



DEWETRON

OXYGEN Ethernet Sender Plugin v1.2

TECHNICAL REFERENCE MANUAL

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1 PREFACE

OXYGEN's Ethernet sender plugin allows to send measurement data via UDP cyclically to another OXYGEN instance or other 3rd party application providing the following benefits:

- Automatic creation of xml-file for Oxygen Ethernet Receiver configuration on the client side
- Send actual (not averaged) data in intervals from 1 to 100 Hz
- Synchronized data transmission with timestamps

1.1 INSTALLATION AND LICENSING

The Ethernet Sender Plugin was an optional feature prior to 7.0 and had to be installed by adding the plugin to:

- *C:\Users\Public\Documents\Dewetron\Oxygen\Plugins*

Since OXYGEN 7.0 the plugin is license free and added automatically within the OXYGEN installation folder:

- *C:\Program Files\DEWETRON\OXYGEN\bin*

IMPORTANT: The plugin must not be placed in both paths under any circumstances, otherwise the plugin will not be recognized correctly by OXYGEN.

If the plugin is correctly recognized can be seen in the OXYGEN Setup at Plugin overview.

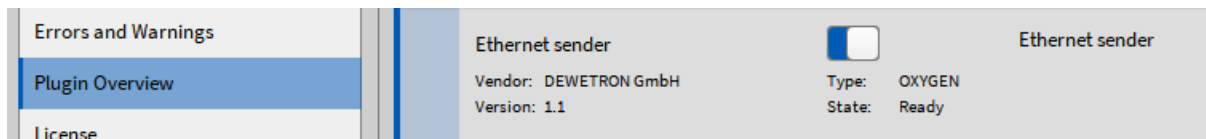


Figure 1-1: Plugin overview

Please note that the Ethernet sender plugin is **compatible with OXYGEN R5.0 and above** and **incompatible with OXYGEN R3.7 and below**.

2 ETHERNET SENDER CONFIGURATION

This manual is only referring to the Ethernet sender plugin. For general software operation instructions, please refer to the latest version of the OXYGEN technical reference manual available on the CCC-portal (<https://ccc.dewetron.com/>).

- Start OXYGEN and Open the Channel List (see yellow box in Figure 2-1)
- Select the channels that shall be transferred via UDP by marking their respective check box on the left hand side (see orange box in Figure 2-1)
- Click on the + button (see blue box in Figure 2-1)
- Click on *Ethernet Sender* in the *Data Transfer* group (see purple box in Figure 2-1)
- Click on the *Add* button (see green box in Figure 2-1)

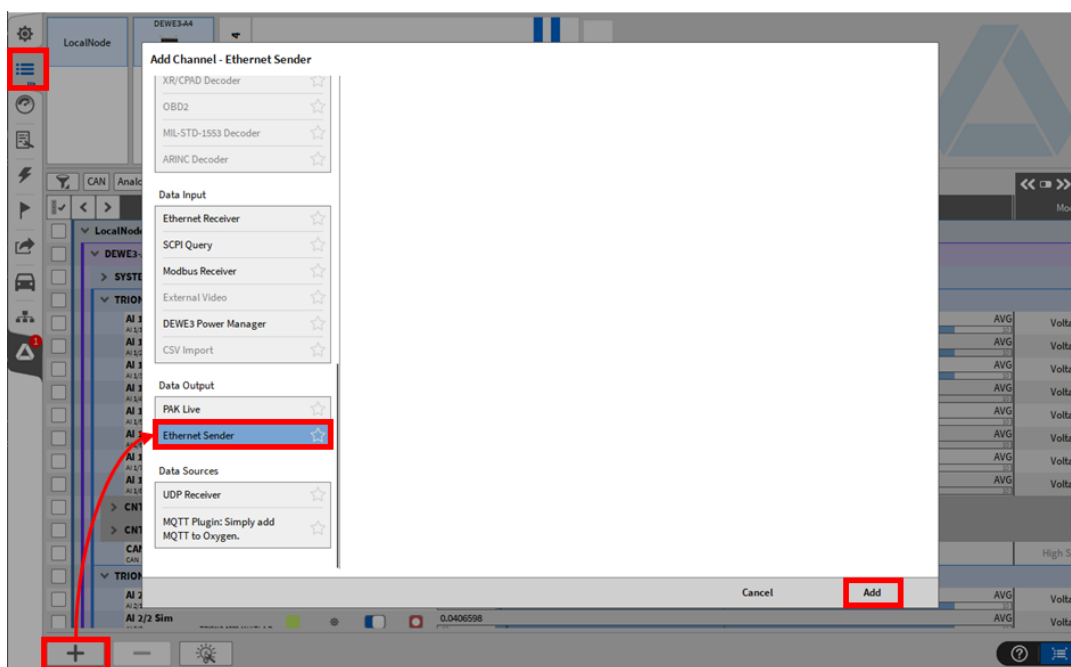


Figure 2-1: Adding an Ethernet Sender to OXYGEN

- An *ETHERNET_SENDER Channels* section including the just created *Ethernet Sender* will be added to the Channel List (see Figure 2-2)

