

HMS Anybus configuration setup

Installation of HMS Anybus Configuration Manager:

For installation, please refer to the user manual for your selected Anybus Communicator and download the Anybus Configuration Manager software:

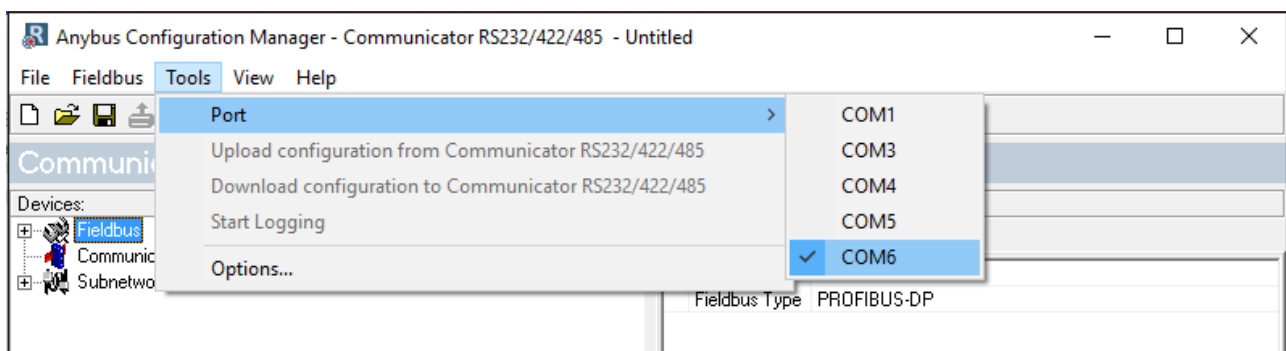
<https://www.anybus.com/support/file-doc-downloads/anybus-communicator>

Configuration of Anybus Communicator

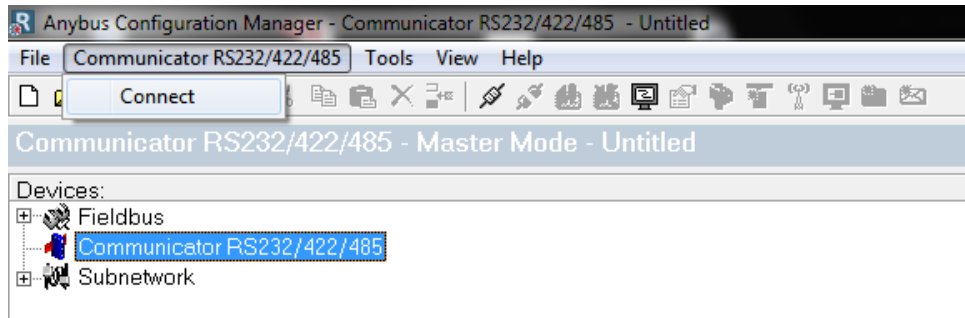
Connect the Anybus Communicator to your PC with the serial RS232 configuration cable.
Please use a USB to RS232 interface if your PC does not have a DB9-RS232 interface.



Check your PC's Device Manager for which COM# port the Anybus Communicator is assigned to.



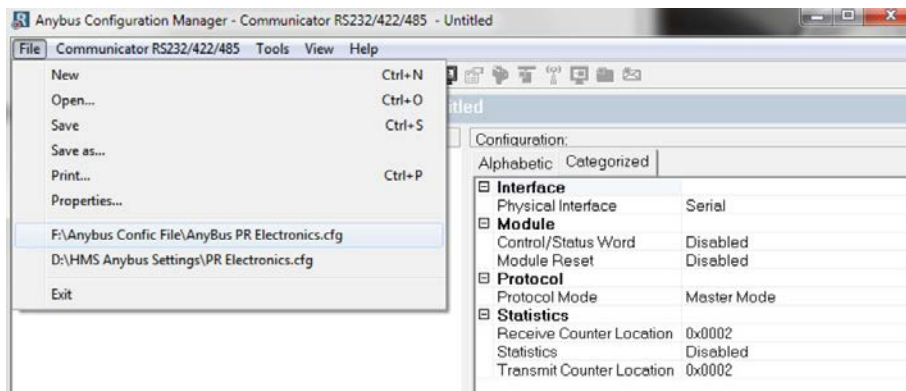
Select the assigned COM# port in the Anybus Configuration Manager



