eWON4002™

Ethernet Gateway
Remote Access Server (RAS)
Programmable Industrial Router (PIR)
Datalogger
Integrated Input/Output
3 serial Ports

INSTALLATION GUIDE

Rev. 2.1

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3 serial Ports

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1 Product description

1.1 Introduction

The eWON4002™ is a compact version from 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 eWON® is a terminal that enables access to technical data, whatever their format is. The eWON® is configurable by means of web pages. It is secure because it meets the toughest industrial standards, and it provides restricted access features (required in open networks). The hardware platform of the eWON4002™ is a standard eWON™ that embeds a modem (PSTN, GSM/GPRS or ISDN).

The eWON® range supports the TCP/IP and PPP protocols. This brings you all the benefits of an universally recognized standard network. It also allows you to use popular software tools like Internet Explorer, FTP client, SNMP Manager, Mail Recipient (TCP)… and thus to reduce significantly your costs (implementation and ownership).

1.2 General specification of the hardware platform

• Processor ARM clocked @ 75Mhz, 8Mb SDRAM, 8 Mb Flash
• Battery backed up Real Time Clock (RTC) with 10 years autonomy
• External power supply 12-24 VDC +/- 20%
• 1 Ethernet port 10/100Mb BaseTx
• 1 isolated configurable serial port (RS232/RS422/RS485)
• 1 non-isolated configurable serial port (RS232/RS422/RS485)
• 1 RS232 serial port with all control lines connected
• 8+1 digital inputs (DI)
• 2+1 digital outputs (DO)
• 4 analog inputs (AI) configurable in 0-10V or 0-20mA
• 2 Resistive Temperature Detector inputs (RTD) to fit PT100 2 wires probes
• DIN rail mounting compliant with EN50022 (latch)
• Environmental conditions (operating):
    • Ambient T°: from 0°C to +50°C
    • Humidity: from 0 to 80% non condensing

1.3 Ethernet Gateway

• Compatibility with MODBUS, UNITELWAY, NETMPI, DF1, FINS and S5 AS511 protocols
• Data acquisition
• Web server – fully customizable web pages
• Programmable by BASIC scripts
• Alarm management
• Report generation

1.4 RAS Modem & PIR

1.4.1 Remote Access Server functions

- Remote Access Server (RAS) and TCP/IP Server
- PAP/CHAP Authentication
- Login/password
- Remote network access
- User access control
- Security: Integrated firewall (NAT, IP filtering, …)
- Conventional and internet callback

1.4.2 Programmable Industrial Router functions

- Automatic routing of protocols
- Pre-configured routing tables
- Programmable routing from I/O and Tag names (BASIC)

1.5 Datalogger

- Internal cyclic database - up to 139264 points
- Export of data in binary or text format, by FTP or as an Email attachment

1.6 Typical applications

- Alarm management
- Sending alarms by network, phone, Email and/or SMS
- Remote measurements, loop back, control and monitoring
- Local or remote Human Machine Interface (SCADA)
- Predictive and operational maintenance
- Diagnosis and machinery status control
- Stock and vessel level monitoring
- Process and machinery activity logs
- Commissioning support
- Remote programming
- Interface for Application Service Providers (ASP)
- Datalogging

1.7 Part Numbers and internal options

Part Number structure of the eWON® product range:

EWaabcc/xy

Where (examples):

- **aa = Type of hardware platform:**
    - 42 = eWON4002™

- **b = Power supply:**
    - 2 = Low voltage DC power supply
- **cc= Communication:**
    - 01 = Ethernet only
    - 02 = PSTN modem
    - 03 = ISDN modem
    - 05 = GSM/GPRS modem
    - 06 = GSM/GPRS modem US
    - 09 = PSTN 56LS modem

• /xy = Options:

The only option of the eWON4002™ is the modem type.

Available Part Numbers for the eWON4002™ platform:

Type/Description	Part Number
eWON4002™/Ethernet only (No modem)	EW42201
eWON4002™/PSTN33 (PSTN modem)	EW42202
eWON4002™/ISDN (ISDN modem)	EW42203
eWON4002™/GSM/GPRS (GSM/GPRS modem)	EW42205
eWON4002™/GSM/GPRS US (GSM/GPRS modem)	EW42206
eWON4002™/PSTN 56LS (PSTN 56LS modem)	EW42209

Table 1: List of available Part Numbers

2 Structure of the eWON® technical documentation

The eWON™ technical documentation is structured in 4 different levels as shown in the table below:

Level	Title	Contents
1	**Hardware Installation Guide (the present document) (~40pp)**	Detailed description of the hardware platform, of its interfaces, available options and accessories. Hardware specifications, conformity to standards. Installation recommendations and connectors pinout. Step-by-step tutorial to establish first communications and make the IP configuration. Exists for the following platforms: • eWON500™ • eWON2001™ • eWON4001™ • eWON4002™ • eWON1002™
2	**Software Getting Started (~30pp)**	Manual to start using the basic functions of the eWON™ software. Covers most usual applications.
3	**Software User Manuals (~250pp)**	Exhaustive manual to use all advanced functions of the eWON™. Contains BASIC and HTML syntax. (Exists for all platforms)
4	**Application Notes Technical Notes**	• Unitelway topology Gateway XIP • Unitelway for Schneider PLC • Gateway MPI for Siemens PLC and Gateway for IP devices • Etc, etc.

Table 2: eWON™ technical documentation different levels

All those manuals are available for download in pdf format on the eWON® website: http://www.ewon.biz.

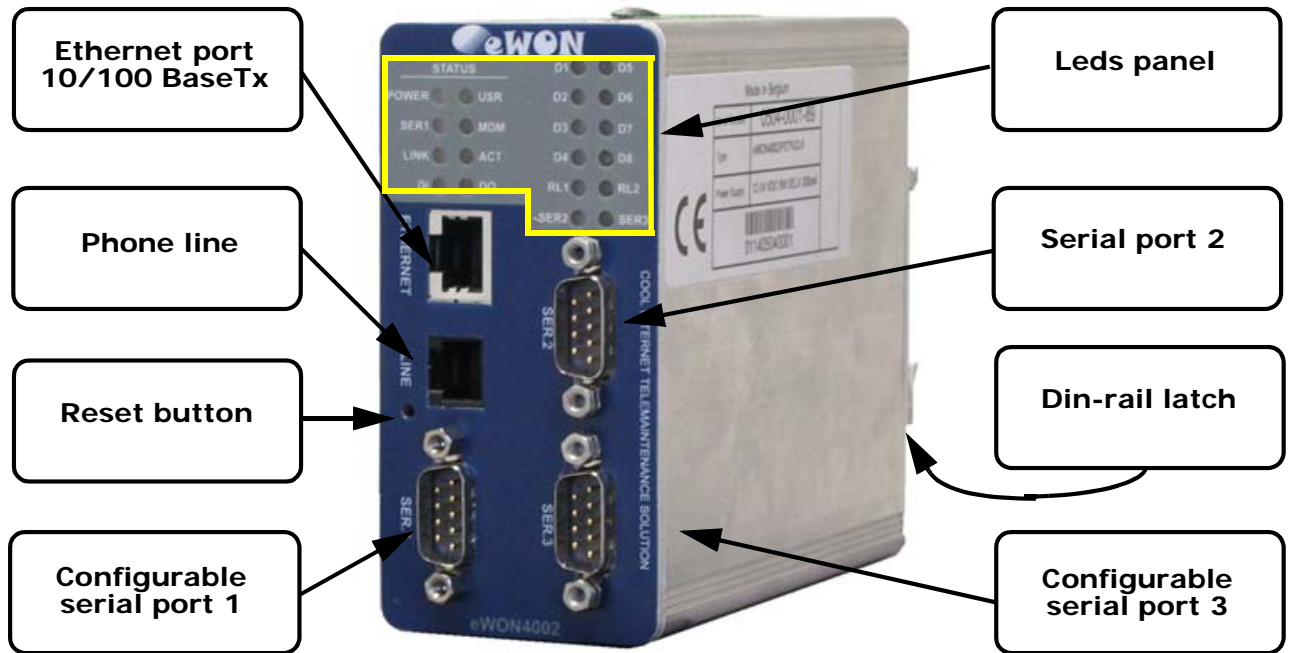# 3 Housing and markings

3.1 Housing
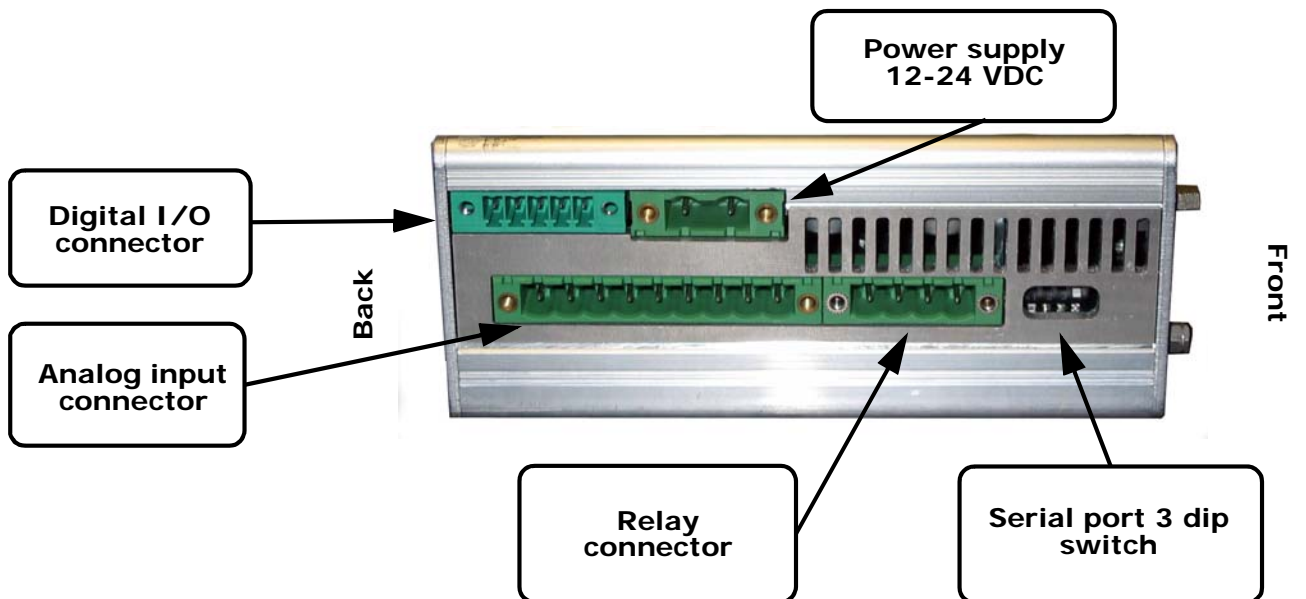

Figure 1: Housing, front view

Figure 2: Housing, bottom view

3.2 Markings

The identification label of the eWON™ stands on the left hand side of the housing. The label is composed of the following fields:

