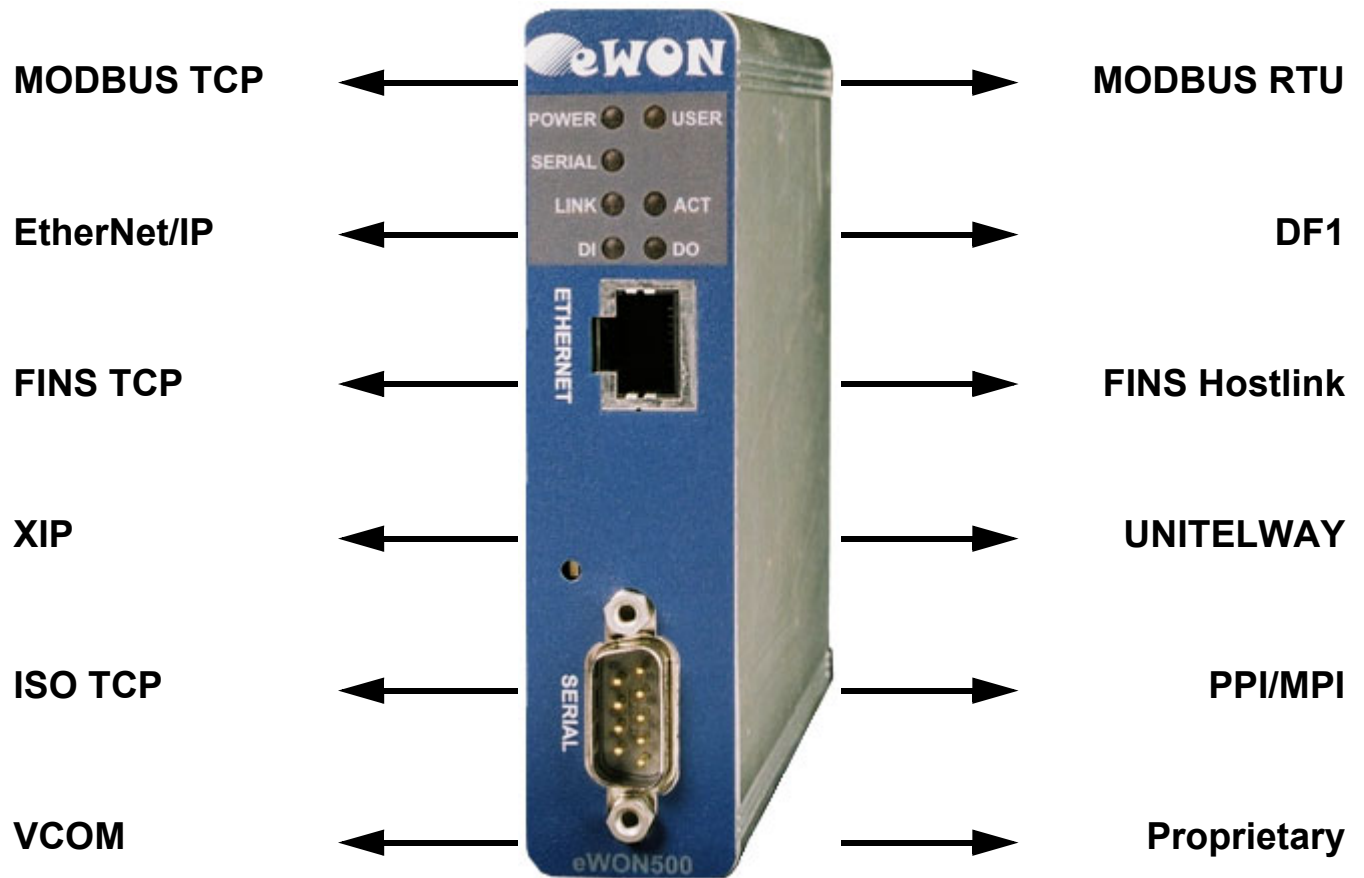




**eWON500™ is a Multiprotocol Transparent Gateway!**



### PURPOSE



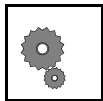
**You have just received your brand new eWON500™!**

[ACT'L](#) produces a complete range of Ethernet/Internet gateways also known as “Programmable Industrial Routers” (PIR). See our web site <http://www.ewon.biz> to get further information about the eWON™ range.