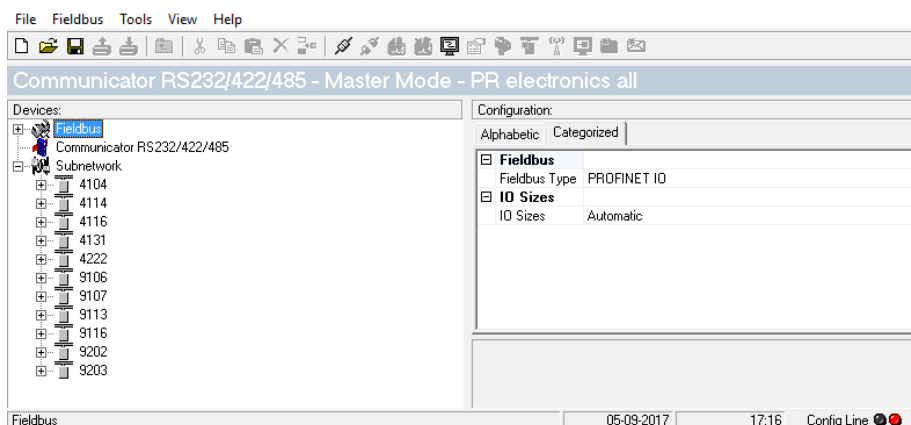
Select the Communicator RS232/422/485 device and press connect.

Load standard configuration file

When connected, press File and open the standard Anybus Configuration file downloaded from the PR electronics webpage.



When the configuration file is loaded, the configuration should look similar to this:



The PR configuration file includes one of each supported modules in the 4000/9000 series. The individual devices/nodes can also be loaded or saved as XML files.

Fieldbus is the network interface to the PLC, and in this guide, we have chosen Profinet IO. The IO Size can be set to “Automatic” or it can be defined by the user.

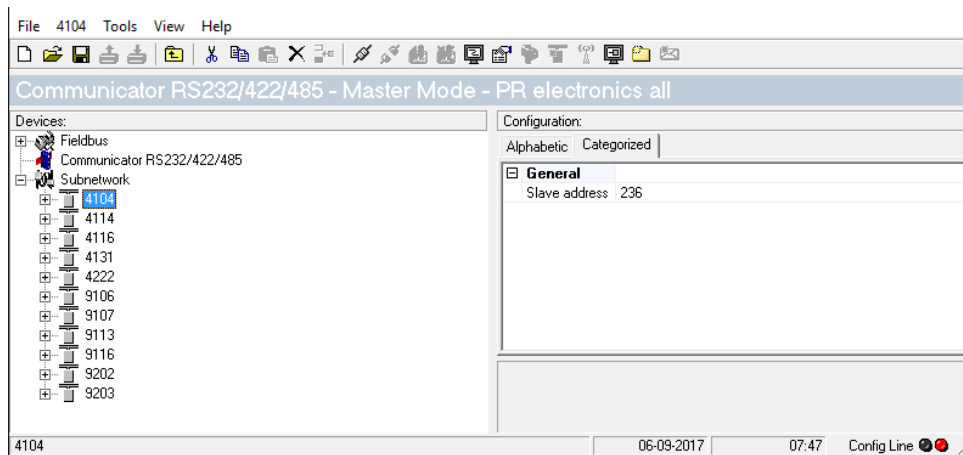
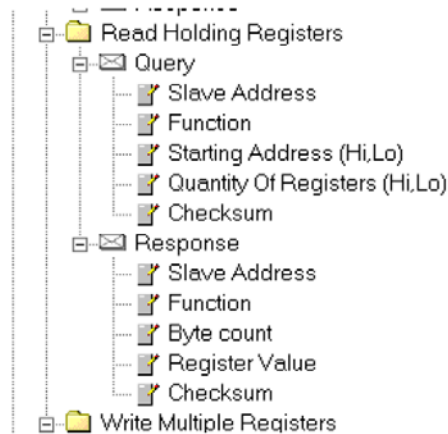
If the IO Size is being defined by the user, enter the total amount of bytes to be send by the Profinet in “IO Size In” and enter the total amount of bytes to be received by the Profinet in “IO Size Out”.

All values in the Anybus Configuration Manager are written in Hex format.

Configuration of modules (nodes)

Each Node represents a Modbus RTU module with a unique address.

Below, you can see a Node extracted to view all its functions:



Select a Node, and write the Modbus Address in the "Slave Address" box

The "Slave Address" is now automatically set in both the “Query” and the “Response” functions.

