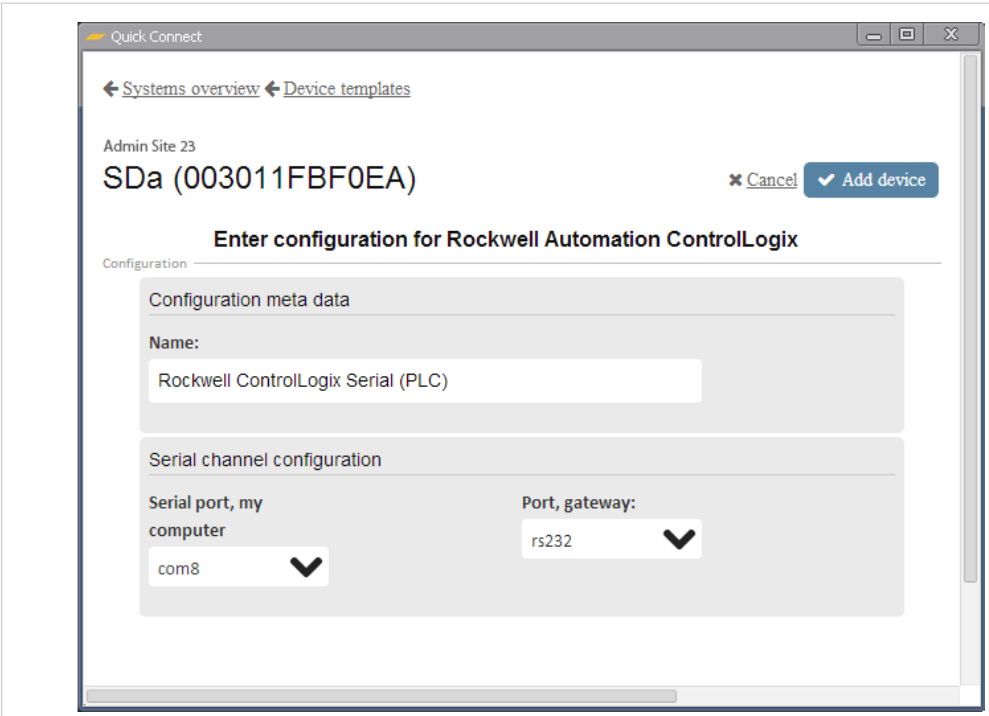

Fig. 21 Serial channel configuration

2. Select a free virtual serial port on your computer.
3. Select the serial port to be used on the Netbiter gateway.
4. Click on **Add device**.

4.2.3 Network Bridge

Network Bridge creates a virtual private network (VPN) with access to the remote network. A virtual network adapter (TAP) will be added in Windows.

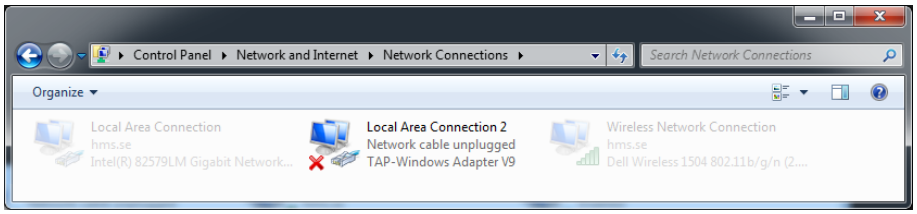

Fig. 22 Windows Network Connections control panel

Two unused IP addresses on the remote network will be needed: one for the virtual network adapter and one for the physical LAN port on the Netbiter.

> *Make sure that the IP addresses are not already in use and that you have the correct subnet mask. Contact your network administrator if in doubt.*

> *Network Bridge must also be enabled in the LAN settings in Netbiter Argos.*
> *See Remote Access Settings, page 9.*

Adding a Network Bridge Configuration

1. Enter a descriptive name for the new device and click on **Add device**.

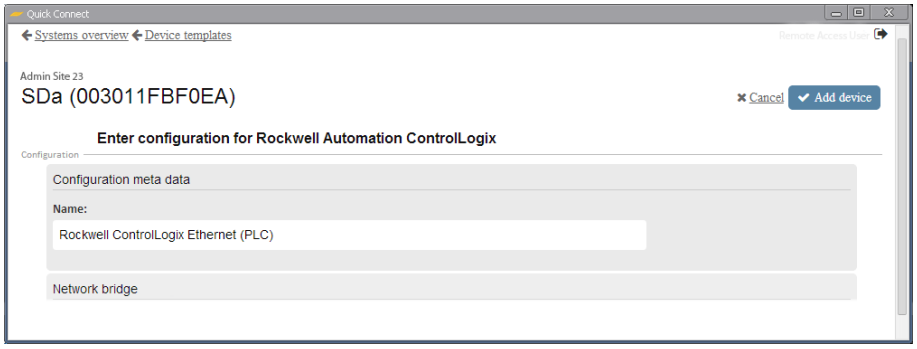

Fig. 23 General network bridge configuration

> *Adding the IP address to the device name can be helpful when you have multiple devices in the same tunnel. This will not affect the actual IP address setting.*

2. Click on **General network bridge configuration** and enter the IP address and subnet mask for the virtual network adapter.