Serial number
0648 = year+week
0037 = sequential number
89 = suffix eWON4002™

COM type
../33.6 = PSTN modem at 33.6 kb
../GPRS = GSM modem (GPRS compatible)

Required power supply
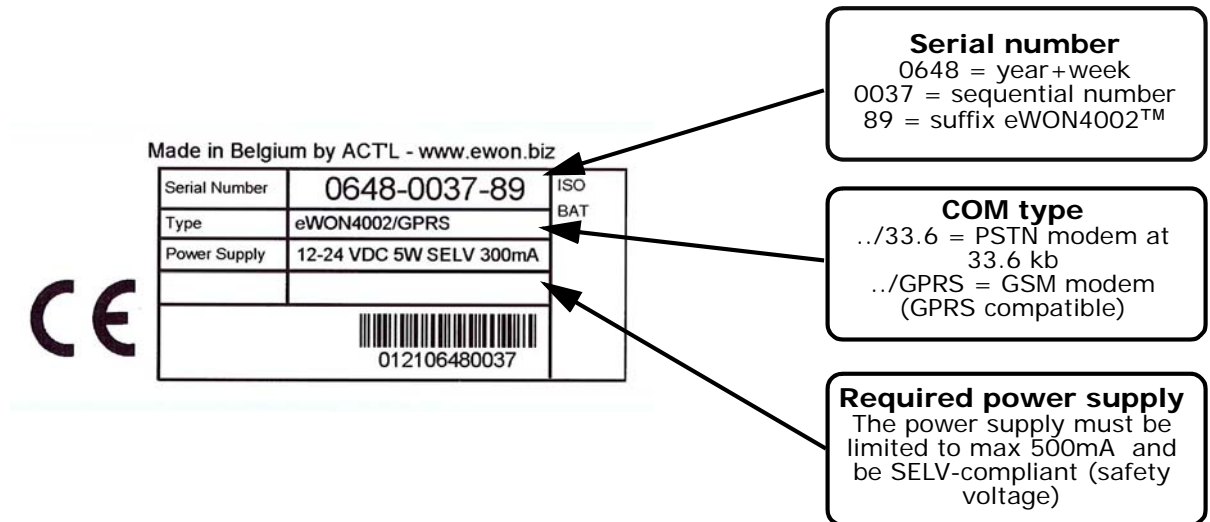The power supply must be limited to max 500mA and be SELV-compliant (safety voltage)

Figure 3: eWON™ Label

The eWON™ Serial Number (SN) is an important traceability tool for both the user and the manufacturer. Therefore, next to the product label, each eWON™ has its serial number stored in the flash memory. This SN is also used in order to scan the network for eWONs® and to assign its IP address, subnet mask and gateway. For more details, See "Equipment information and versions" on page 7.

3.3 Applicable directives, standards and compliance
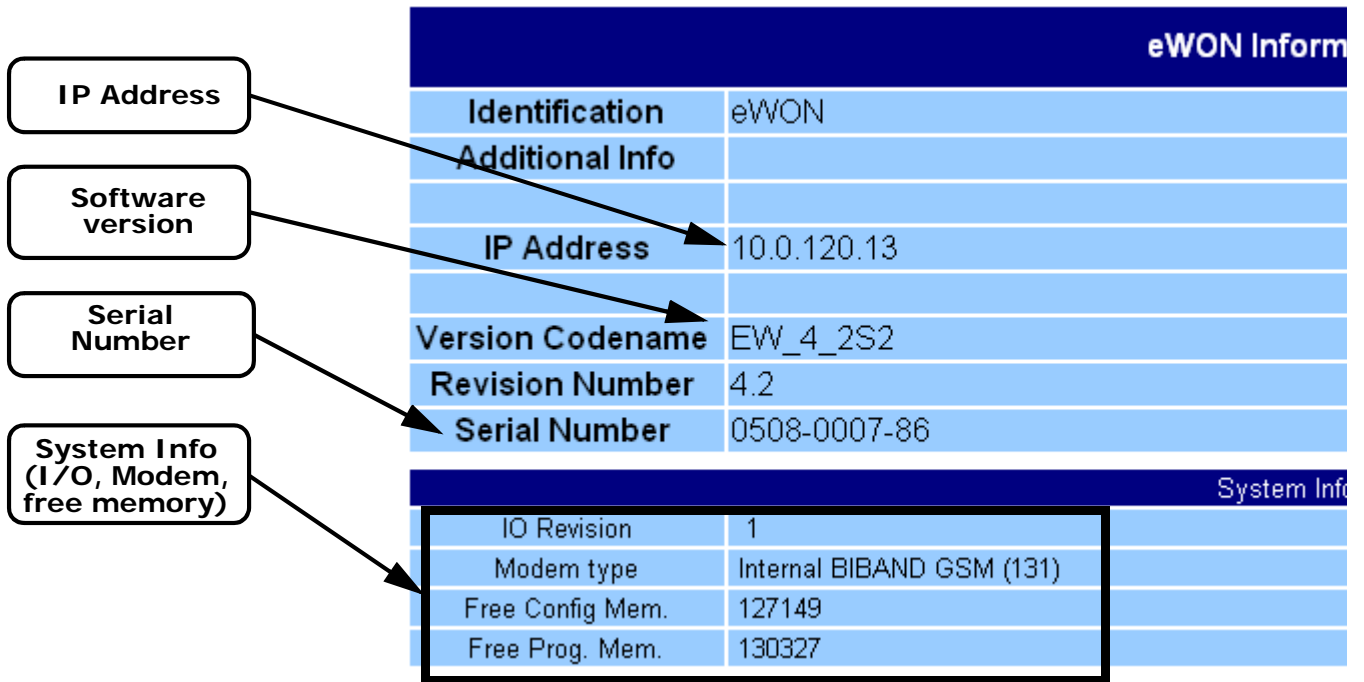
- 93/68/EEC European directive for CE-mark
- 73/23/EEC European directive for the safety of low voltage equipment (LVD) – Applicable standard is EN60950 A1+A4+A11
- 89/336/EEC amended by 92/31/EEC European directives for the electromagnetic compatibility (EMC) – Applicable standards EN55022:94 A1, A2 (emissions) and EN55024:98 (immunity)
  Warning: this is a class A product. In a domestic environment, this product can cause radio interferences, in which case the user may have to take adequate measures.
- UL/CSA UL60950 (certificate of compliance 1624599)
- Vibrations and climatic tests (IEC 6006n 8-2-1, IEC 60068-2-2, IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-29, IEC 60068-2-64)

    This device is to be used only in fixed applications.

3.4 Equipment information and versions

The eWON™ hardware and software revisions can be checked via a web browser on the eWON™ server
(see *Communicating with the eWON™ on page 21*).
Once logged onto the eWON™, clicking on the eWON™ logo shows these revisions:

Figure 4: eWON™ info page details

3.5 Mechanical outline

Figure 5: Mechanical outline
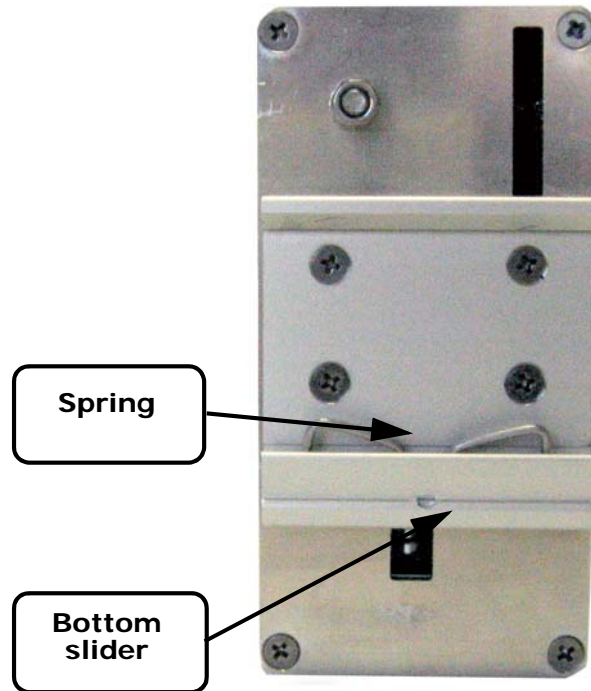
Figure 6: DIN-rail latch

The eWON™ must be fastened on a 35mm DIN rail compliant with EN50022.
To put the unit in place, insert the bottom slider into the lower part of the rail, with the eWON™ tiled around 20°.
Then push the eWON™ upward to compress the spring, and at the same time, put the unit right by rotating it. The eWON™ is now safely fastened.

3.6 Mounting and environmental conditions

The eWON™ unit has an IP31 protection grade. It is therefore not suited for outdoor mounting. The design of the unit is such that it has to be integrated in an enclosed electrical cabinet, protected from excessive heat, humidity and dust. The eWON4002™ is complying to the CE-marking requirements regarding electromagnetic compatibility (EMC) within an industrial environment.
The normal mounting position is wall mounted on DIN-rail (EN 50022). The unit is suited to work in any other position.

