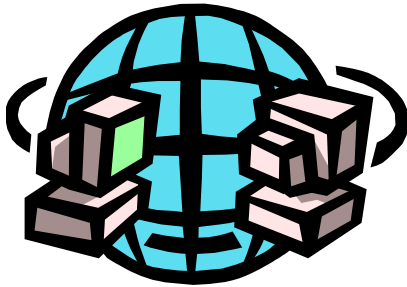


eWON³ 4000

Installation Guide
Rev 3.2



COOL INTERNET TELECONTROL SOLUTION

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1 Hardware description and product identification

1.1 Assembly description

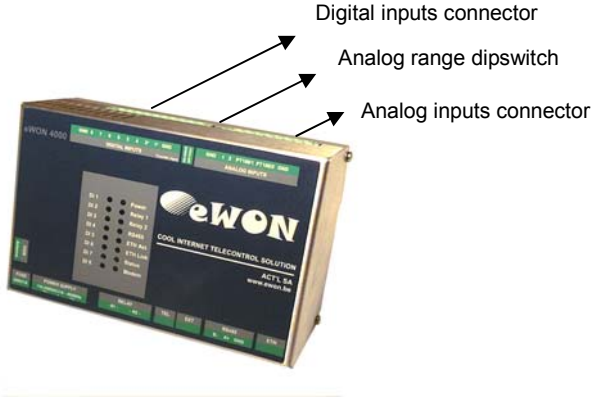
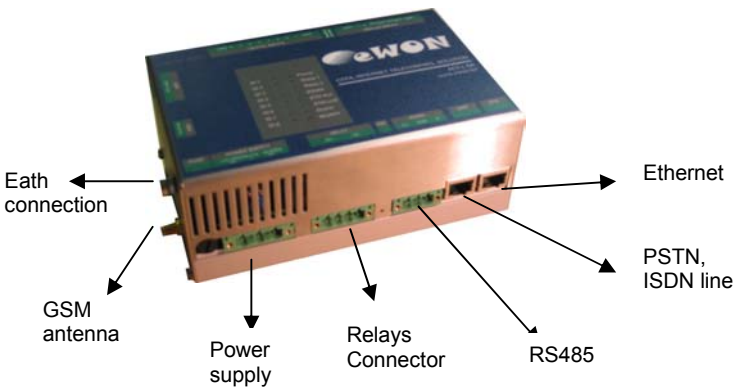


Figure 1 : eWON general description



1.2 Product identification

The eWON unit is labeled on its upper face (left side) as shown above. The label looks as follows:



Figure 2 : eWON serial number label

The eWON Serial Number (SN) is an important traceability tool both for the user and for 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.

1.3 Hardware & Software version status

The eWON hardware and software revisions can be checked with a web browser on the eWON server. Once logged onto the eWON (cfr. §3.3), any mouse click on the eWON logo shows these revisions (cfr §5).

1.4 Mechanical dimensions



Figure 3 : eWON mechanical dimensions

1.5 Location, environmental conditions

The eWON unit has an IP31 protection grade. It is therefore not suited for outdoor mounting. The unit design is such that it has to be integrated in an

enclosed electrical cabinet, protected from excessive heat, humidity and dust. Though the equipment meets CE emission and immunity requirements for EMC, it should not be exposed to excessive electromagnetic fields.

The normal mounting position is wall mounted on DIN-rail.

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

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

Caution : *as recommended in the next heading, allow extra space around the equipment. This extra volume is needed for convection cooling but also to facilitate installation and servicing.*

1.6 Preparing the installation

Shock Hazard ! *In most cases, the installation will imply proximity with hazardous voltages present at different points of the electric cabinet in which the eWON will be integrated. Therefore, the installation has to be performed only by fully qualified personnel.*

The recommended free space in the cabinet for the eWON should be at least: 250-mm wide x 225-mm high x 200-mm deep (terminal block excluded).

A piece of rigid DIN-rail profile (flat 35mm wide) of 200mm should be firmly fastened, horizontally, in the middle of the area.