The eWON500™ is a *transparent gateway* between the serial protocols from the PLCs and their matching Ethernet protocols.

The eWON500™ allows you to connect any communicating device in order to achieve management and telecontrol tasks through Ethernet.

The goal of the current document is to teach you how to correctly configure the eWON500™ as a *Transparent Gateway* to address a wide range of various Programmable Logic Controllers (PLC), from the Ethernet side to the serial side through the eWON™ interface.



**eWON500™ is just out of the box, you have already powered it ON (12-24VDC) and connected its Ethernet cable.**

*Every eWONs™ are shipped with the pre configured IP address **10.0.0.53** and **adm/adm** as **User Name/Password**.*

- Enter **http://10.0.0.53** in the address bar from your Internet Explorer (refer to the **eBuddy User Guide** if you need to change the eWON™ IP address and subnet mask)
- Enter **adm** (User Name)/**adm** (Password) then **Enter**

**You are now navigating on your eWON500™!**

## TRANSPARENT IP/SERIAL GATEWAY

### Principles



The eWON500™ is a **transparent gateway**: it enables a connection between a *PLC* connected to it by its **serial link** (i.e. with protocol=*ModbusRTU*), and a supervisor which is connected to the eWON500™ by its **Ethernet link** (i.e. with protocol=*ModbusTCP*). “Transparent” means that the eWON500™ just transmits the data stream from the TCP interface to the serial interface without understanding the content of the frame.

### Transparent Gateway configuration with eWON500™

It is really simple to configure the Transparent Gateway feature with an eWON500™: The only thing to do is to establish a **serial connection** with the PLC.

#### The eWON500™ configurable serial port

Depending on the serial link which is supported by the target PLC, the eWON500™ serial port **dip-switches** (left bottom side from the eWON500™ when you face its LEDs panel) must be configured for **RS-232** or **RS-485 mode**.

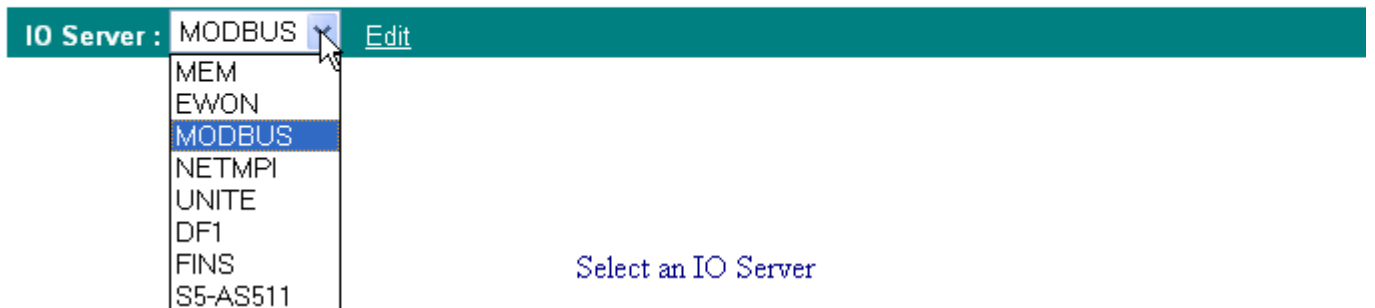


A label describing the switches configuration stands just close from the dip-switch panel. In case of doubt, please refer to the eWON500™ *Installation Guide* (*Configurable serial port* chapter) you can download from the eWON web site: (<http://www.ewon.biz> **Support/Documentation/User guides**).

#### The eWON500™ IO servers



The eWON500™ requires a kind of driver to be able to “speak” the protocol from the PLC. At this time, the eWON500™ embeds several drivers (called **IO servers**), each of them can be configured from a distinct configuration web page from the eWON500™ interface: From the eWON500™ main menu, click on **IO Server Config** then select the required **IO Server**.