The equipment will operate within specified tolerances only if the following environmental conditions are respected:

Ambient temperature range	0°C to +50°C
Ambient humidity	0-80% non-condensing

3.7 Preparing the installation

The recommended free space in the cabinet for the eWON™ on the wall for the eWON4002™ should be at least: 80-mm wide X 225-mm high X 200-mm deep (terminal block excluded). A piece of rigid DIN-rail profile (flat 35mm wide) of suitable length should be firmly fastened, horizontally, in the middle of the area.

Grounding the eWON™ is necessary to eliminate unwanted transients (lightning protection) and to conform to the EMC requirements. Therefore, a ground screw is available at the back of the unit just below the DIN latch. Connect this screw directly to a low impedance ground.

3.8 Specifications for external power supply selection

The eWON4002™ has to be supplied by an external voltage source ranging from 12 to 24 VDC. The power supplied must be a Class 2 or Level 3, SELV-compliant (security voltage) and limited in current to a max of 500mA. The safety voltage power supply is not part of the delivery. The data given below is intended to allow correct selection of the external power supply.

Specification	Value
Secondary PS voltage	from 12 to 24 VDC +/-20% (SELV-compliant)
Max secondary PS current	300 mA max.
eWON™ current protection	300 mA by auto fuse
eWON™ voltage protection	30V by varistor
eWON™ EMI filter	Common mode filter (*)
Power absorbed (typ)	5 Watts (eWON4002™ PSTN)
	6 Watts (eWON4002™ GSM/GPRS)

Table 3: Specification for external power supply selection

(*) Properly ground the unit with the earth screw at the bottom of the unit. This is a must to ensure the security and the electromagnetic compatibility (EMC) of the device.

Equipment Supplied by Class 2 or Level 3 Power Supply

3.8.1 Auto fuse

An auto fuse placed just after at the power input protects the eWON™ devices against short circuits. This component returns by itself to its normal state when the short circuit has disappeared and after the component has been cooling down. Would this fuse happen to operate, please check the device for presence of loose metal parts inside likely to generate a short circuit. If the problem recurs even after such a verification, then return the device to the vendor for further investigation.

4 Front panel control LEDs

POWER (green)
ON = Power Supply
12-24 VDC present

USER (bicolor)
Hardware status flashing
green = normal state (life):
±20 sec after power ON
Other modes, see "Resets "

MODEM (green)
ON = DCD
connected line
PSTN and GSM

SER1 (green)
Serial port 1
Flashing = activity
(RX)

D1 to D8:
Digital Input leds

LINK (green)
ON = Ethernet
connected

RL1 and RL2
Relays leds

DI=Input (green)
ON = logic 1

SER2 and SER3
(green): Serial
ports 2 and 3
Flashing = activity
(RX)

DO=Output
(green)
ON = logic 1

ACT (green)
Flashing = transmitting
Ethernet packets (TX)

Figure 7: Front Panel leds description

5 Communication interfaces and I/Os

5.1 Ethernet Port

Specification	Value
Applicable standard	10/100BaseTX
Isolation	1,5 kV
Pinout RJ45 connector	See label and appendix (RJ45 connector on page 29)

Table 4: Ethernet port specification

Please refer to the appendix (Direct connection on page 26 and Connection over hub/router on page 28) for information on the different Ethernet connexion modes (straight and crossed cables).

5.2 Embedded PSTN Modem

Specification	PSTN 33	PSTN 56 LS
Max baud rate	(V34) 33.600 bps	(V92) 56.000 bps
Compliant to standards	47 CFR part 68 (USA) CTR-21 (EUR)	
Approved by	TÜV Rheinland USA	
Certificate number	AU7MD01BMC56	
Pinout phone line connector	See label and appendix (PSTN and ISDN phone line connector on page 38)	
Leased Line mode	No	Yes

Table 5: PSTN modem specification

5.3 Embedded GSM/GPRS Modem

Specification	GSM/GPRS	GSM/GPRS US
Bands	Dual-band EGSM900/1800 MHz	950/1900 MHz
GPRS Class	Class 10	
Max baud rate	14.400 bps	
Compliant to standards	R&TTE + GCF	
Certificate number	---	
Antenna connector	Type SMA-F	

Table 6: PSTN modem specification

5.3.1 SIM-card drawer

Eject SIM card button

SIM card drawer

SMA antenna connector's place
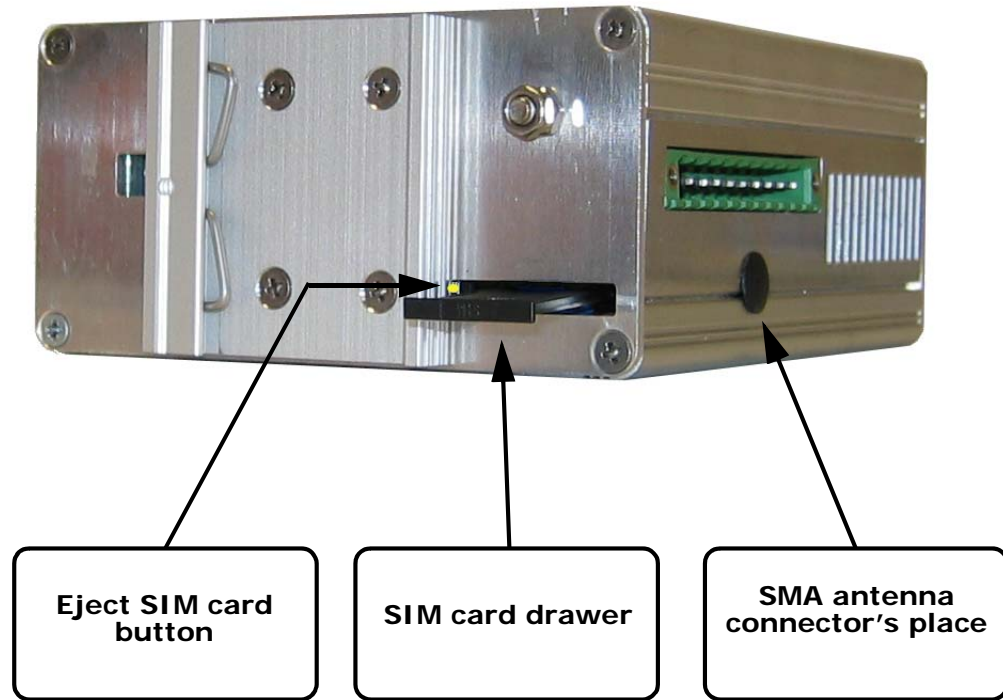
Figure 8: SIM-card insertion

5.4 Embedded ISDN Modem

Specification	Value
ISDN specification	ISDN BRI S0.I.430
Type	1B+D
Max baud rate	64 Kb
Certification	---

Table 7: ISDN modem specification

5.5 Serial ports

The eWON4002™ is provided with 3 serial ports, 2 of which (port 1 and port 3) are configurable (RS485, RS422, RS232), and one (port 2) is a full RS232 (with all control lines present).

5.5.1 Serial port #1

Specification	Value
Physical modes (configurable)	RS232/RS485/RS422
Normal isolation	--- ISOLATED --- Optocoupler 1kV
Pinout connector	See label and appendix (*Relays output on page 33*)
Termination/polarization	Selectable

Table 8: Serial port 1 specification

The configuration of the physical serial port 1 mode is done by a set of 4 dip switches that are located on the left face from the unit. The settings of the switches are shown in the table below (note: please don't forget that switch 1 is the most right one on the dip switch panel that matches serial port 1: the dip switch panel stands at the bottom right from the eWON™'s left face, just beside the serial port 1 connector, which stands at the bottom left from the eWON™'s front face)
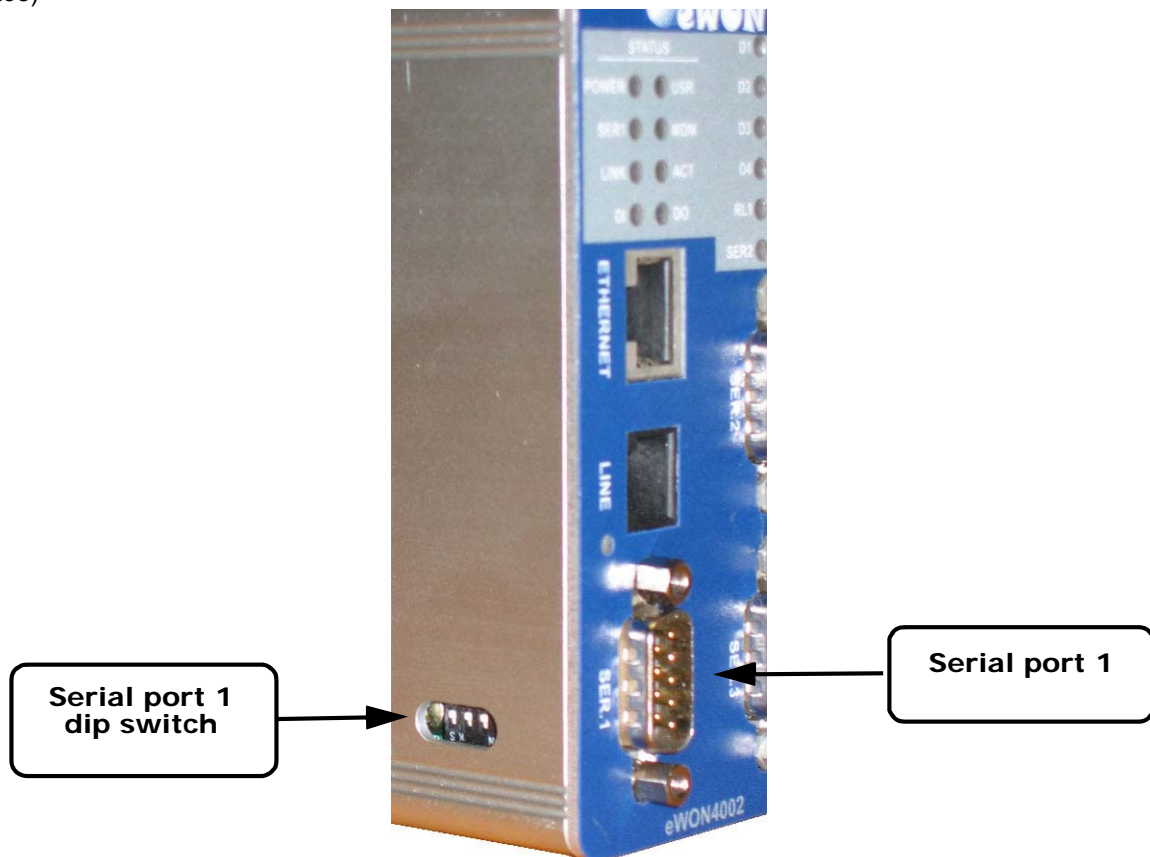

Figure 9: Serial port 1 connector and dip switch

Positions	Mode
4 3 2 1 **OFF** **ON**	**RS232**
4 3 2 1 **OFF** **ON**	**RS422, RS485** **WITHOUT polarisation and termination resistors**
4 3 2 1 **OFF** **ON**	**RS422, RS485** **WITH polarisation and termination resistors**

Table 9: Serial mode configuration switches

Note: the 3 switch configurations shown in the table above are the only configurations giving satisfactory results.

