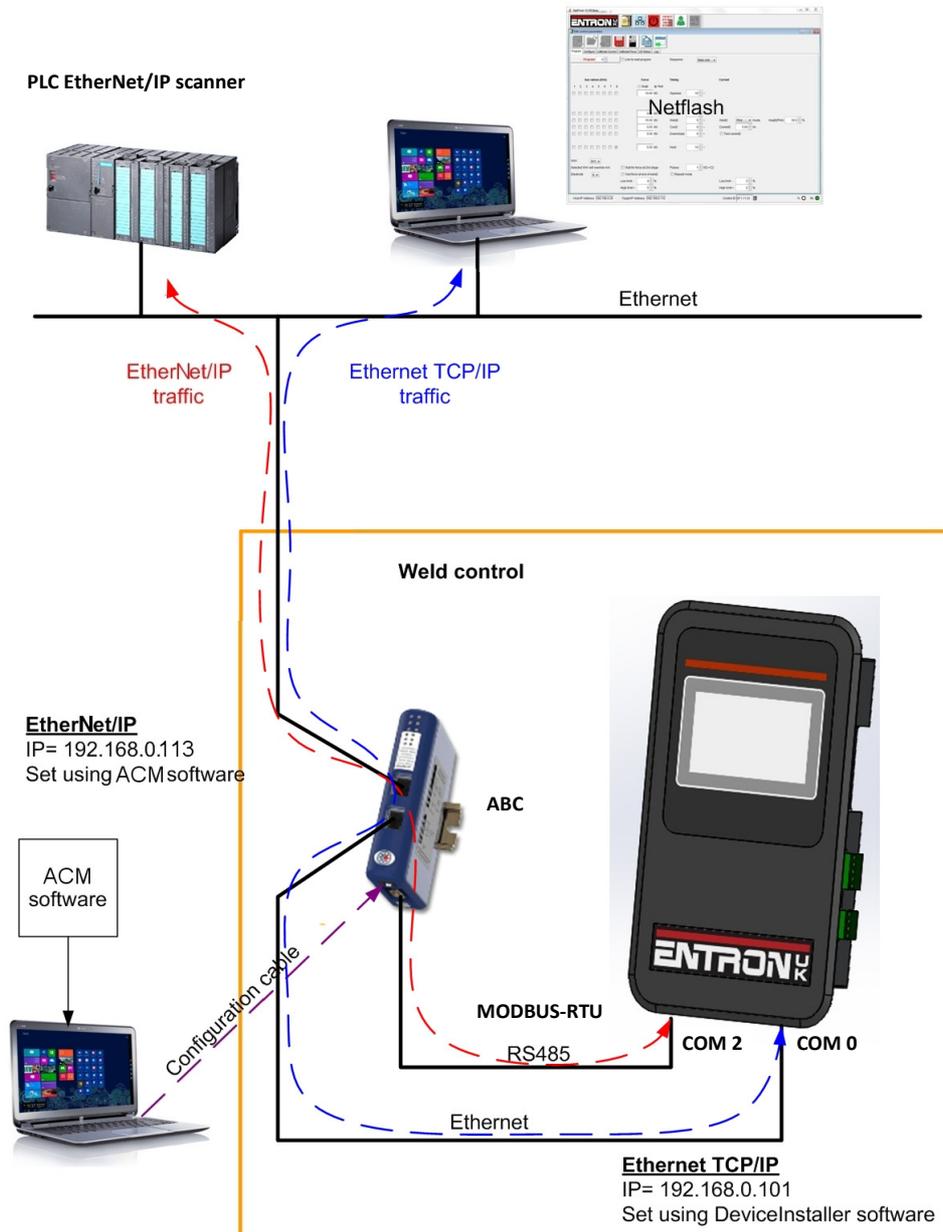This document describes how to use the HMS Anybus Communicator (ABC) with an EN7000 to control the I/O via EtherNetIP (EIP).

The ABC is a gateway between the EN7000 and the EIP network. It accesses the I/O in the EN7000 via MODBUS-RTU and presents it on the EIP side. The ABC is a MODBUS-RTU master to the EN7000 and Group 2/3 server on the EIP network.

The diagram shows the EN7000 using an IP address of 192.168.0.101 for Netflash programming via Ethernet TCP/IP and the ABC using an IP address of 192.168.0.113 for EtherNet/IP.