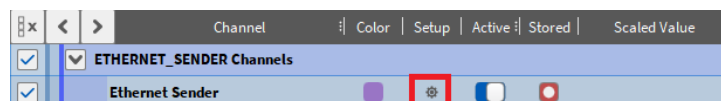
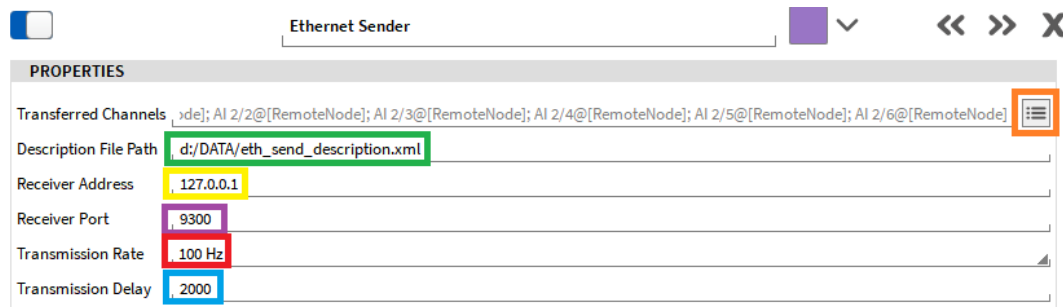


Figure 2-2: Ethernet Sender added to the Channel List

- The name of the *Ethernet Sender* can be changed arbitrarily by double clicking on the name
- A click on the *Setup* button (see red box in Figure 2-2) will open the Ethernet Sender settings (see Figure 2-3).



ETHERNET SENDER

PROPERTIES

Transferred Channels: AI 2/2@[RemoteNode]; AI 2/3@[RemoteNode]; AI 2/4@[RemoteNode]; AI 2/5@[RemoteNode]; AI 2/6@[RemoteNode]

Description File Path: d:/DATA/eth_send_description.xml

Receiver Address: 127.0.0.1

Receiver Port: 9300

Transmission Rate: 100 Hz

Transmission Delay: 2000

Figure 2-3: Editing the Ethernet sender settings

- The channels to be transferred can be changed by clicking to the button right-hand to the *Transferred Channels* line (see orange box in Figure 2-3). After clicking, a popup will open a list containing all channels that can be transferred.

Remarks:

- If the channel configuration is changed, the xml-file will be updated automatically right afterwards. Thus, the xml-file must be reloaded to the receiver device.
- Only numerical time domain channels (i.e. analog input channels or power channels) can be transferred but no vectoral (i.e. a FFT channel) or matrix (i.e. an order spectrum) channels.
- The location the xml-file is stored to is defined in the *Description File Path* section (see green box in Figure 2-3). The file path and file name can be freely defined. The xml-file includes the information how to decode the UDP data on the receiver side and must be loaded into the receiver device.

The xml-file includes the following information:

- UDP port
- Timestamp / synchronization information
- Channels to be transferred (incl. min/max range, byte offset, bit length and data type)
- The IP port of the ethernet data receiver (device on which the data is decoded), must be specified in the *Receiver Address* section (see yellow box in Figure 2-3).

Remark: If data shall be sent to and decoded on several devices, the IP addresses of all receiver devices must be in the same subnet range and the *Receiver Address* must be set to xxx.xxx.xxx.255 which denotes data broadcast.

- The UDP port can be specified in the *Receiver Port* section (see purple box in Figure 2-3).

Remarks:

- Make sure that the IP port is set to 9300 and higher as the ports below might not be available for data transfer.
- If the UDP port is changed, the xml-file will be updated automatically right afterwards. Thus, the xml-file must be reloaded to the receiver device.
- The transmission rate (data output rate) can be set from 1 to 100 Hz (see red box in Figure 2-3)
- The data *Transmission Delay* (data output delay) can be set up to 2000 msec (see blue box in Figure 2-3)

3 DATA SYNCHRONIZATION

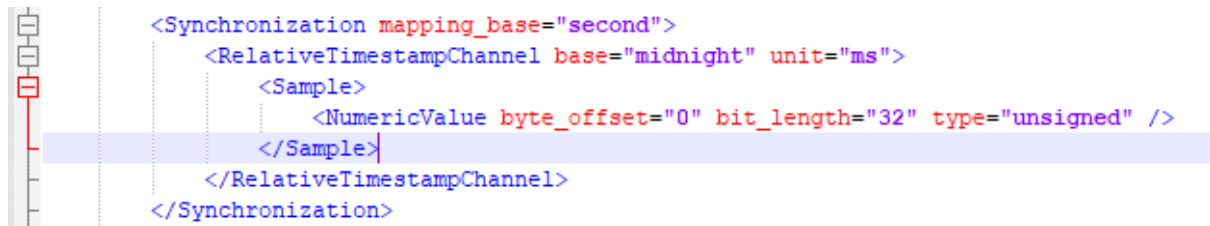


Figure 3-1: Data Synchronization

- Data transferred by the Ethernet Sender is timestamped.
- The timestamp is a relative one and includes the milliseconds passed since midnight.
- The synchronization mapping base on the receiver side is the full second
- More details can be found in the xml-file (see the Synchronization extract in Figure 3-1)

4 TROUBLESHOOTING

If data is not received by the receiver device, make sure

- there is a proper Ethernet connection between the receiver and the sender device
- the correct and latest xml-file is loaded to the receiver device
- the *Receiver Address* specified in OXYGEN is the correct one
- the UDP port specified in OXYGEN is the same as the UDP port specified in the xml-file loaded to the receiver device
- the UDP port is set to 9300 or above

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