### The UNITELWAY/XIP gateway configuration

#### Hardware configuration

- Set up eWON™ **dip switches** to **RS485 mode** (with or without polarization depending on your network type)
- Connect the **serial cable** between your eWON500™ and the PLC (see page 13)

#### IO server configuration

- Go to the **UNITE** IO server page: **Configuration/IO Server Config/UNITE/Edit**
- Validate the **eWONServer Enabled** checkbox
- **Modbus TCP Unit Address**: holds the UnitID from the eWON
- Set the **Baud Rate**, **Parity** and **Stop Bit(s)** according to your device, and **HW Mode** to **Half Duplex**
- Let **Master response timeout**, **Rx message timeout** and **Tx message timeout** empty (default values applied)
- Let **Force Unitelway V2** and **Disable 0,254 translation** unchecked
- Set the **ADO** field to its default value (4)
- **XWAY Network.Station**: must be identical to the one entered in the XIP driver configuration (i.e. 13.14)

#### PLC software configuration

- From your PLC management software (typically PL7Pro), configure the XIP driver with the eWON IP address as destination node and with the UnitId of the targeted device (different than the Modbus TCP Unit Address from the eWON)
- Make an ICMP ping and test the XWAY driver, then Connect to the PLC

#### **You are now connected to your PLC through your eWON500™**

- Please refer to the Troubleshooting section from this document in case of an issue

XWAY - UNITELWAY CONFIGURATION	
eWON is acting as a XIP to Unitelway gateway and Unitelway IO slave	
<b>COM Setup</b>	
Baud Rate:	9600 (default: 9600)
Parity	Odd (default: ODD)
Stop Bit(s)	1 (default: 1)
HW Mode	Half Duplex (default: Half duplex)
Master response timeout	MS (20..60000, default: 1000)
Rx message timeout	MS (1000..60000, default 3000)
Tx message timeout	MS (1000..60000, default 3000)
Force Unitelway V2	<input type="checkbox"/> (if not checked eWON will talk in V1)
Disable 0,254 translation	<input type="checkbox"/> (If not checked, the gateway uses the request's Network & Station destination address)
ADO	4 Link address of eWON on unitelway bus (default: 4)
XWAY Network.Station	13 14 (0..127) (0..63)



### The ModbusRTU/ModbusTCP gateway configuration

#### Hardware configuration

- Set up eWON™ **dip switches** to **RS485 mode** (with or without polarization depending on your network type) -Refer to the *Troubleshooting* section for dipswitch explanations ([Checking the serial link](#)).
- Connect the **serial cable** between your eWON500™ and the PLC

#### IO server configuration

- Go to the **MODBUS** IO server page: **Configuration/IO Server Config/MODBUS/Edit**
- Set the **Baud Rate**, **Parity** and **Stop Bit(s)** according to your device, and **HW Mode** to *Half Duplex*
- Let **Reply Timeout** empty (default value applied)

#### PLC software configuration

- From your PLC management software, configure the software with the eWON IP address as destination node

**You are now connected to your PLC through your eWON500™**

- Please refer to the Troubleshooting section from this document in case of an issue

IO Server : MODBUS

#### eWON MODBUS CONFIGURATION

SETUP FOR eWON Server (The eWON publish data through Modbus TCP)

eWONServer:  Enabled

Modbus TCP Unit Address

100

SETUP FOR eWON IO Server & Gateway (The eWON is Master of RS485 Modbus and ModbusTCP Gateway)

#### COM Setup

Baud Rate:

9600

Parity

None

Stop Bit(s)

1

HW Mode

Half Duplex

Reply Timeout

1000 MS

Others:

8 data bits, RTU mode



### The DF1/EIP gateway configuration

#### Hardware configuration

- Set up eWON™ **dip switches** to **RS232 mode** (All switches **OFF**) -Refer to the *Troubleshooting* section for dipswitch explanations ([Checking the serial link](#)).
- Connect the **serial cable** between your eWON500™ and the PLC (see page 14)

#### IO server configuration

- Go to the **DF1** IO server page: **Configuration/IO Server Config/DF1/Edit**
- Set the **Baud Rate**, **Parity**, **Stop Bit(s)**, **Frame Error Detection** according to your device, and **HW Mode** to **Full Duplex**
- Let **Master response timeout**, **Rx message timeout** and **Tx message timeout** empty (default value applied)
- Let **eWON DF1 Address** empty and set **Destination DF1 Address** to the Source ID of your SLC500 retrieved from RSLogix 500