The following equipment is required. If a PLC EIP scanner is not available a simulator such as EIPScan may be used https://www.ixxat.com/products/products-industrial/tools/configuration-tools/eipscan
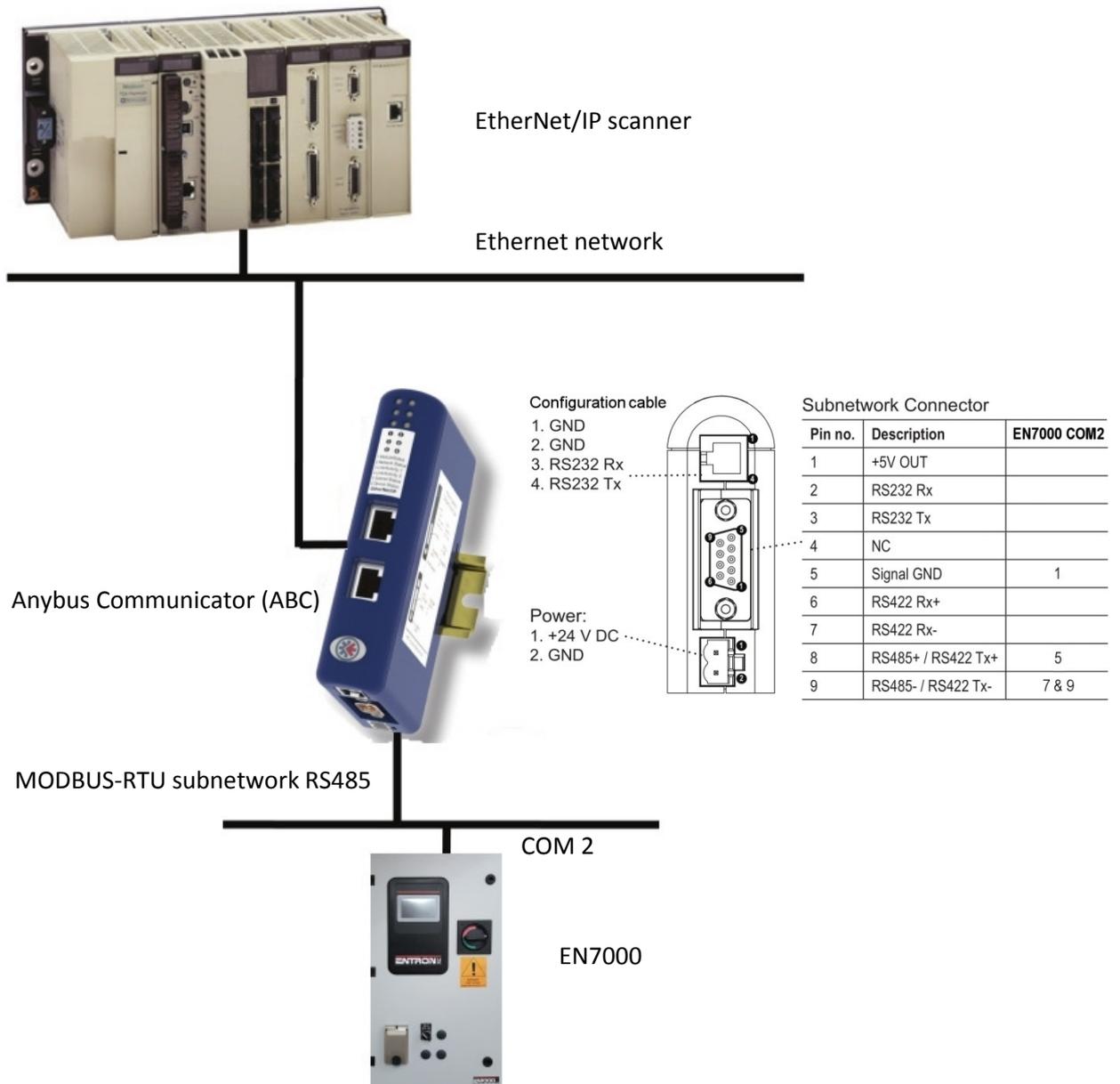
Resources
- ☐ EN7000
- ☐ HMS ABC EIP/MODBUS-RTU module AB7072-B
- ☐ ABC Installation Sheet HMS- SP1708
- ☐ ABC User Manual HMSI-27-316
- ☐ +24 V dc power supply
- ☐ RS-485 MODBUS-RTU cable (EN7000-ABC)
- ☐ Ethernet cable (ABC-network)
- ☐ Configuration cable (ABC-PC)
- ☐ HMS Anybus Configuration Manager (ACM) software + EN7000 (full).cfg/cfx/DO1 files
- ☐ PLC EIP scanner
- ☐ ABC EDS file 005A000C00540300.EDS