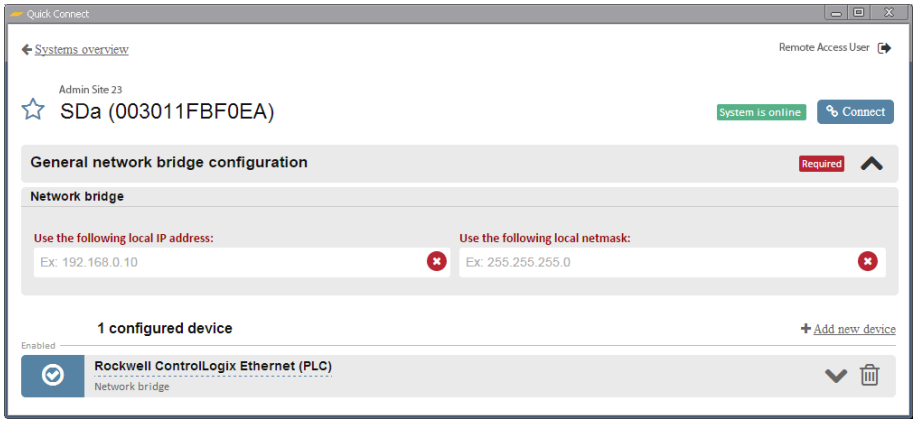

Fig. 24 General network bridge configuration

4.2.4 TCP/UDP Port Forwarding

Port forwarding allows you to specify the IP address, network protocol and remote port to connect to. Any IP address not specified in this configuration will be blocked.

Configuring TCP/UDP Port Forwarding

1. Click on the down arrow to show the the configuration settings for the device, then click on **Add new channel** and select **TCP** or **UDP** from the dropdown menu.

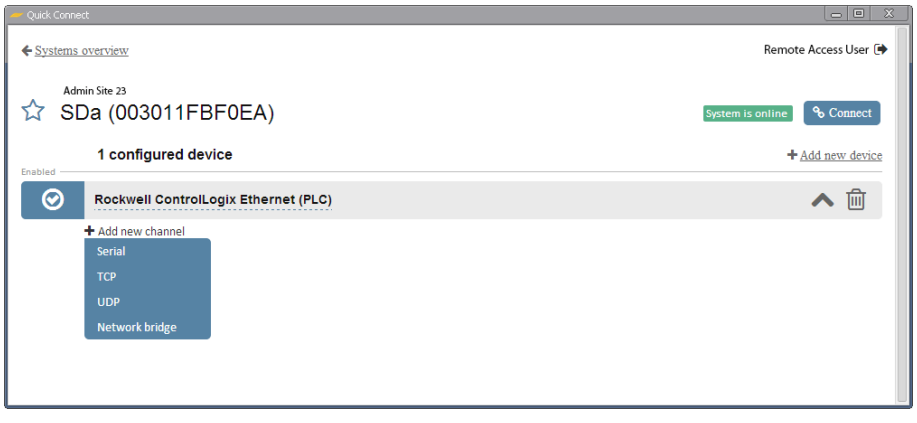

Fig. 25 Select TCP/UDP port forwarding

2. Enter the TCP/UDP port number to use on the local computer, and the port number and IP address to use on the remote device.