#### PLC software configuration

- Configure the RSLinx Ethernet Driver with the IP address from the eWON, then select the same Ethernet driver in the RSLogix *Comms* and *GoOnline*

**You are now connected to your PLC through your eWON500™**

- Please refer to the *Troubleshooting* section from this document in case of an issue

#### DF1 CONFIGURATION

eWON is acting as a EIP to DF1 adapter and DF1 IO slave

##### COM Setup

Baud Rate:	19200 <input type="button" value="v"/> (default: 9600)
Parity	None <input type="button" value="v"/> (default: NO)
Stop Bit(s)	1 <input type="button" value="v"/> (default: 1)
Frame Error Detection	BCC <input type="button" value="v"/> (default: CRC)
HW Mode	Full Duplex NO Handshaking <input type="button" value="v"/> (default: Full Duplex)
Master response timeout	<input type="text"/> MS (20..60000, default: 1000)
Rx message timeout	<input type="text"/> MS (1000..60000, default 3000)
Tx message timeout	<input type="text"/> MS (1000..60000, default 3000)
eWON DF1 Address	<input type="text"/> Device address of eWON on DF1 link (0..254, default: 4)
Destination DF1 Address	0 <input type="text"/> Device address of destination on DF1 link when EIP is used (0..254, default: 4)



### The FINS Hostlink/FINS TCP gateway configuration

#### Hardware configuration

- Set up eWON™ **dip switches** to **RS232 mode** (All switches **OFF**) -Refer to appendix for dipswitch explanations
- Connect the **serial cable** between your eWON500™ and the PLC (see page 15)

#### IO server configuration

- Go to the **FINS** IO server page: **Configuration/IO Server Config/FINS/Edit**
- Set the **Server Port** and **FINS TCP server node** according to your device (let the **Routing Entry fields** empty)
- Set the **Baud Rate**, **Parity**, **Databits**, **Stop Bit(s)**, **HW Mode** and **Reply Timeout** with the required values
- Set **Serial FINS network** and **Serial FINS node** to 0 (The data entered in the **Gateway** part will be used instead)

#### PLC software configuration

- Check that the entered data match the one entered in the network configuration from CX-Programmer then **GoOnline**

**You are now connected to your PLC through your eWON500™**

- Please refer to the Troubleshooting section from this document in case of an issue

Gateway Configuration	
Server port	9600 (default: 9600)
FINS TCP server node	1 (0..254, default: 1)
Routing Entry	FINS Destination Network: <input type="text"/> Relay Node: <input type="text"/> (0..127, 0..254)
Routing Entry	FINS Destination Network: <input type="text"/> Relay Node: <input type="text"/> (0..127, 0..254)
Routing Entry	FINS Destination Network: <input type="text"/> Relay Node: <input type="text"/> (0..127, 0..254)
COM Setup	
Baud Rate:	9600 (default: 9600)
Parity	Even (default: EVEN)
Databits	7 (default: 7)
Stop Bit(s)	2 (default: 2)
HW Mode	Full Duplex NO Handshaking (default: full duplex no Handshaking)
Reply Timeout	4000 MS (50..50000, default: 3000)
Ethernet FINS network	<input type="text"/> (0..127, default: 0)
Ethernet FINS node	<input type="text"/> (0..254, default: 0)
Serial FINS network	<input type="text"/> (0..127, default: 0)
Serial FINS node	<input type="text"/> (0..254, default: 0)

## TROUBLESHOOTING

### There is no connection to the PLC



**Creating a Tag** in the eWON500™ *to check the serial connection* to the PLC

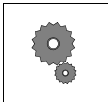
#### Principles



The first action to take in that case is to validate the connection between the eWON500™ and the PLC by means of an eWON variable called a *Tag*.

Each eWON Tag refers to a Topic in which some defined settings are common to each of the Tags which are attached to it.