The ABC Installation Sheet, User Manual and EDS file are included with this guide. Further information is available from https://www.anybus.com/support/file-doc-downloads/communicator-specific/?orderCode=ab7072

The ACM software should be installed on a suitable PC as described in section 1.4 of the ABC User Manual. The minimum requirements are as follows:

- • Pentium 133 MHz or higher
- • 650 MB of free space on the hard drive
- • 32 MB RAM
- • Screen resolution 800 x 600 (16 bit color) or higher
- • Microsoft Windows® 2000 / XP / Vista / 7 (32- or 64-bit)
- • Internet Explorer 4.01 SP1 or newer (or any equivalent browser)

Connect the equipment as shown:

EtherNet/IP scanner

Ethernet network

Anybus Communicator (ABC)

Configuration cable
1. GND
2. GND
3. RS232 Rx
4. RS232 Tx

Power:
1. +24 V DC
2. GND

Subnetwork Connector

Pin no.	Description	EN7000 COM2
1	+5V OUT	
2	RS232 Rx	
3	RS232 Tx	
4	NC	
5	Signal GND	1
6	RS422 Rx+	
7	RS422 Rx-	
8	RS485+ / RS422 Tx+	5
9	RS485- / RS422 Tx-	7 & 9

MODBUS-RTU subnetwork RS485

COM 2

EN7000

Install the ABC as described in the ABC Installation Sheet and User Manual. The second Ethernet port on the ABC allows it to be used as a hub if required.

Procedure
- Power off all equipment
- Connect the ABC to the Ethernet network
- Connect the ABC to the EN7000 via the MODBUS-RTU subnetwork
- Connect the configuration cable between the ABC and the PC containing the ACM software
- Power on all equipment
- Set EN7000 I/O source to COM2
- Set EN7000 COM2 parameters to MODBUS-RTU slave/address 1/9600 baud
- Restart the EN7000

The ABC is pre-configured at BF ENTRON to provide essential functionality. The ABC requires an IP address and will attempt to retrieve an address via DHCP or HICP for 30 seconds on start-up. If no configuration has been received within this period, the ABC will use the default settings:
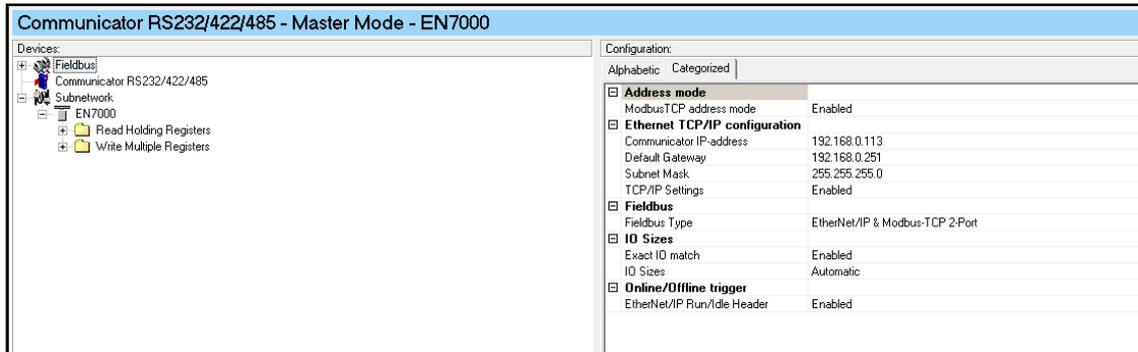
IP address	192.168.0.113
Default gateway	192.168.0.251
Subnet mask	255.255.255.0

If no DHCP or HICP is available and the default values are incompatible with your Ethernet network, ACM can be used to change them.