Warning: The switch 2 is reserved and must stay OFF. Note that the switches 3 & 4 need to have the same position (both ON or both OFF). When they are ON, this connects the internal polarisation (typ 680 Ohms) and termination (typ 120 Ohms) resistors. This configuration applies only to RS4xx lines conforming to good practices.

5.5.2 Serial port #2

Specification	Value
Physical mode	Full RS232
Normal isolation	NOT ISOLATED
Pinout connector	See label and appendix (*Relays output on page 33*)
Termination/polarization	None

Table 10: Serial port 2 specification

5.5.3 Serial port #3

Specification	Value
Physical modes (configurable)	RS232/RS485/RS422
Normal isolation	NOT ISOLATED
Pinout connector	See label and appendix (*Relays output on page 33*)
Termination/polarization	Selectable

Table 11: Serial port 3 specification

The configuration of the physical serial port 3 mode is done by a set of 4 dip switches that are located on the bottom face from the unit. The settings of the switches are shown in the table below (note: when you look the bottom face from the eWON™ with its front face at your right hand, then switch 1 is the leftmost switch on the dip switch panel that matches serial port 3: this dip switch panel stands at the right part from the eWON™'s bottom face, below the serial port 3 connector, which stands at the bottom right from the eWON™'s front face, just below serial port 2).
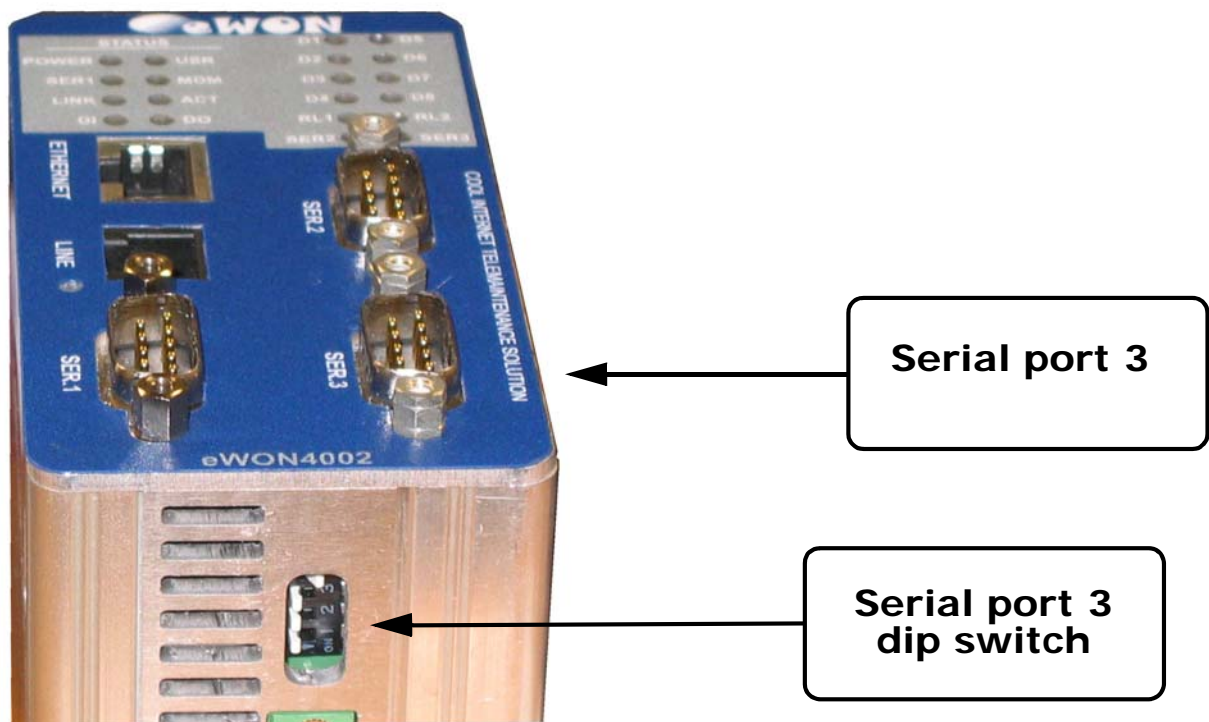

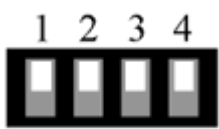Figure 10: Serial port 3 connector and dip switch

Positions	Mode
1 2 3 4 **OFF** **ON**	**RS232**
1 2 3 4 **OFF** **ON**	**RS422, RS485** **WITHOUT polarisation and termination resistors**
1 2 3 4 **OFF** **ON**	**RS422, RS485** **WITH polarisation and termination resistors**

Table 12: Serial mode configuration switches

Note: the 3 switch configurations shown in the table above are the only configurations giving satisfactory results.

Warning: The switch 2 is reserved and must stay OFF. Note that the switches 3 & 4 need to have the same position (both ON or both OFF). When they are ON, this connects the internal polarisation (typ 680 Ohms) and termination (typ 120 Ohms) resistors. This configuration applies only to RS4xx lines conforming to good practices.

5.6 Digital Inputs

There are 9 Digital Inputs, 8 on the DI connector on the eWON™'s top face, and 1 on the Input/Output connector (DIDO) that stands on the eWON™'s bottom face.

Specification	Value
Type	24 VDC isolated Digital Input - "sink" type
Input voltage range	0 to 24 VDC
Input voltage absolute max (varistor protection)	30 VDC
Zero state max input voltage (OFF)	0~5 VDC
One state voltage range (ON)	10 to 30 VDC
One state current (ON)	30mA/3k3=9mA (source: max 10mA)
Isolation	3,5 kV
Max frequency	10Hz
Pinout connector	See label and appendix (*Input/Outputs on page 30*)

Table 13: Digital Input specification

5.7 Digital Outputs

There are 3 Digital Outputs: 1 open collector and 2 relays.

5.7.1 Open collector Digital Output

The open collector output is located on the Input/Output connector, which stands beside the power supply connector.

Specification	Value
Type of output	Open collector
Max current (external source)	200mA @ 30 VDC
Isolation	3,5 kV
Pinout connector	See label and appendix (*Input/Outputs on page 30*)

Table 14: Open collector Digital Output specification

This Digital Output is activated by an open collector transistor driven by an optocoupler. The maximum current flow into this transistor has a characteristic above the value specified in the eWON™, in order to cope with the switching power losses. The transistor used is of open collector type with pre drive. This means the relay power supply has to be supplied from an external source to the pre drive electronics.

The diagram below shows the external wiring needed for correct operation of the Digital Output. A relay has been chosen for this sample application but any load within the specifications can be used instead.

Warning: note that this is a sink only output to ground (the transistor acts like a switch to ground).
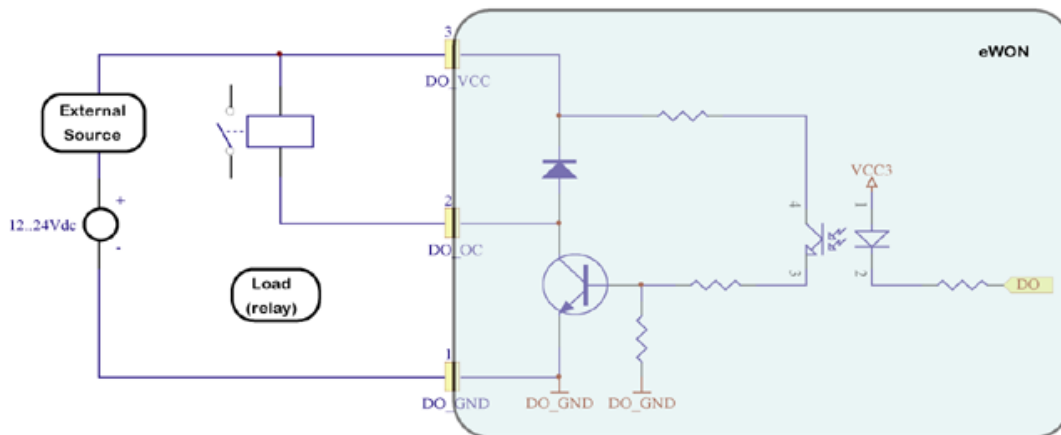

Figure 11: Digital output: wiring diagram

5.7.2 Relays

The 2 relays are on the RL1-RL2 connector.

Specification	Value
Number of outputs	2
Type of output	SPST NO relays (Single Pole, Single Throw, Normally Open)
Input voltage max	24 VDC/24 VAC
Max current (external source)	1A
Isolation	1 kV
Pinout connector	See label and appendix (*Input/Outputs on page 30*)

Table 15: eWON relays specification

5.8 Analog Inputs

There are 6 Analog Inputs available, 4 of them are configurable in 0-10V or 0-20mA, the 2 others are PT100 Inputs.