#### Creating a Tag in the eWON500™



##### IO server Setup

- ⌘ Go back to the appropriate **IO Server** configuration page
- ⌘ Scroll to the bottom from the page, and check the **Topic A Enabled** check box
- ⌘ (Special case for the FINS IO server: select *Fins Serial* as the **Protocol**)
- ⌘ Let the **Poll Rate** value set to default
- ⌘ **Update** the IO server configuration

##### Tag Setup

- ⌘ Go to the **Tag Setup** page. From the Main eWON™ menu: **Configuration/Tag Setup/Create New Tag**
  - **Tag Name** Any name respecting the eWON syntax (no space, no special characters)
  - **Page** Let *Default*
  - **Description** Enter here a free text
  - **Server Name** Select the appropriate Server Name from the scrolling list
  - **Topic Name** Enter A (the topic that has been configured previously)
  - **Address** An existing address on the target PLC on the serial link
  - **Type** Select here the appropriate type for the Tag (*Analog* or *Boolean*)
  - **Force Read Only** Validate the checkbox (we will just read the value on the PLC)
  - **eWON value** Let the two fields unchanged  
**Add/Update Only** to validate the Tag





### TROUBLESHOOTING

#### Some eWON500™ Tags examples

▣ <b>Modbus</b>	40001,10	Register number 1 on slave 10
▣ <b>UNITE</b>	MW10W	Internal dataWord at address 10
▣ <b>DF1</b>	C5:1.ACC	Counter file number 5, item 1, field ACC
▣ <b>FINS</b>	D10	Internal dataWord at address 10

#### Reading the *Tag value* on the PLC

##### Principles

The eWON500™ embeds a page from which you can directly check the value from the Tags which match an existing word on a device from the serial bus

##### Reading a Tag value in the eWON

The Tag's monitoring page displays as soon as you click on the **Add/Update Only** button from the **Tag Setup** page, otherwise click on **Main Menu**, then **View I/O** from the eWON500™ **Configuration** toolbar. You can view your Tag and its value on the PLC. If i.e. it is a counter, you can see the value increasing by clicking on the Update button at certain interval (see screenshot below):

The screenshot shows the eWON500™ web interface. At the top left is the eWON logo. A navigation bar contains buttons for [View I/O](#), [Alarm Summary](#), [Diagnostic Files Transfer](#), [Configuration](#), and [Log off](#) (with a lock icon). Below this is a status bar with "Page: Default" and an "Update" button, and a timestamp "16/09/2005 11:46:53". The main content area is a table with the following data:

Tag Name	Value	New Value	Description
test	215		Holding register on analog output

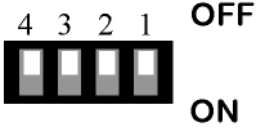
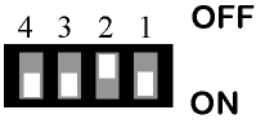
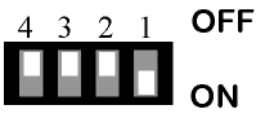
### TROUBLESHOOTING

#### Checking the serial link

##### If it still does not work...

##### Have you checked that the serial link operates?

- ⌘ Depending on the PLC type, a led could light on when the serial communication is enabled between the PLC and the eWON500™. If not the case, please check that the configurable eWON500™ serial port is set up with the correct value depending on the type of protocol used (RS232 or RS485) and the type of your network (polarization is required or not).
- ⌘ Check the dipswitch panel on the left bottom side from your eWON500™ (when you face the led's panel). A label just close to the panel illustrates the various configurable modes in the eWON500™. (see illustrated table below).
- ⌘ Just set up the correct configuration, then **power OFF/power ON** the eWON, and check that the serial link now operates.

	<b>RS232</b> dipswitch panel configuration All switches <i>OFF</i>
	<b>RS485</b> dipswitch panel configuration <i>WITH polarization</i>
	<b>RS485</b> dipswitch panel configuration <i>WITHOUT polarization</i>

If it stills does not work, please check that your **PLC serial configuration** is correct (i.e. that it is set to the **TER mode**), and that its internal configuration checks the one entered in the eWON500™ Tag (**address, baud rate, stop bit(s), CRC, timeout, ...**). For that you should connect your PC directly to your PLC in order to change the configuration, then upload it from the PC to the PLC, then make a new attempt.