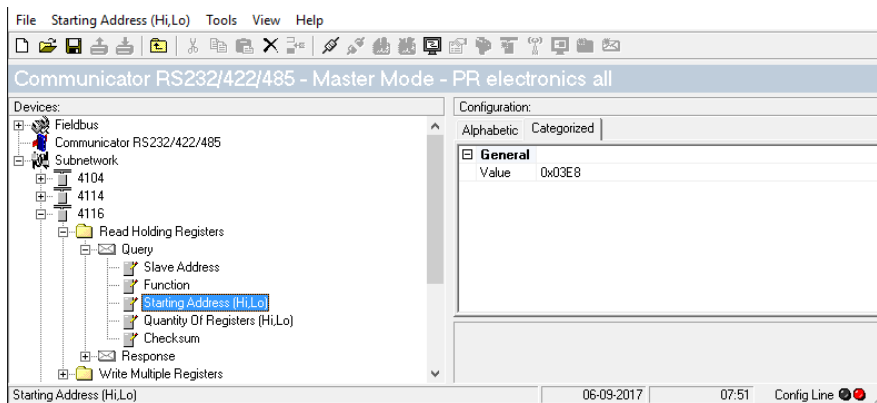
Configuration of reading registers from the node

Configuration of input Query

For each demand, there will be a "Query" to the Modbus Subnet, to read a value from a node register, which is followed by a "Response" to transfer the value to the Profinet Fieldbus.

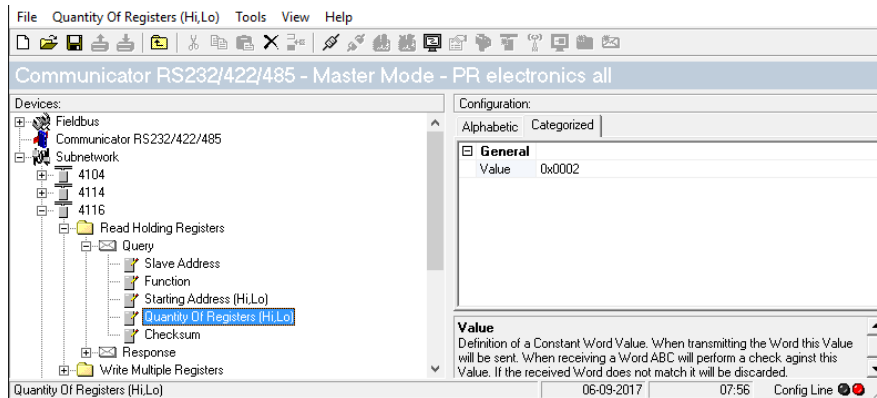
Example:

Select the node query "Starting Address"



PR electronics 4116 Modbus Manual defines the scaled output value as a double integer on register address 1000 with a register quantity of 2.

Enter register address 1000 in Hex (3E8) in the "Starting Address" value box.



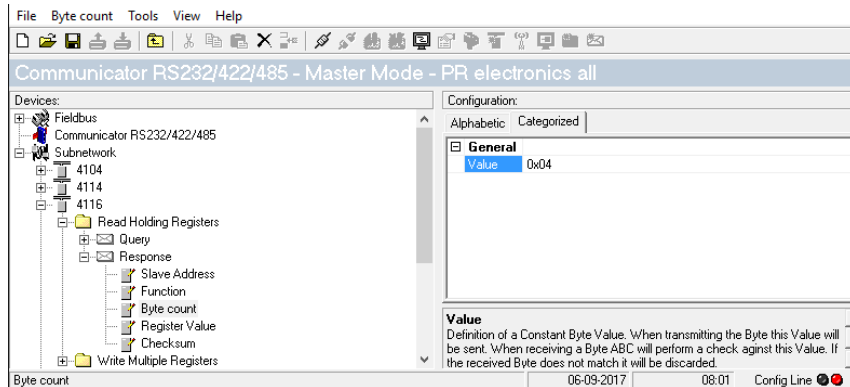
Enter the register quantity "2" in the "Quantity of Registers" value box.

The query is now setup for reading the 4116 Node output value.