Important : *Be careful when mounting the unit on the DIN-rail as doing it improperly could damage either the fixing brackets and/or the DIN-rail itself.*

Grounding : *It is essential to make sure the eWON® is correctly grounded through a low impedance connection. This is necessary both to ensure noise and surge protection as well as providing a valid zero voltage reference.*

The selected terminal size should allow introduction of at least 2 wires of 1.5 mm² or AWG 16 (to strap several poles together).

1.7 Digital Inputs – Counters Inputs

Female connector type :

Manufacturer : Phoenix Contact GmbH,

<http://www.phoenixcontact.com>

Reference : MSTB 2,5/10-STF-5,08

Pin assignment : (see eWON front label)

Pin Ref	Description	eWON Ref Name
GND	Digital Ground	-
8	Digital Input 8	DI8
7	Digital Input 7	DI7
6	Digital Input 6	DI6
5	Digital Input 5	DI5
4	Digital Input 4	DI4
3	Digital Input 3	DI3
2*	Digital input 2 Counter 2	DI2 CI2
1*	Digital input 1 Counter 1	DI1 CI1
GND	Digital Ground	-

Table 1 : digital inputs and counters pin assignment

Insulation: All Digital input are opto-isolated up to 3,5kv.

Digital inputs characteristics :

Specification	Value
Operating voltage	3.3Vdc
Input voltage range	0 to 30Vdc sink
Number of inputs	8
Common points	1
Signal delay (max.)	On=8ms Off=8ms
Off-State voltage (max.)	5Vdc
Off-State current (max.)	1.5mA
Maximum input voltage	33Vdc (Varistor protection)
Nominal input current	3.8mA @ 12Vdc 8.2mA @ 24Vdc

Table 2 : digital input characteristics

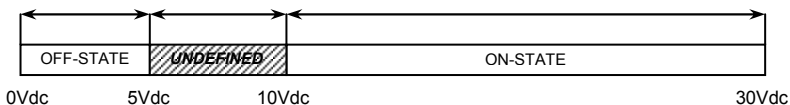


Figure 4 : input range

The input range extends from 0 to 30Vdc. A logic OFF state is detected when the input level is below 5Vdc. A logic ON state is detected when the input level is above 10Vdc. The logic level is undefined when the input is ranging between 5 and 10Vdc.

1.8 Analog Inputs

Female connector type :

Manufacturer : Phoenix Contact GmbH,
<http://www.phoenixcontact.com>
 Reference : MSTB 2,5/8-STF-5,08

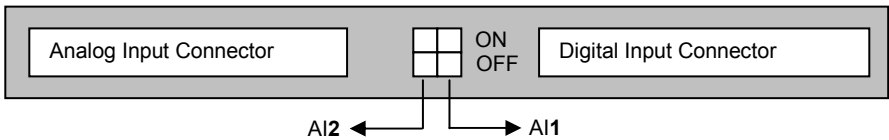
Pin assignment : (see eWON front label)

Pin Ref	Description	eWON Ref Name
GND	Analog Ground	-
1	Analog Input 1	A11
2	Analog Input 2	A12
PT100 /1	PT100 input 1	A13
PT100 /1	PT100 input 1	A13
PT100 /2	PT100 input 2	A14
PT100 /2	PT100 input 3	A14
GND	Analog Ground	-

Table 3 : analog input pin assignment

Note : Analog and digital grounds are not the same.

Analog Input Range : The input type of A11 and A12 can be set by the selection dipswitch to 0-10 VDC or 0-20mA.



WARNING: A12 switch is on the left!

Figure 5 : dipswitch location

Dipswitch Value	Range Value
ON	0 – 20mA
OFF	0 – 10 Volts

Table 4 : dipswitch values

Voltage input specifications:

Specification	Value
Operating voltage	3.3Vdc
Input range	0 to 10Vdc
Number of inputs	2
Common points	1
Resolution	10 bits
Precision	1%
Voltage input impedance	700k Ω
Bandwidth	5Hz
Overvoltage protection	12Vdc (Varistor protection)

Table 5 : analog voltage input specifications

Current loop input specifications:

Specification	Value
Operating voltage	3.3 Vdc
Input range	0 to 20mA
Absolute max. input current	30mA
Number of inputs	2
Common points	1
Resolution	40uA
Precision	1%
Current input impedance	250 Ω
Bandwidth	5Hz

Table 6 : analog current loop input specifications

PT100 input specifications:

These inputs are differential PT100 inputs that can be used with any classical 100 Ω PT100 sensing element. The resolution is about 0.1 $^{\circ}$ C, depending on the calibration. The precision is better than 0.5 $^{\circ}$ C, considering the PT100 linearity and precision are perfect.