### TROUBLESHOOTING

#### Tracking the issue with eWON500™

The eWON500™ allows you to establish a diagnostic when a traceable issue occurs. Moreover, information is added to an eWON500™ log file when it detects a problem.

From the **Main Menu** eWON™ toolbar, click on **Diagnostic**, then on **Status**, and click on the *I/O server counter* you want to read the diagnostics of. There will be a ? icon in the ? column that matches the component or error type. Just click on it and a message box will display extended information:

The screenshot shows the eWON500 web interface. At the top, there is a navigation bar with buttons for [View I/O](#), [Alarm Summary](#), [Diagnostic](#) (highlighted with a black box), and [Configuration](#). Below this is a secondary bar with [Alarm History](#), [Files Transfer](#), and [Log off](#) (with a lock icon). The main content area has a header with [Event Log](#), [Status](#), and the date/time **16/09/2005 14:36:50**. On the left is a vertical menu with items like [System Counters](#), [Memory Information](#), [NAT & IP Forwarding](#), [VCom](#), [I/O Servers Counters](#), [Modbus](#) (highlighted with a white box), [Unitelway](#), [DF1](#), [EthernetIP](#), [FINS](#), [FINS gateway](#), [S5 AS511](#), [System Info](#), [Status](#), and [Info](#). The main area displays a table titled **Modbus** with columns: **Description**, **Value**, **Unit**, **Stat**, and **?**. The table contains three rows: **COM Port Error** (Value: No), **Invalid CRC** (Value: 0), and **Frame Error** (Value: 0). A hand cursor is clicking on the question mark icon in the **?** column for the **COM Port Error** row. A message box titled **Cannot open COM port - Microsoft Internet Explorer** is open, showing the error **COM Port Error** and a **Close** button. The message text reads: "This error usually occurs when more than one service try to access the serial port. Check your IO servers configuration in case more than one IO server try to use the serial port."

Description	Value	Unit	Stat	?
COM Port Error	No			
Invalid CRC	0			
Frame Error	0			



The displayed message can bring you the solution very simply like in the above screenshot (in this case, just inactivate the IO server or port which uses your required resources).  
Clicking on the **Event Log** link will display the latest events that have just occurred on your eWON500™. It can bring you interesting information such as the frequency to which your problem occurred. Your eWON500™ even allows you to apply a filter on the displayed information by selecting the required **Event Class**, and by choosing the **Reporting Level** (*Error, Warning or Trace*). Just don't forget to click on **Update** to refresh the page when done:

Event Log		Status	
Event log	Event Class: All Events	Reporting Level: Warning	Per Page
<< Previous Page	Next		
Time	Event Class	Status	Description
19/09/2005 08:54:21	-2000	logged	Modem Communication
16/09/2005 11:44:41	-2000	logged	IP Communication
16/09/2005 10:13:44	-2000	logged	Serial Communication
16/09/2005 10:04:19	-2000	logged	Kernel
16/09/2005 09:27:31	-2000	logged	Web Interface
14/09/2005 14:09:33	-2260		Security
14/09/2005 14:06:46	-22602		Other Applications
13/09/2005 17:36:17	-20003		All Events
			FWR: EW_4_2S2 (4.2), SN: 0508-0007-86 [EF0000]
			System Booting, FWR: EW_4_2S2 (4.2), SN: 0508-0007-86 [EF0000]
			ecfg-Not logged

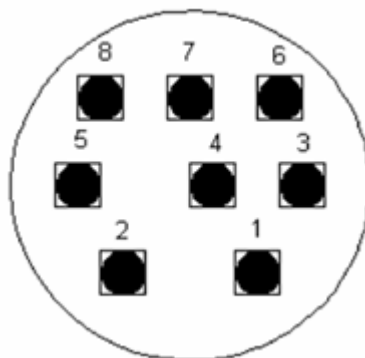
However, if the displayed information don't bring you the solution to the issue, it can be of great use to extensively read the Technical Note explaining how to establish a gateway between your PC and your PLC through the eWON. Finally, if there is still a doubt in your mind on how to make your configuration working, then send a mail with a precise description from the involved topology, and the event log (events.txt) and configuration files (config.txt and comcfg.txt) from your eWON500™ to the eWON technical support: [support@ewon.biz](mailto:support@ewon.biz).