5.8.1 Configurable standard Analog Inputs (AI1 - AI4)

The selection of Analog Input range is done by a dip switch located above the Analog Inputs connector (rear switch):

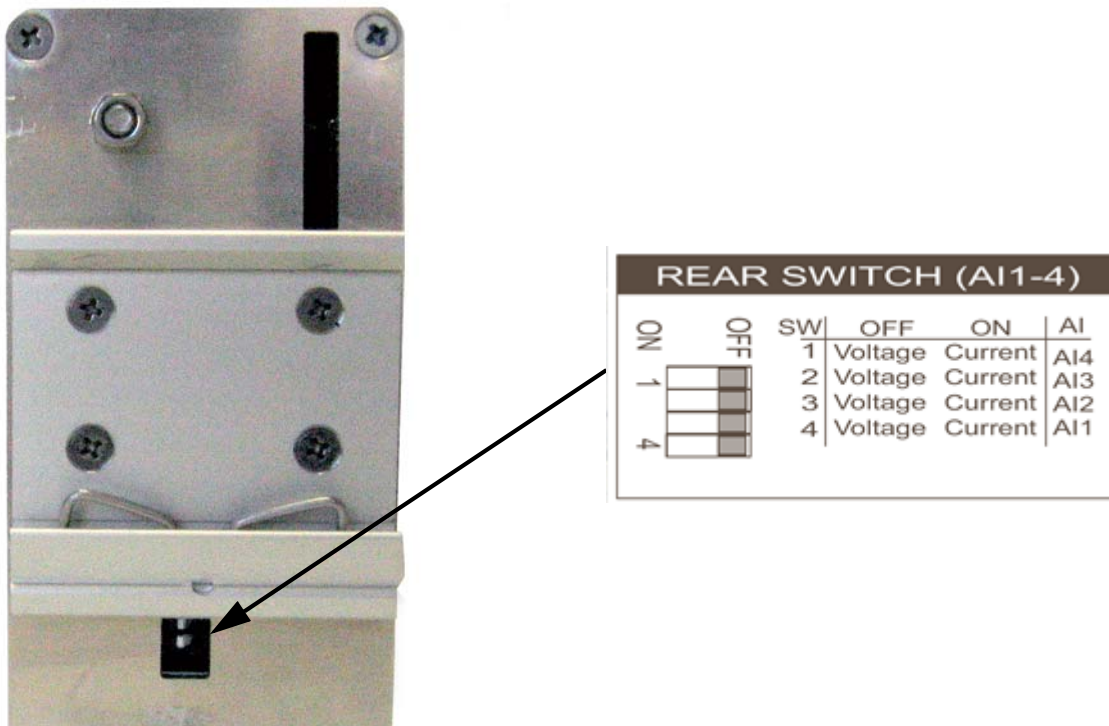|		SW	OFF	ON	AI
ON	OFF	1	Voltage	Current	AI4
		2	Voltage	Current	AI3
1		3	Voltage	Current	AI2
4		4	Voltage	Current	AI1

REAR SWITCH (AI1-4)

Figure 12: Rear switch panel and label (the label stands on the left side from the eWON™)

• To configure a channel to voltage input, place the matching switch to OFF.
• To configure a channel to current input, place the matching switch to ON.

Note: pay attention to the fact that switch 1 configures AI4, switch 2 configures AI3, ...

Specification	Value
Input range	0 to 10 VDC
Number of inputs	4
Common points	1
Resolution	12 bits (5 mV)
Precision	0.50%
Voltage input impedence	300 kOhm
Overvoltage protection	12VDC (automatic fuse)

Table 16: Standard Analog Inputs - Voltage input specification

Specification	Value
Input range	0 to 20 mA
Number of inputs	4
Common points	1
Resolution	12 bits (10 µA)
Precision	0.50%
Current input impedence	220 Ohm (1%)
Max current	25 mA

Table 17: Standard Analog Inputs - Current input specification

5.8.2 Resistive Temperature Detector Inputs

These inputs are differential PT100 inputs that can be used with any classical 100 Ohm PT100 sensing element.

Specification	Value
Type	PT100 - 2 wires
Method	Current of 200µA, voltage measure
Range	-50 to 150°C
Resolution	12 bits

Table 18: Analog Inputs - specification

6 Communicating with the eWON™

6.1 By Ethernet

1) Plug one of the Ethernet cables [see appendix (*Direct connection on page 26* and *Connection over hub/ router on page 28*)] between your eWON™ and either your PC (crossed cable) or onto your network (straight cable).

2) Configure your Internet browser connection, in order <u>not to use a proxy server</u> (please have a look at your browser help file)..
   With a direct connection between PC and eWON™, TCP/IP settings have to be with fixed IP addresses and hence cannot have DHCP enabled (automatic IP address allocation by host).

3) Launch your Internet Browser on your PC.

4) Type the eWON™ TCP/IP address on the address edit control of your Internet Browser (10.0.0.53 is the factory default by Ethernet).

5) The eWON™ returns its login web page. If not *-404 Error, server not found-*, redo the procedure from the beginning and check whether you did not forget anything.

6) Introduce the default login parameters that are:
   • User Name: <adm>
   • Password: <adm>

7) You can now access the different web pages of the eWON™ and, among others, configure your connection parameters by selecting the following options in the menu of the home page:
   • **To configure the Ethernet IP address:**
     <Configuration>, <System Setup>, <Communication>, <Ethernet>
   • **To configure the PPP IP address:**
     <Configuration>, <System Setup>, <Communication>, <DialUp (PPP)>

6.2 By phone line or GSM

6.2.1 Under Windows 98, NT and 2000

1) Open the root folder *Dial-up Networking*.

2) Click on the icon *Make new connection*.

3) Give a name to this connection.

4) Select a local modem from the list and click **Next**.

5) Introduce the **phone number** and the login <**adm**> and password <**adm**> of your eWON™ (or the login/ password you have created) and click **Next**.

6) Click **Finish**.

7) A new icon has been created in the *Dialup Networking* folder.

8) Open the connection wizard by double clicking on this icon and introduce the **login/password** for PPP authentication which are the same than those for the eWON™ Web site access (<**adm**> / <**adm**> by default). Make the connection and wait until the modems are synchronized (MDM led on the front panel is active) and that your authentication login has been accepted.

9) Launch your Internet Browser on your PC.

10) Types the eWON™ TCP/IP address on the address edit control of your Internet Browser (*202.0.0.240* is the eWON™ but you could have modified, in this case use the new address).

11) The eWON™ should display its login web page. If not *-404 Error, server not found-*, redo the procedure from the beginning and check whether you did not forget anything.

12) Unless you have changed them, introduce the default Web site access login parameters that are:
   • User Name: <adm>
   • Password: <adm>

13) You can now access the different Web pages of the eWON™ and, among others, configure your connection parameters by selecting the following options in the menu of the home page:

- **To configure the Ethernet IP address:**
  <Configuration>, <System Setup>, <Communication>, <Ethernet>
- **To configure the PPP IP address:**
  <Configuration>, <System Setup>, <Communication>, <DialUp (PPP)>

6.2.2 Under Windows XP

1) With Windows XP, you first have to go to *Start* and select *Connect to* and then *Show all connections*. *Create a new connection* appears in the network tasks box (top left corner).

2) Selecting *Create a new connection* menu opens the new connection creation wizard. Click **Next**.

3) Select the 2nd option (out of 4) – **Connect to the network at my workplace** and then click **Next**.

4) Select the 1st option (out of 2) – **Dial-up connection** and click **Next**.

5) Give a **name** to this connection and click **Next**.

6) Introduce the **phone number** of the eWON™ and click **Next**.

7) Click **Finish**.

8) The connection windows opens and introduce the PPP authentication parameters that are the same than those used to access to the eWON™ embedded Web site (**<adm>** / **<adm>** by default).

9) The new connection has now been added in the "Connections" directory and also under **Start** and **Connect to** as well as on your desktop if you selected the relevant option (*Create icon on desktop*).

10) You can now make a connection either by using the currently open window, or later on by using one of the available paths (*Start* menu or desktop icon).

11) Wait until the modems are synchronized and that your PPP authentication has been accepted.

12) Launch your Internet navigator.

13) Introduce the IP address of the eWON™ in the address field of the navigator (the default address is *202.0.0.240* in dial-up mode (see chapter *IP parameters configuration on page 23*).

14) The eWON™ should then display its login Web page. If not (-*404 Error, server not found*-), redo the procedure from the beginning and check whether you did not forget anything.

15) Unless you have changed them, introduce the default web site access login parameters that are:

- User Name: <adm>
- Password: <adm>

16) You can now access the different Web pages of the eWON™ and, among others, configure your connection parameters by selecting the following options in the menu of the home page:

- **To configure the Ethernet IP address:**
  <Configuration>, <System Setup>, <Communication>, <Ethernet>
- **To configure the PPP IP address:**
  <Configuration>, <System Setup>, <Communication>, <DialUp (PPP)>

7 IP parameters configuration

Warning: parameters always have to be defined in full agreement with the network policies applicable within your organisation (ask your network administrator).

The Ethernet port of the eWON™ is configured in the factory with the following default parameters:

- IP Address: 10.0.0.53
- Subnet mask: 255.255.255.0
- Gateway: 0.0.0.0 (none)

Note: the default IP address for dial-up access (PPP) is different (202.0.0.240). This allows simultaneous connection through both interfaces.

Whatever the access mode is (direct or dial-up), you will need these IP parameters to communicate with the eWON™. If your device is inserted in a local network (LAN), one of the first things to do is to assign the device IP parameters that are compatible with your network (ask your network administrator). The following chapter describes how to edit these parameters by using the *eWONCfg.exe* utility. You can also edit the IP parameters with your navigator and the Web site included in the eWON™.