Configuration of output Response

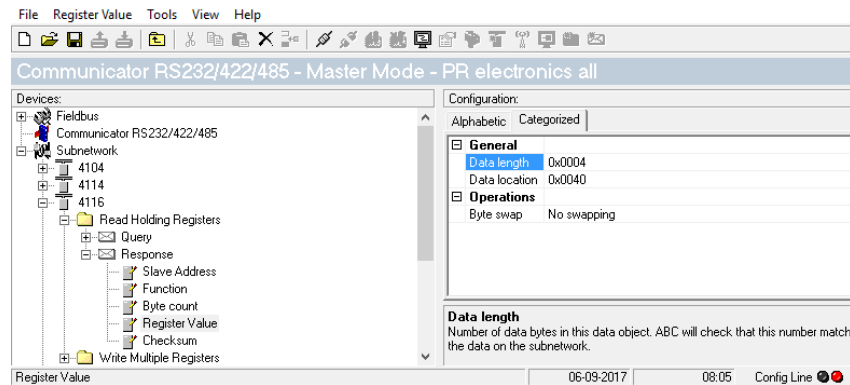
The "Response" now needs to be setup to guide the double integer via Profinet to a specific input address in the PLC.

Please refer to the manual for the chosen PLC to prepare it to receive from Anybus with the correct amount of input and output bytes linked to the specific addresses in the PLC.

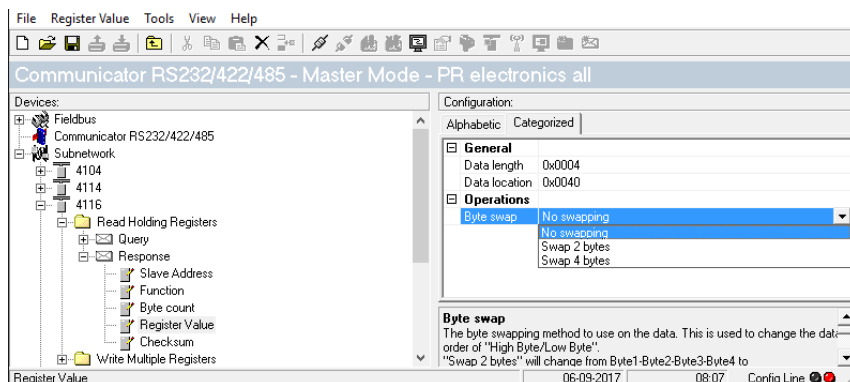


E.g. in "Byte Count" type "4" to prepare Profinet to transfer 4 bytes.

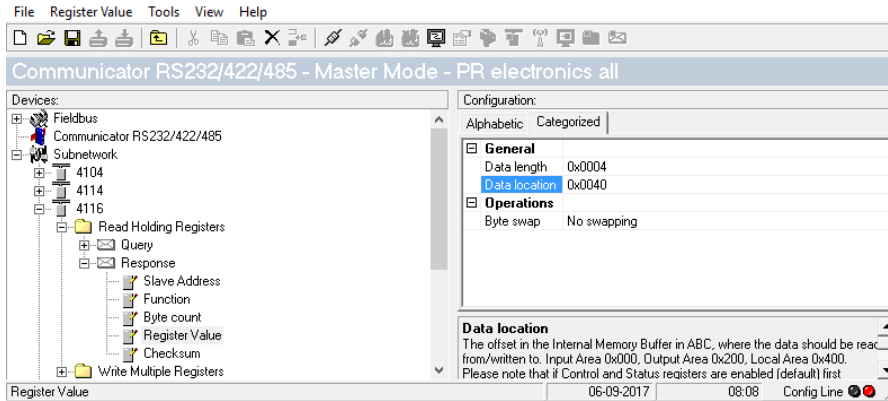
Register mapping



Select the "Register Value", which specifies the receiving input address in the plc. In "Data length" type "0x0004" to specify that a double word will be sent.



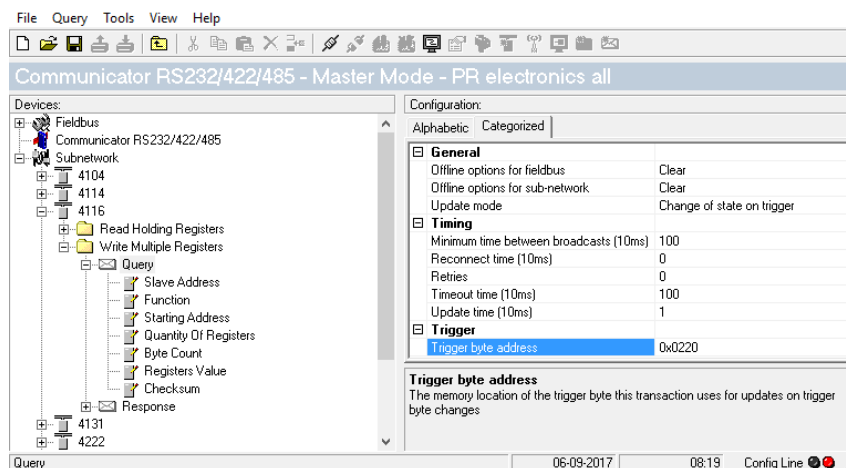
“Byte swap” is used to interchange the send order of “most” and “less” significant byte (LSB/MSB). E.g. Siemens normally sends and receives MSB first, which will make swapping data necessary. Most PLCs can handle swapping internally, which is utilized in this example:



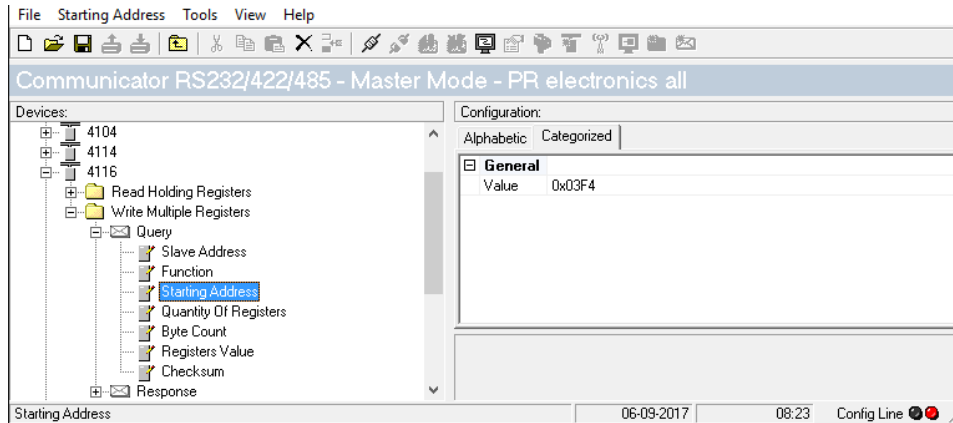
“Data location” specifies where in the Profinet data package this data is located. This means that each register value can be mapped wherever it is convenient. This mapping is not automatic and to begin with, it might help the user to setup this location with a distance of multiples of 0x0010 to be sure that the registers do not overlap/collide.

Configuration of writing registers to the node

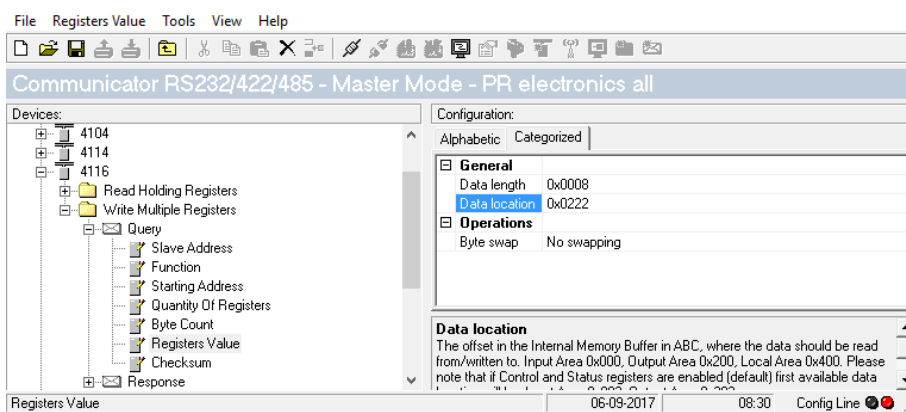
Configuration of the write query:



In the Query, enter the “trigger byte address” so the PLC can trigger the Anybus Communicator to write a register to the node.