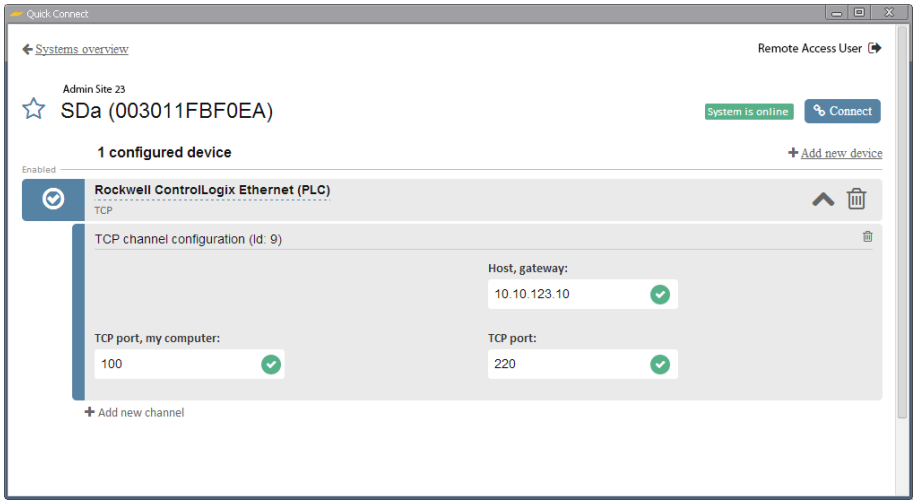

Fig. 26 Configure port forwarding

3. Click on the up arrow to hide the settings when finished.

4.2.5 Custom Device

If the device to be connected is not available in the list of pre-configured devices, you can add it as a *Custom device*.

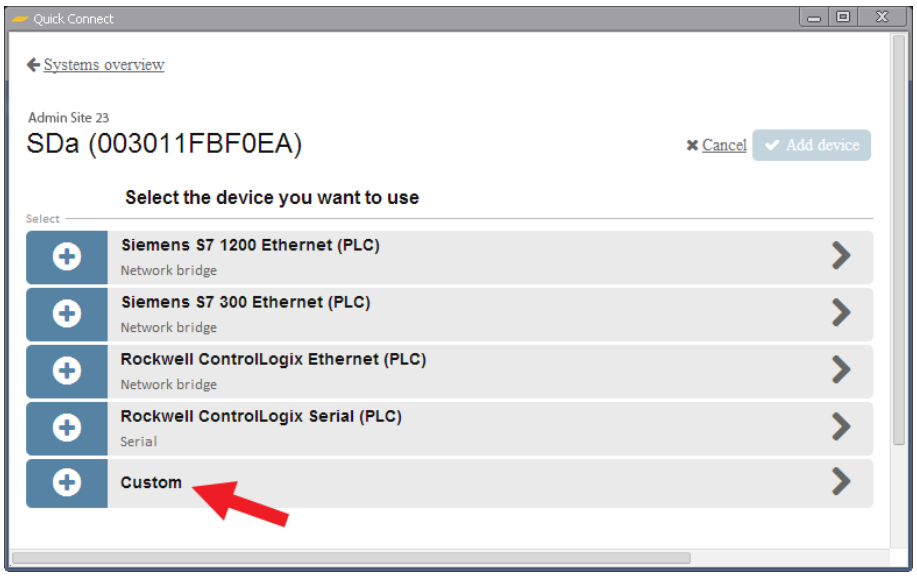

Fig. 27 Device list

1. In the device list, select **Custom**.
2. Enter a descriptive name for the configuration and click on **Add device**.

Continue by adding channels as needed. See *Adding Channels, page 19*.

4.2.6 Adding Channels

When the tunnel between the computer and the remote device has been set up, add the desired channels to the configuration by clicking **Add new channel**.

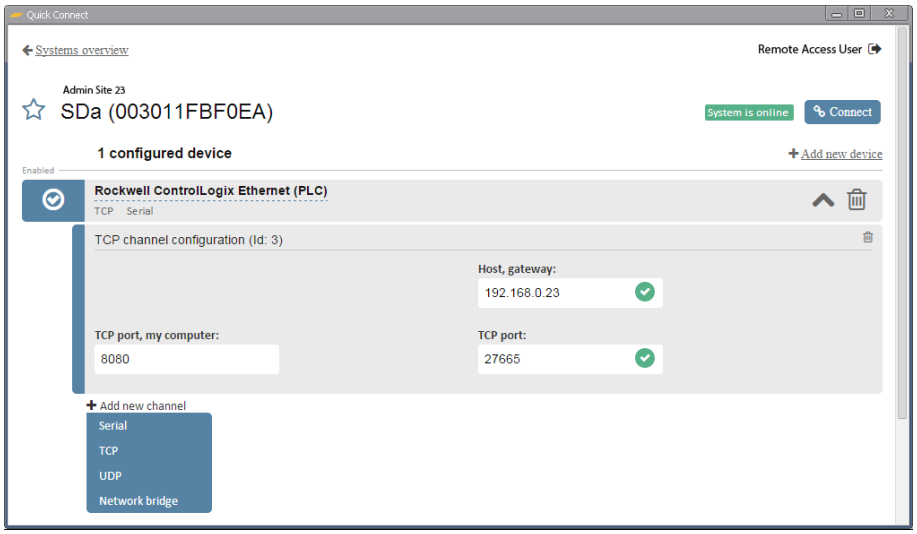

Fig. 28 Adding channels

There are no limitations as to the number of channels of different types that can be added to a tunnel. This makes it possible to gather all the connectivity required for a device in a single configuration.