Warning: normally you cannot communicate with a device for which you don't know the IP parameters. Therefore, there is a special tool (called "eWONCfg") you can download from the eWON™ Internet site http://www.ewon.biz. Start this application once you have connected your eWON™ to the network. The application will scan the whole network and will identify all eWONs® that are connected, including their IP parameters (Address and subnet mask) and their serial number. The utility allows also to edit the IP parameters. IP parameters always have to be defined in full agreement with network policies applicable within your organisation (ask your network administrator).
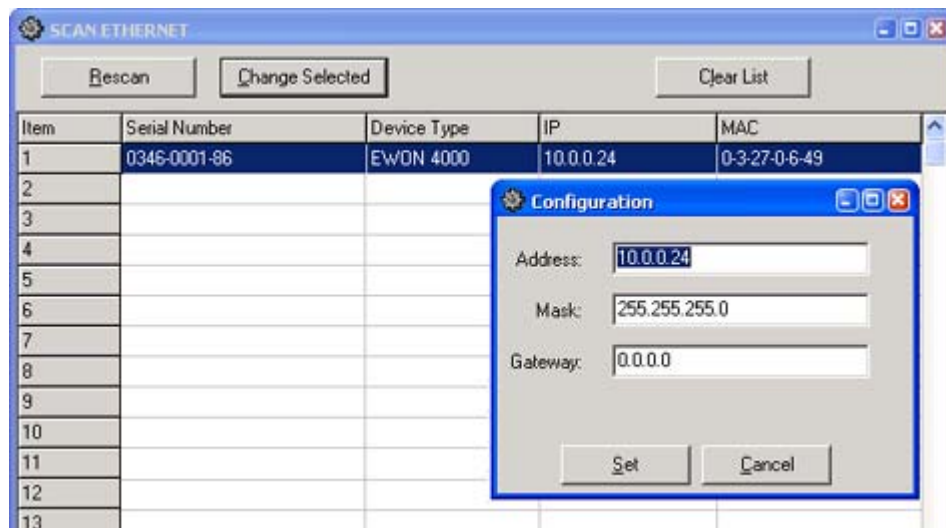
Figure 13: The eWONCFG utility and IP parameter window

When connecting through a modem, the eWON™ assigns a client address to the PPP interface of your PC. This address has to be configured outside the range of addresses used within the LAN network of your organisation (ask your network administrator). For example, if your organisation has 10.0.0.0 as basis address and 255.255.255.0 as subnet mask, then you can use any address between 10.0.0.0 et 10.0.0.255. Contact your network administrator in order to obtain an IP client address that is compatible with those of your organisation.

8 Technical support

If you need technical support, simply fill out the form on the Web site http://www.ewon.biz or send an email with the problem description to support@ewon.biz.

8.1 Resets

Warning: you should not reset your eWON™ unless you have been told to do so by someone of our technical support. The concerned files (differs depending on reset type) are totally lost and unrecoverable after being formatted.

To press the reset button, you will need a standard ball pen to pass through the hole in the front panel.

8.1.1 User Reset

This is the first and most usual reset level. It consists in formatting only the « user file » part of the non volatile memory. The Tag configuration and the customer web site are part of the formatted files.

You generate this first level reset by pressing and maintaining the reset button during approximately 4 seconds after powering the eWON™ up until the "USER" LED flashes 1x per second. When this state is reached, release the button and wait approximatively during 20 secs until the procedure is complete. The eWON™ restarts automatically and is ready to communicate. This type of reset does not modify the communication parameters.

8.1.2 Factory Reset

This second level reset is used only exceptionally because it formats all non volatile memories and make the eWON™ returning to its factory defaults. This operation consists in 3 stages:
- Formatting of all non volatile memories, including all COM parameters and IP addresses
- Return to ex-factory configuration (default config)
- Full hardware auto test with result shown by the "USER" LED

Warning: you should not reset your eWON™ unless you have been told to do so by someone of our technical support. The concerned files (differs depending on reset type) are totally lost and unrecoverable after being formatted.

You generate this second level reset by pressing and maintaining the reset button during approximately 20 secs after powering up the eWON™ until the "USER" LED remains RED continuously. When this state is reached, release the button and wait approximatively during 45 secs until the procedure is complete. The procedure finishes with the result of the autotest on the "USER" LED. If the autotest is completed successfully, then the "USER" LED shows its normal pattern of 200ms ON et 1,5 sec OFF.

Any other pattern will start with 200ms ON (opening of the pattern) followed by OFF and a certain number of times 1 sec ON that allows to identify the nature of the detected problem. Please call the technical support if you are confronted with an error pattern on the "USER" LED.

Warning: you absolutely have to wait until the full autotest procedure is completed without interrupting it. If the autotest is interrupted, the flash memory of the eWON™ will contain random data likely to make it unstable. In such a case you have to redo the full reset procedure from scratch and wait until it is totally completed.

When performing a full reset, the eWON™ does NOT restart in normal mode by itself and remains running in diagnose mode. Power the eWON™ off and on again to restart in normal mode. As described previously, the eWON™ returns to its default COM parameters and IP addresses after this level 2 reset is performed.

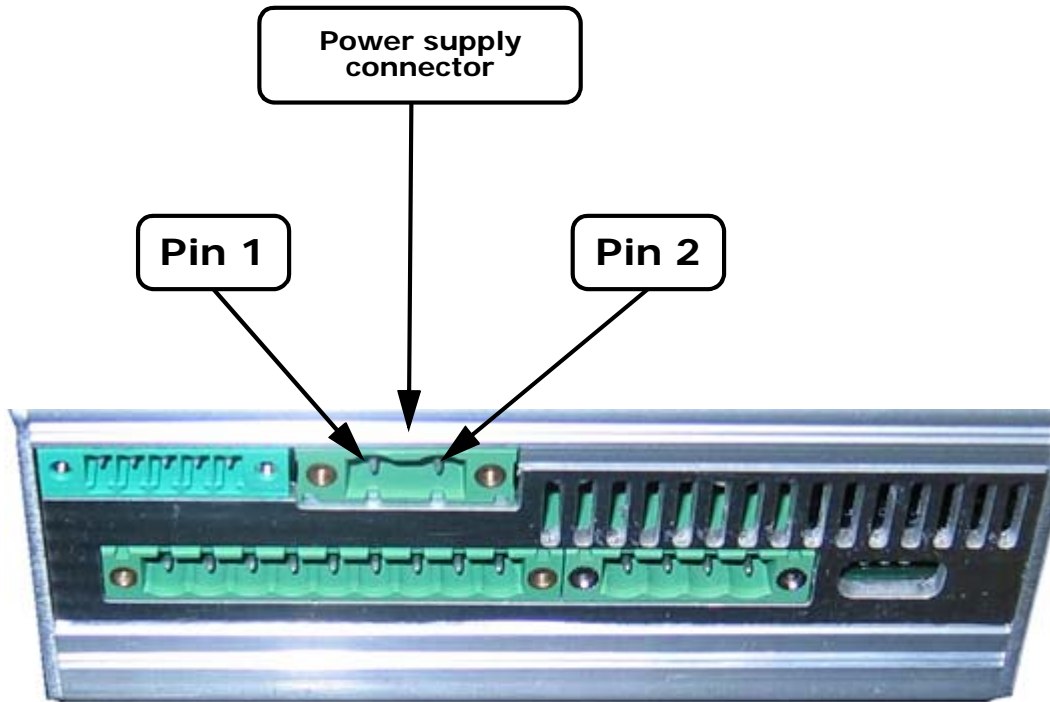# 9 Appendix: Pinouts and connections

9.1 Power Supply

Figure 14: Power supply mating female connector (included)

• **Power supply mating female connector (included):**

Manufacturer	Phoenix Contact GmbH	http://www.phoenixcontact.com
Part Number	MVSTBW2,5/4-STF-5.08	

• **Power supply connector pinout:**

| Pin	Description
1	Ground
2	Positive (+)

Table 19: Power supply connector pinout

9.2 Ethernet

The eWON™ can be accessed by a 10/100BaseTX Ethernet connection. This connection can be made with two different cables (straight or crossed). These cables have 8 copper conductors and are known as UTP Class 5 with RJ45 terminations at both ends. These cables are availbale as spare parts (see *Structure of the eWON® technical documentation on page 4*).


Ethernet connector

The type of cable (straight or crossed) depends on the equipment the eWON™ will be connected to. The most current cases are the direct connection with a PC (crossed) and the connection through a hub/router (straight).
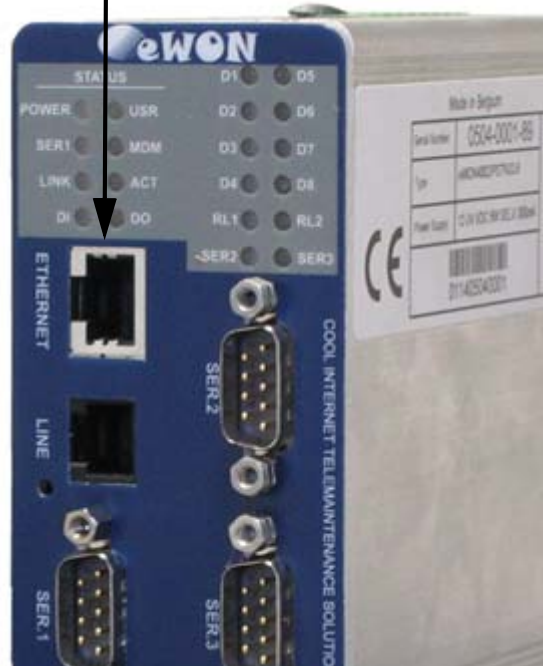
9.2.1 Direct connection

If the eWON™ is connected directly to a PC, then use the crossed cable:

Crossed cable

10BaseT CrossOver Cable

Pins 4, 5, 7 and 8 remain the same
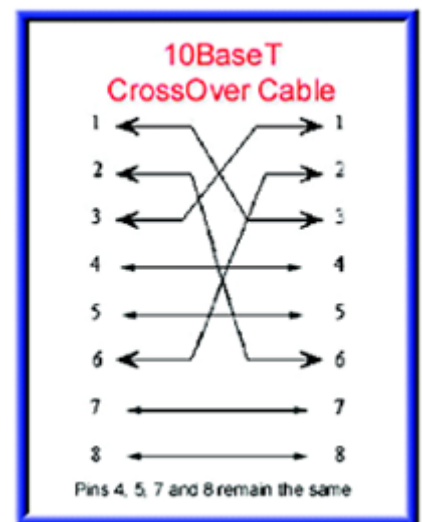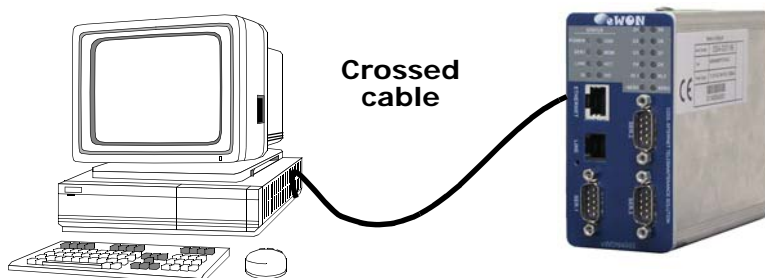
When cabling over long distance, you have to take care of the twisted pairs. This means that along with the above cabling conventions, the emission (TX+/TX-) and reception (RX+/RX-) signals have to be connected on the same twisted pair:

TX+: pin3, TX-: pin6	Twisted pair 1
RX+: pin1, RX-: pin2	Twisted pair 2

Pins 4, 5, 7 and 8 do not have to be connected. The following picture shows the twisted pair connections:
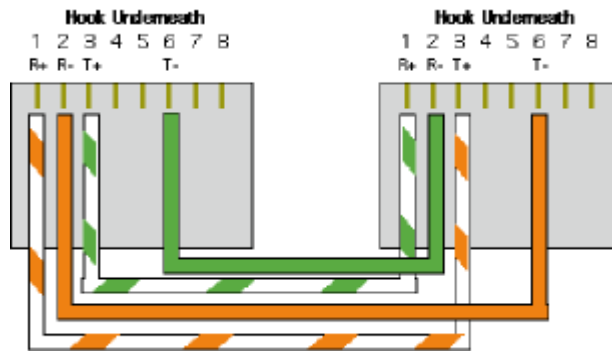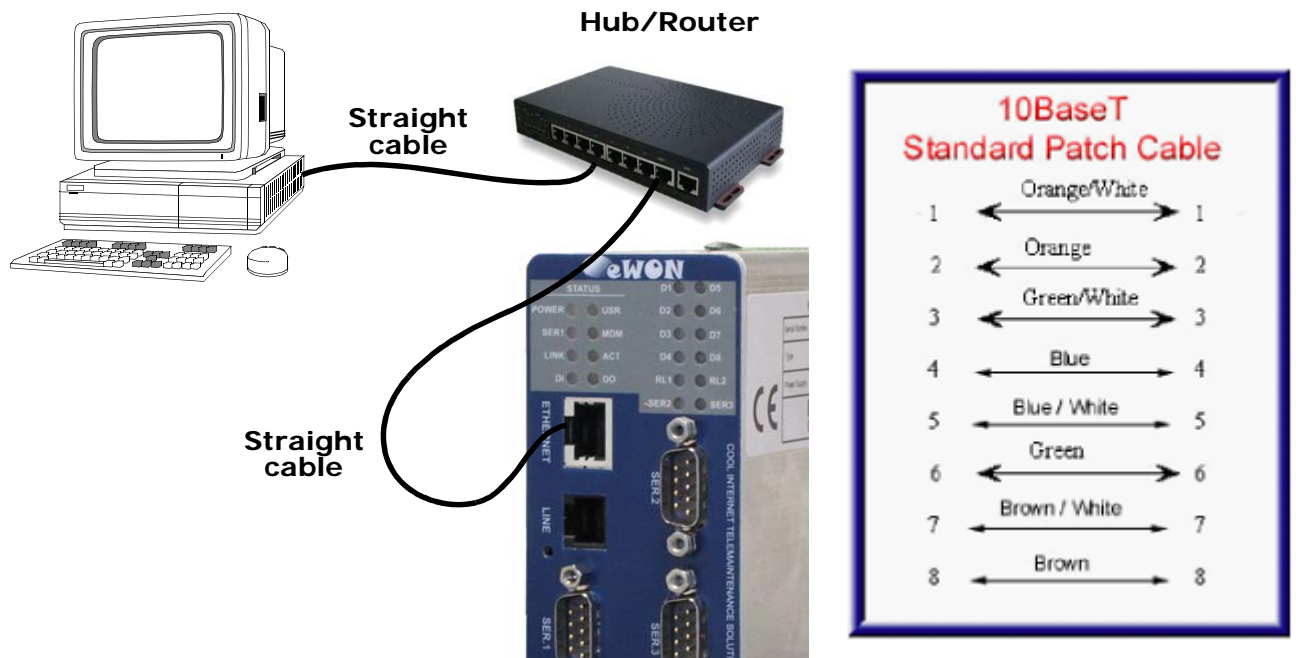

Figure 15: Crossed cable cabling

9.2.2 Connection over hub/router

If the eWON™ is connected to a hub, it has to be connected like any other device, with a straight cable. Again, the wiring is as shown on the following picture, and care should be taken to keep the RX and TX signals on twisted pairs:

9.3 RJ45 connector

The RJ45 connector has got the following pins numbering, as it can be seen on the following picture, showing it from different angles:
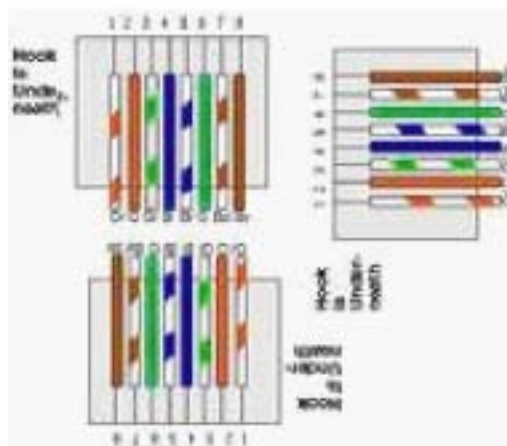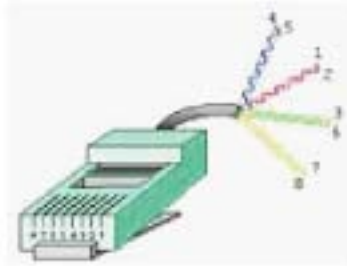

Figure 16: RJ 45 connector/cabling

9.4 Input/Outputs

9.4.1 DI / DO connector
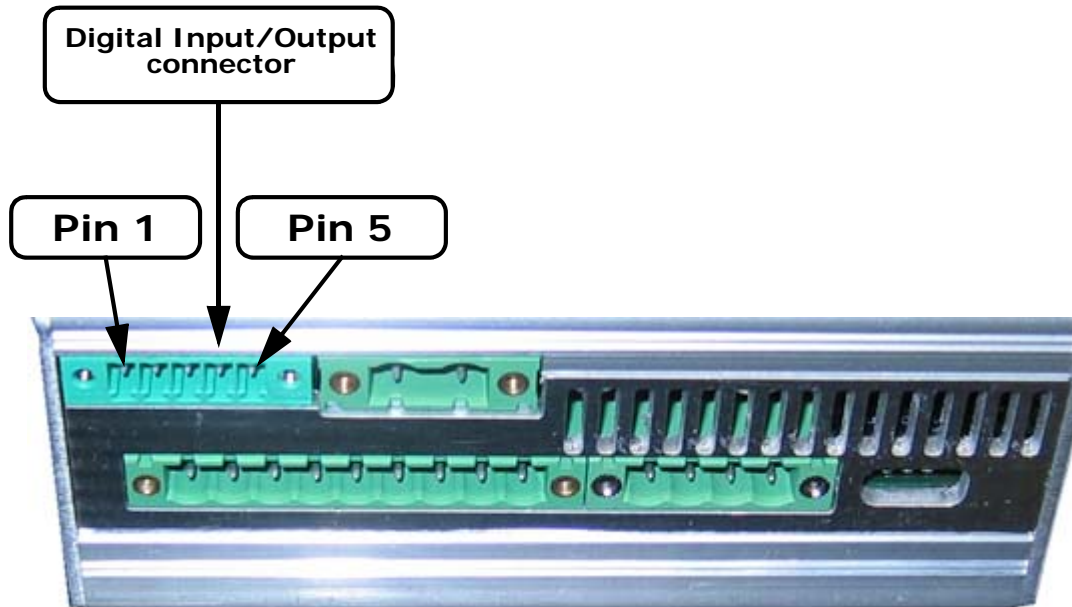
Figure 17: Digital Input/Output connector

• **Digital Input/Output mating female connector (included):**

Manufacturer:	Sauro	http://www.sauro.net/
Part Number:	CTF050VT	

Table 20: Digital Input/Output connector references

• **Digital Input/Output connector pinout:**

Pin	REF	Description
1	DO_GND	Output digital signal (0V ground) connected to the emitter of the transistor
2	DO_OC	Output digital signal connected to the collector of the transistor
3	DO_VDC	Common of the external predrive power supply (between +12 et +24 VDC)
4	DI_GND	Ground of the input (isolated)
5	DI	Input digital signal

