5.5 UNITE IO Server

5.5.1 Introduction

The eWON RS485 link can be configured as an UNITELWAY SLAVE INTERFACE. When the BaudRate in the UNITE IO Server is set to a value different than "Disabled", the Unitelway slave module in the eWON will be enabled.

This Unitelway slave provides 2 features:

- **Poll items in a Unitelway capable device.**
  
  The device can be the Unitelway master itself or a device addressable through the Unitelway master on the XWay network.

- **Forward XIP requests from TCP/IP XIP to Unitelway bus and thus, act as a gateway between XIP and Unitelway.**

  Using this feature, it is for example possible to access a PLC connected to the eWON’s Unitelway link by connecting PL7PRO using the XIP driver started with the eWON IP address as destination.

5.5.2 Setup

5.5.2.1 Communication Setup

<table>
<thead>
<tr>
<th>IO Server</th>
<th>Edit</th>
<th>Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td>XWAY-UNITELWAY configuration (eWON acting as a XIP to Unitelway gateway and Unitelway IO slave)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **COM Port:** Select the COM port for the Unitelway link.
- **Baud Rate:** Select the baud rate applicable to your industrial network. The parity to apply: none / odd / even. This field is set by default to Odd, as in the main cases in a typical UniTE topology. However, eWON allows you to define a different parity type (Even or None), in case this is needful to comply with your industrial network installations.
- **Parity:** Number of stop bits.
- **Stop Bit(s):** Maximum time the eWON will wait for a valid message from the Unitelway master. This value can be critical for a correct operation, depending on the responsiveness of the master. A value of 1000 should be selected to guarantee correct operation.
- **Rx message timeout (MSEC):** Maximum time between a request is posted and the response is received.
- **Tx message timeout (MSEC):** Maximum time for a request to be sent.
- **Force UnitelWay V2:** If checked, the eWON will initiate communication in V2 with the devices. When used with a TSX PLC, this check box can be left unchecked.
- **ADO:** Link address base. EWON will respond to AD0 and AD0+1 on the Unitelway link. The eWON will act as an Unitelway slave, it will respond to 2 consecutive link addresses AD0 and AD0+1, doing this improves the throughput of data across the eWON when acting as a gateway.
- **Xway Network Station:** Address of the eWON on the XWAY network. When acting as an XIP to Unitelway gateway, the eWON will only respond the XWay network station defined here. Any XIP frame addressed to another network station will be ignored.

Table 65: XWAY communication setup controls
Important: When there are multiple IO servers potentially using the serial line, the unused IO server must select “DISABLED” for the unused IO server baudrate.

Example: if Modbus and UniTE IO servers are available, at least one of them must have the baudrate configured to "Disabled". If not, one of the IO servers will not be able to use the serial line and it will be disabled, with an error written in the event log.

### 5.5.2.2 Topic configuration

#### Figure 75: XWAY-UNITELWAY topics configuration

Three topics can be used for the IO Server. These topics are used to give a common property to a group of UNITE Tags such as:
- Enable/Disable
- Poll rate
- Global Slave address

#### Table 66: UNITE - topics configuration

<table>
<thead>
<tr>
<th>Topic configuration item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic enabled</td>
<td>Enables or disable polling of all the Tags in the topic.</td>
</tr>
<tr>
<td>Global Slave Address</td>
<td>This Slave address is a global parameter for all the Tags of the topic. See below for the Device Address syntax. If an address is specified here, it will replace (overload) the address defined Tag by Tag.</td>
</tr>
<tr>
<td>Poll rate</td>
<td>Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag name must be refreshed every second – typically for digital input - and other every minute – typically: temperature-.</td>
</tr>
</tbody>
</table>

#### 5.5.3 Tag name convention

#### Table 67: UNITE - IO server configuration

The Item Name can contain the PLC address where the value is polled, or not. If address is also specified at topic level, the address specified at Tag level will be ignored. If Topic address is not defined either, then address 0,254,0 will be used.
5.5.3.1 Value Name

Value name follows the syntax below:

<table>
<thead>
<tr>
<th>MWxW</th>
<th>Internal data word 16 bits (unsigned)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWxI</td>
<td>Internal data word 16 bits (signed)</td>
</tr>
<tr>
<td>MWxD</td>
<td>Internal data word 32 bits as DWORD (unsigned) (*)</td>
</tr>
<tr>
<td>MWxF</td>
<td>Internal data word 32 bits as IEEE float</td>
</tr>
<tr>
<td>MWxL</td>
<td>Internal data word 32 bits as LONG (signed) (*)</td>
</tr>
<tr>
<td>SWxW</td>
<td>System data word 16 bits (unsigned)</td>
</tr>
<tr>
<td>SWxI</td>
<td>System data word 16 bits (signed)</td>
</tr>
<tr>
<td>SWxD</td>
<td>System data word 32 bits as DWORD (unsigned) (*)</td>
</tr>
<tr>
<td>SWxL</td>
<td>System data word 32 bits as LONG (signed) (*)</td>
</tr>
<tr>
<td>Mx</td>
<td>Internal data bit</td>
</tr>
<tr>
<td>Sx</td>
<td>System data bit</td>
</tr>
</tbody>
</table>

Table 68: value names for UNITE addresses

(*) Important: See “Tags are stored as Float” on page 62

Notes:
- SW type cannot be formatted as float
- eWON allows you to optimize the requests in case you need to read a lot of Tags that have been created on the UniTelWay device.
- Imagine you have 100 Tags to read, eWon will group the Tags within a predefined limit in order to make the less as reading operations as possible. The number of Tags that can be read depends of the types of words or bits that have to be read:
  - SW and MW types: by groups of 50
  - S and M types: by groups of 200
- It is possible to read one bit from a word. The syntax to add is as follows:
  - #0 to #31
- That means, if you want to read the fourth bit from an internal data word 16 bits unsigned that you address MW0, you have to add "#4" at the end of the address: MW0#4.
- The type of words for which this syntax can be applied are: MWxW, MWxI, MWxD, MWxF, SWxW, SWxI, SWxD and SWxL (please report to the table above).

• Status register:
  - The STATUS Tag is a special Tag that returns information about the current state of the communication for a given device. As for other Tags, the status Tag ValueName is composed of:

Status, Global Device Address
- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.</td>
</tr>
<tr>
<td>1</td>
<td>Communication OK.</td>
</tr>
<tr>
<td>2</td>
<td>Communication NOT OK.</td>
</tr>
</tbody>
</table>

Table 69: Tag Status meaning
5.5.3.2 The device address syntax

The Device Address is used in the topic definition or in the Tag definition. If used in the Tag definition, it will be separated from the value name by a coma (,)

• Network,Station,Gate

or

• Network,Station,Gate,Module,Channel

The second case applies to addresses with 5 levels:

• Network: 0..127
• Station: 0..63
• Gate:
• Module:
• Channel:

Module and channel can be omitted if not required.

If address is not specified, 0,254,0 will be used.

Important: If an address is specified in a Topic definition it will replace any address defined Tag by Tag.