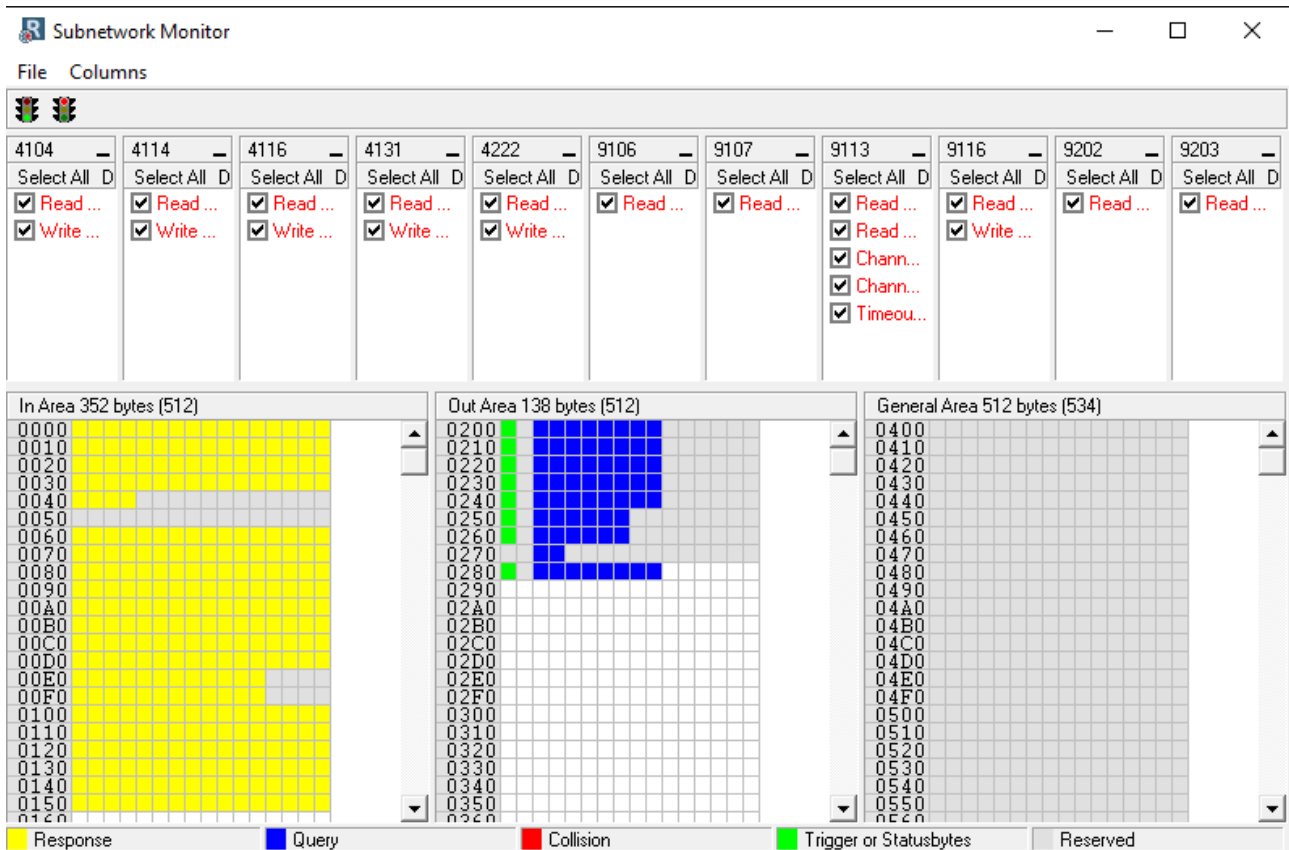
Enter the node starting address where the register should be written



Enter the Anybus data location of the register values that should be written to the node
Please note, that there is room for the trigger byte address at 0x0220.

Subnetwork Monitor

Press the Subnetwork Monitor button to get an overview of the register mapping:



The screenshot shows the 'Subnetwork Monitor' application window. At the top, there is a menu bar with 'File' and 'Columns'. Below the menu bar, there are several columns representing different register addresses: 4104, 4114, 4116, 4131, 4222, 9106, 9107, 9113, 9116, 9202, and 9203. Each column has a 'Select All' button and checkboxes for 'Read ...' and 'Write ...'. Below the columns, there are three main areas for register mapping: 'In Area 352 bytes (512)', 'Out Area 138 bytes (512)', and 'General Area 512 bytes (534)'. Each area contains a grid of registers with corresponding data values. A legend at the bottom indicates the meaning of the colors used in the grid: yellow for 'Response', blue for 'Query', red for 'Collision', green for 'Trigger or Statusbytes', and grey for 'Reserved'.

Example of a register mapping

Network Setup

To be recognized properly on a Profinet, each device must have a unique Name and IP address. The IP address of the Anybus device is set by using the IP Config Tool, located on Anybus website: <https://www.anybus.com/support/file-doc-downloads/anybus-communicator>