Analog Inputs schematics principle :

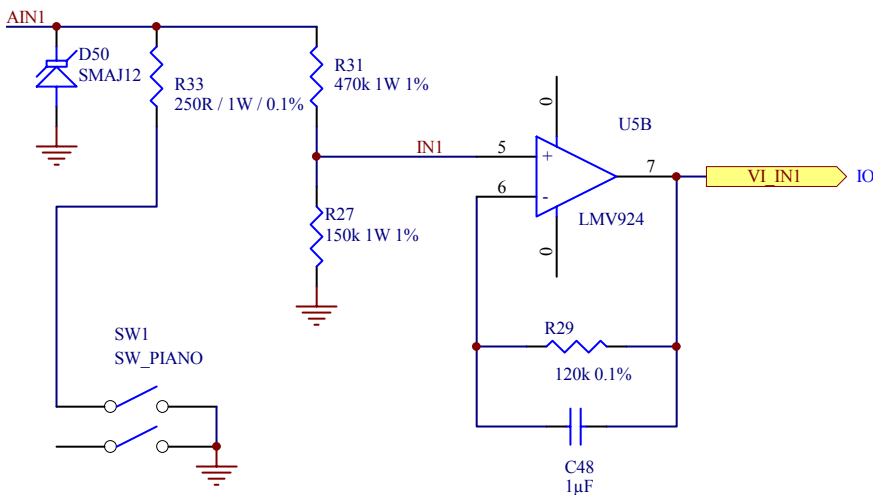


Figure 6 : analog input schematics principle

1.9 Digital Outputs

Female connector type :

Manufacturer : Phoenix Contact GmbH,
<http://www.phoenixcontact.com>
 Reference: MSTB 2,5/4-STF-5,08

Pin assignment : (see eWON front label)

Pin Ref	Description	eWON Ref Name
1	Relay 1 COM	DO1
2	Relay 1 NO	-
3	Relay 2 COM	DO2
4	Relay 2 NO	-

Table 7 : digital outputs pin assignment

Isolation : by relays, isolation primary/secondary

Digital outputs characteristics :

Specification	Value
Number of outputs	2
Configuration	SPDT / AZ832
Relay current rating	2A / 25Vdc 1A / 120VAC
Authorized eWON use	200mA / 24Vdc

Table 8 : digital outputs characteristics

This relay has a current commutation characteristic above the EWON specified value, because the aim of these relays is to control bigger relays, located on an expansion board. The wires between the EWON and the expansion boards can't support as much current as the relay would allow. The contact type is normally open.

1.10 Power supply

1.10.1 AC Power Supply

Female connector type :

Manufacturer : Phoenix Contact GmbH,
<http://www.phoenixcontact.com>
 Reference : GMSTB 2,5/3-STF-7,62

Pin assignment : (see eWON front label)

Pin Ref	Description	eWON Ref Name
1	Phase 1	NA
2	Ground	NA
3	Phase 2	NA

Table 9 : power supply pin assignment

Power Supply characteristics :

Specification	Value
Operating voltage	85 – 265 VAC 100 – 250 VDC
Frequency	40-60 Hz
Consumption with no load	100mW
Inrush current	TBD
Protection	275V varistor
EMI	Y filter
Max power	12.5 Watts

Table 10 : power supply characteristics

Fuse specifications:

Specification	Value
Type	Fast
Operating voltage/ current	220V/ 2A

Table 11 : fuse specifications

1.10.2 DC Power Supply

Female connector type :

Manufacturer : Phoenix Contact GmbH,
<http://www.phoenixcontact.com>
 Reference : GMSTB 2,5/3-STF-7,62

Pin assignment : (see eWON front label)

Pin Ref	Description	eWON Ref Name
1	+ (Positive)	NA
2	Ground - Earth	NA
3	- (Negative)	NA

Table 12 : power supply pin assignment

Power Supply characteristics :