Table 21: Digital Input/Output connector pinout

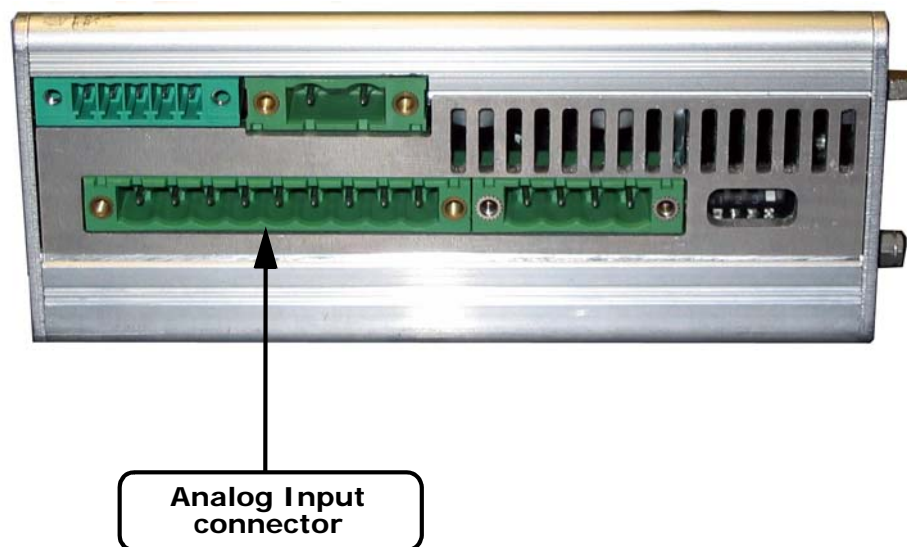### 9.4.2 Analog Input

Figure 18: Analog Input connector

• **Analog Input mating female connector (included):**

Manufacturer:	Phoenix	http://www.phoenixcontact.com
Part Number:	MVSTBW2,5/9-STF-5.08	

• **Analog Input connector pinout:**

Pin	REF	Description
1	AGND	Analog Ground
2	AI4	Analog Input 4
3	AI3	Analog Input 3
4	AI2	Analog Input 2
5	AI1	Analog Input 1
6	-RTD1	Negative pole of RTD1
7	+RTD1	Positive pole of RTD1
8	-RTD2	Negative pole of RTD2
9	+RTD2	Positive pole of RTD2

Table 22: Analog Input connector pinout
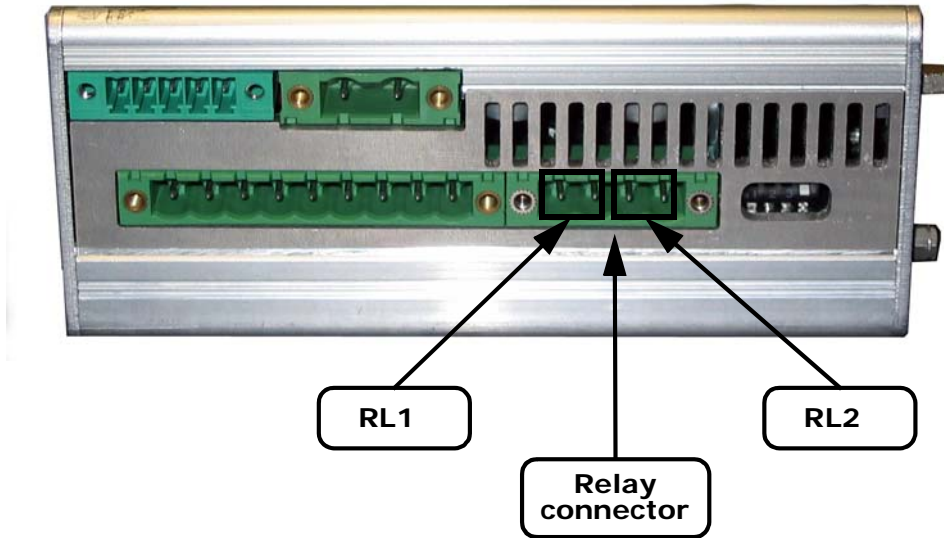
9.4.3 Relays output

Figure 19: Relays Output connector

• **Relays Output mating female connector (included):**

Manufacturer:	Phoenix	http://www.phoenixcontact.com
Part Number:		MVSTBW2,5/4-STF-5.08

• **Relays output connector pinout:**

Pin	REF	Description
1	RL1 a	Relay 1 pole a
2	RL1 b	Relay 1 pole b
3	RL2 a	Relay 2 pole a
4	RL2 b	Relay 2 pole b

Table 23: Relays Output connector pinout
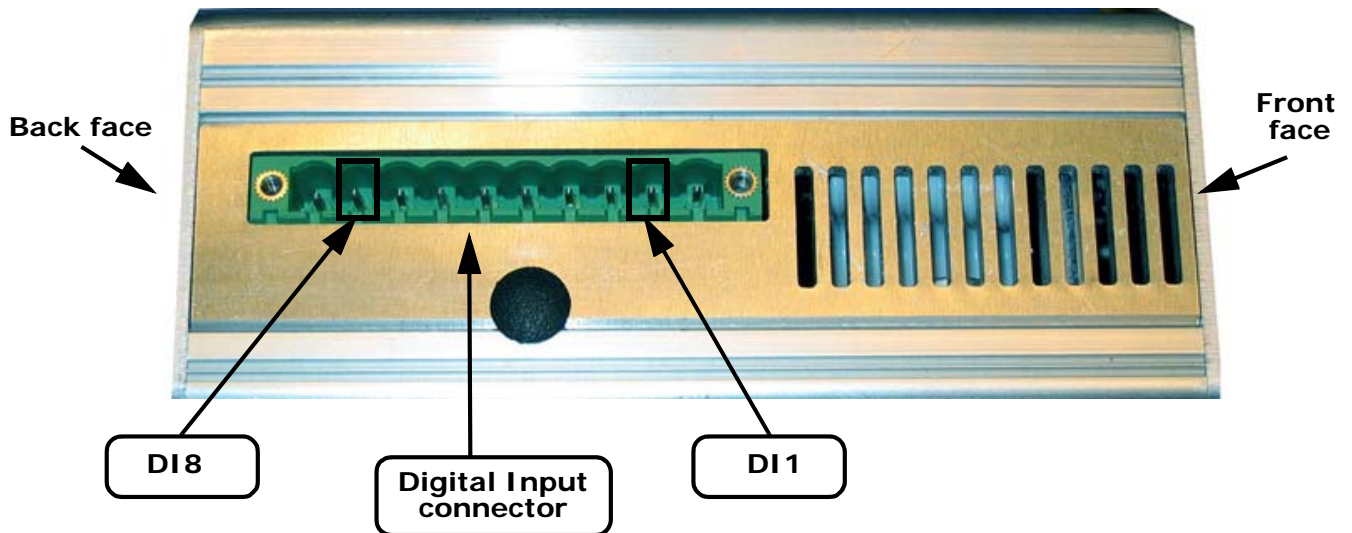
9.4.4 Digital input

Figure 20: Digital Input connector

• **Digital Input mating female connector (included):**

Manufacturer:	Phoenix	http://www.phoenixcontact.com
Part Number:		MVSTBW2,5/10-STF-5.08

• **Digital Input connector pinout:**

| Pin	REF	Description
1	ISOGND	Isolated ground
2	DI1	Digital Input 1
3	DI2	Digital Input 2
4	DI3	Digital Input 3
5	DI4	Digital Input 4
6	DI5	Digital Input 5
7	DI6	Digital Input 6
8	DI7	Digital Input 7
9	DI8	Digital Input 8
10	ISOGND	Isolated ground

Table 24: Digital Input connector pinout

9.5 Serial Ports

Figure 21: Serial ports connectors

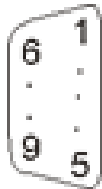| Type	Female DB9 with 4/40 blocking screws

9.5.1 Pinout serial ports 1 and 3 (according to mode):
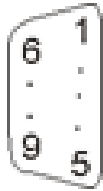
Pin	RS232	RS485	RS422
1	-	-	-
2	RXD	-	RX+
3	TXD	A+	TX+
4	-	-	-
5	GND	GND	GND
6	-	-	-
7	RTS	-	RX-
8	CTS	B-	TX-
9	-	-	-

Table 25: Serial ports 1 and 3 pinout

9.5.2 Pinout serial port 2

Pin	RS232
1	DCD
2	RXD
3	TXD
4	DTR
5	COM (GND)
6	DSR
7	RTS
8	CTS
9	RI

Table 26: Serial port 2 pinout

9.6 Unitelway/Modbus serial cable

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.

Twido Din Socket Pinout
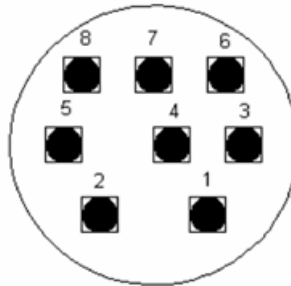
MiniDIN PIN	Schneider Signal Name	eWON™ Signal Name	eWON™ SUBDB9 connector
1	D(B)	A+	DB9 pin 3: A+
2	D(A)	B-	DB9 pin 8: B-
3			
4			
5			
6			
7	GND	GND	DB9 pin 5: GND
8			
Connector shield			

Table 27: MiniDin and SubDB9 connectors pinout

D(**A**) is connected to **B**- and D(**B**) is connected to **A+**

9.7 PSTN and ISDN phone line connector

• **PSTN phone line mating male connector (not included):**

Type	RJ11 type "6P2C" without shield

• **PSTN phone line mating male connector pinout:**

Pin	Description
1	-
2	-
3	TIP
4	RING
5	-
6	-

Table 28: PSTN connector pinout

• **ISDN phone line mating male connector pinout (RJ11):**

Pin	Description
1	-
2	TX+
3	RX+
4	RX-
5	TX-
6	-

Table 29: ISDN connector pinout

9.8 Antenna

9.8.1 Antenna connector specifications

For eWON with GSM/GPRS modem, the antenna connector is placed on the top of eWON.
.

Specification	Value
Type	SMA-F
Tightening Torque	MAX 0.5N.m (manual tightening should be used as a reference)

Table 30: Antenna connector specifications

9.8.2 Antenna specifications

For eWON with GSM/GPRS modem, the antenna specification is as follows:
.

Specification	Value
Type	Quadband 850/900/1800/1900 MHz
Impedance	50 Ohms
VSWR	Max. 2.0
Gain	Antenna used must not exceed a gain of: 8.4 dBi @ 850 MHz 3.5 dBi @ 1900 MHz

Table 31: Antenna specifications

Important: This device is to be used only in fixed applications. The antenna used for this transmitter has to be installed to provide a distance of at least 20 cm from any person and may not be co-located or operating in conjunction with any other antenna or transmitter.