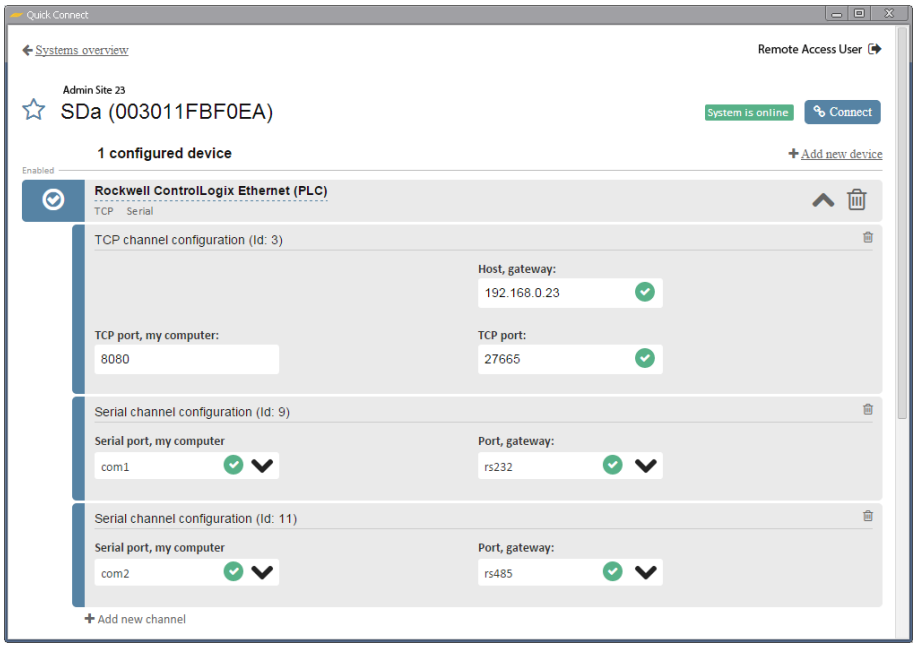

Fig. 29 One TCP channel and two serial channels in a single tunnel

4.3 Connecting to a Remote Device

When the configuration is complete in QuickConnect as well as in Netbiter Argos, click on **Connect** to open the tunnel to the remote device.

When the connection is up and running, the time elapsed and the amount of data traffic can be seen in the green bar at the top of the window.

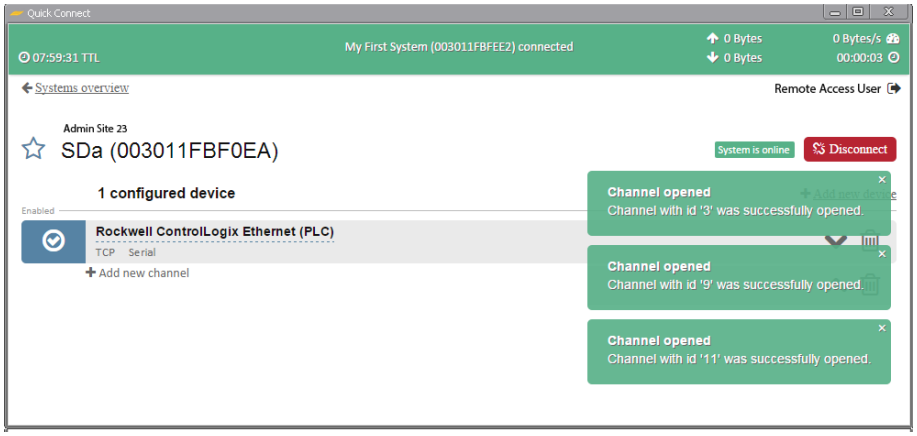

Fig. 30 System connected

For further information on how to remotely control a device, see the manufacturer's documentation for the specific software tools.

4.4 Logging Out and Exiting QuickConnect

The QuickConnect application and the communication tunnels can be terminated in a number of ways:

- Clicking on **Disconnect** will close the currently displayed tunnel connection.
- Clicking on the logout icon will logout the user and close all open tunnels.
- Clicking on the "close window" icon in QuickConnect will minimize the application to the system tray and logout the user. Any open tunnels will stay open.
- Right-clicking on the QuickConnect icon in the system tray and selecting **Exit** will terminate the application and close any open tunnels.
- Opening a new communication tunnel to a system will automatically close any existing tunnel to that system.

Timeout

- After 60 minutes of inactivity, the user will be automatically logged out. Any open tunnels will stay open.
- An open tunnel will automatically close after 8 hours. The closure is definite and will terminate any ongoing communication.

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