### TSX CX 100 Schneider cable (between eWON and the PLC) - Pinout

This 2m cable can be delivered as accessory to connect Schneider PLCs; it has a SUBD9 connector at the eWON side and a MiniDIN connector at the PLC side.

MiniDIN PIN	Schneider Signal Name	eWON Signal Name	eWON SUBD9 PIN
1	D(B)	A+	DB9 pin 3: A+
2	D(A)	B-	DB9 pin 8: B-
3			
4			
5			
6			
7	GND	GND	DB9 pin 5:GND
8			
Connector Shield			

Table 1: Schneider cable pinout



### 1747-CP3 cable between eWON and SLC-500 - pinout

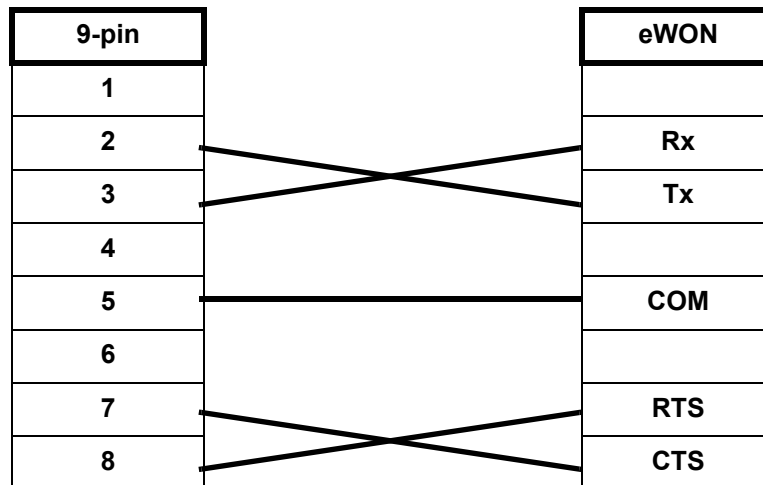


Table 2: 1747-CP3 cable pinout

The connectors are SUBD9 female at both sides.

XW2Z-S002 cable between eWON and OMRON PLC - Pinout

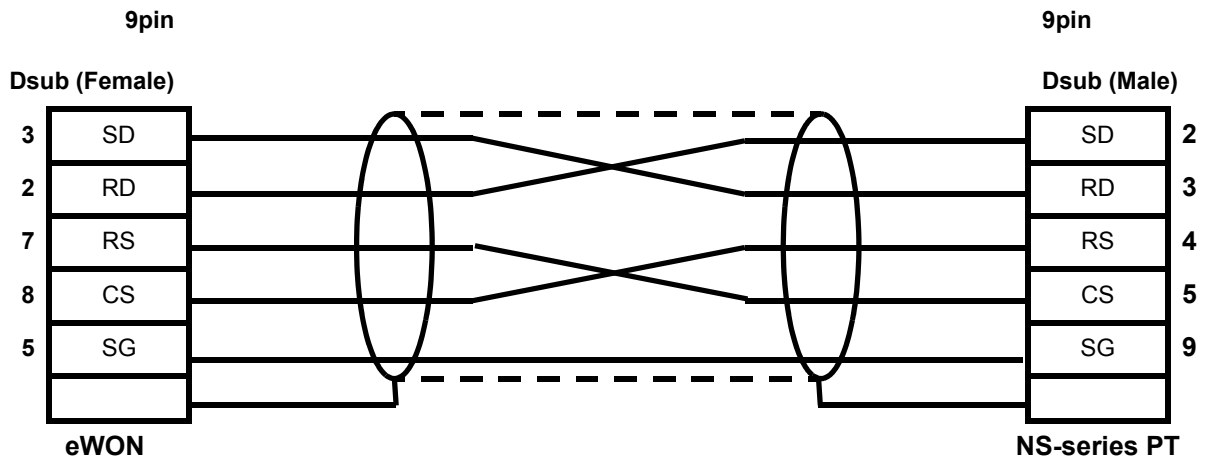


Table 3: XW2Z-S002 cable pinout