- Open EN7000 (full).cfg in ACM:
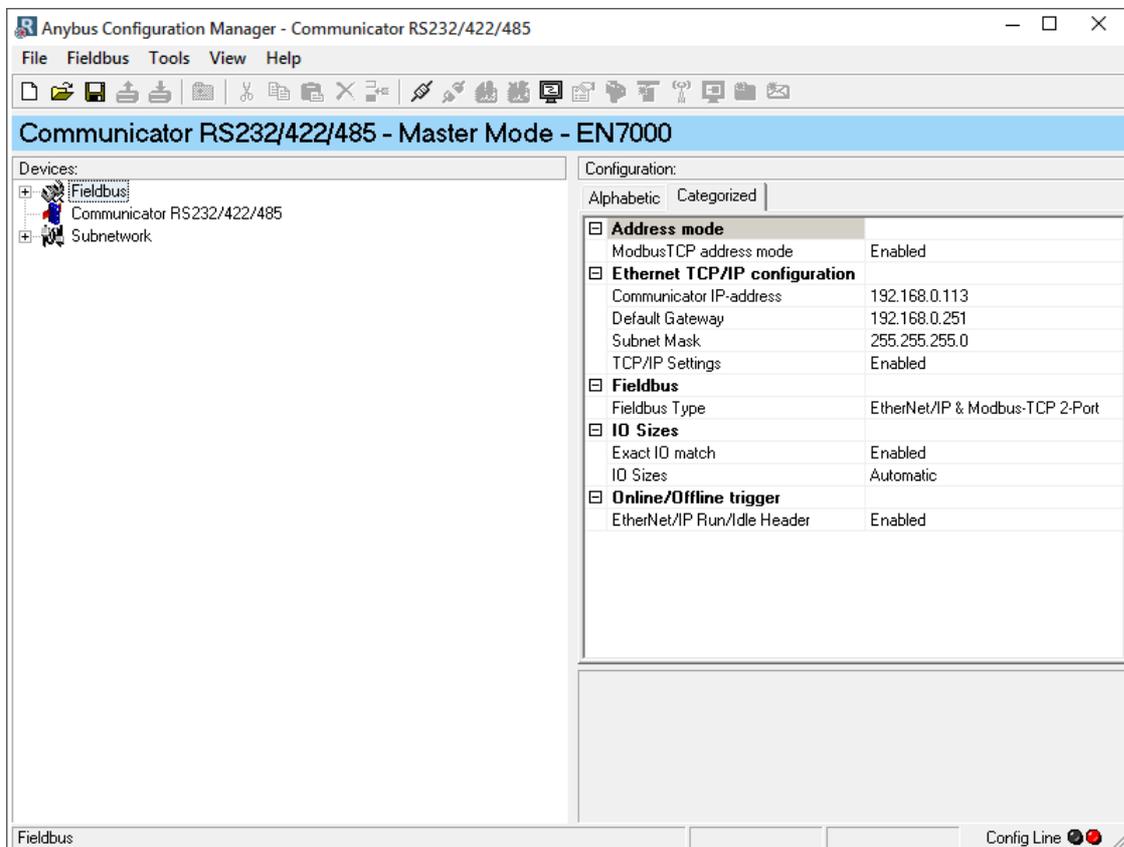
- Right-click on the Communicator node and select Connect
- Select the Fieldbus node

- Enter new values for the IP address, gateway and subnet mask if required
- Select Tools->Download configuration. When the download is complete the LED indicators should be as follows:

> LED1 – flashing green
>
> LED2 – flashing green
>
> LED3 – flashing green
>
> LED4 – flashing green (if the ABC is being used as a hub)
>
> LED5 – green
>
> LED6 – flashing green

Consult the ABC User Manual if the indicators are different.

Alternatively, the ABC has a built-in web server that can be used to change the configuration. Use your preferred internet browser and enter http://192.168.0.113 in the address bar. The ABC will show the configuration page and the TCP/IP settings can be changed:

- Access the data from the EIP network. The ABC cyclically accesses the EN7000 I/O and translates the information into instances of the Assembly Object (class 04h) as follows:

Function	Instance	Attribute	Connection	Data size
Write EN7000 inputs	96h (150)	3	O->T	2
Read EN7000 outputs	64h (100)	3	T->O	48

Consult the EN7000 Users Manual for details of the data encoding.

The screenshot shows the parameters used to establish a Class 1 connection:

The 005A000C00540300.EDS file can be used to provide information about the Input and Output assemblies to the PLC EIP scanner.

- When a Class 1 connection is established, the LED indicators should be as follows:
    LED1 – green
    LED2 – green
    LED3 – flashing green
    LED4 – flashing green (if the ABC is being used as a hub)
    LED5 – green
    LED6 – flashing green
Consult the ABC User Manual if the indicators are different.