Specification	Value
Operating voltage	18 – 55 VDC
Consumption with no load	200mA
Max power	12.5 Watts

Table 13 : power supply characteristics

Fuse specifications:

Specification	Value
Type	Fast
Operating voltage/ current	220V/ 2A

Table 14 : fuse specifications

1.11 Phone PSTN and ISDN Line

Male connector type :

Type: RJ45 type "8P2C"

Pin assignment for PSTN :

Pin Ref	Description
1	-
2	-
3	-
4	TIP
5	RING
6	-
7	-
8	-

Table 15 : Modem pin assignment

Pin assignment for ISDN :

Pin Ref	Description
1	-
2	-
3	TX+
4	RX+
5	RX-
6	TX-
7	-
8	-

1.12 RS485 bus

Female connector type :

Manufacturer : Phoenix Contact GmbH,
<http://www.phoenixcontact.com>
Reference : MSTB 2,5/3-STF-5,08

Pin assignment : (see eWON front label)

Pin Ref	Description	eWON Ref Name
A +	RS485 A	NA
GND	Ground	NA
B-	RS485 B	NA

Table 16 : RS485 pin assignment

1.13 Ethernet

Please refer to appendix A for further information on the Ethernet RJ45 connector.

1.14 GSM Antenna

Male connector type:

Type: Standard FME connector.

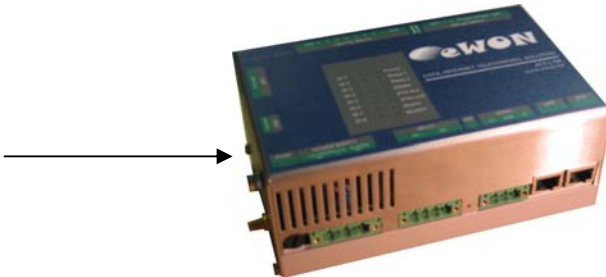
Antenna characteristics:

Specification	Value
Manufacturers	TBD

Table 17 : GSM antenna characteristics

1.15 Install your SIM card

- ✓ Insert the SIM card, as shown on the picture



2 Set the eWON TCP/IP address

The eWON is provided with a factory TCP/IP setting that always got a default value of:

IP	10.0.0.53
Subnet Mask	255.255.255.0
Gateway	"none"

This TCP/IP address is absolutely required to establish a connection (see next chapter) with the eWON.

For a lot of reasons, you would change this factory TCP/IP address to an address compliant with your TCP/IP network address range. The chapter 5.2.3 describes how to modify the TCP/IP address using the eWON web page interface.

This procedure could lead to the situation where you have an eWON for which you do not remember its TCP/IP address and then for which you are not able to connect with. To solve that problem, we provide a small software tool 'eWONCf' (you can download it from the <http://www.ewon.be> internet site).

To find the TCP/IP address of an eWON, just put it on your Ethernet network (it must be located in the same switch area) and launch eWONCf.exe.

eWONCf will scan automatically all the devices connected to the network and identify all eWON providing their TCP/IP address and serial number. It will also allow changing this TCP/IP address, mask and gateway.

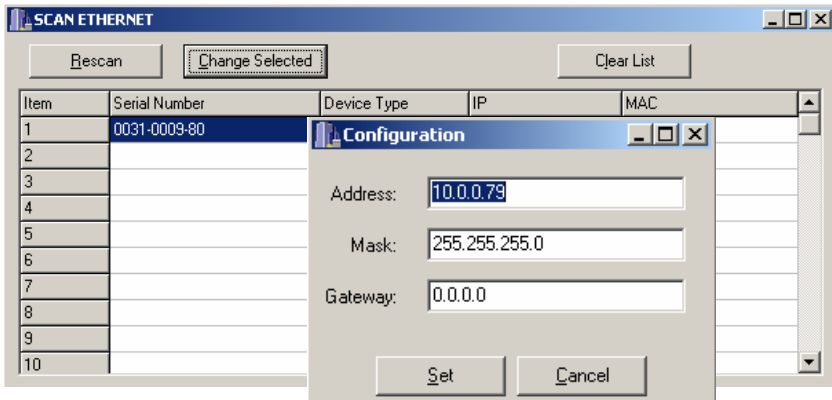


Figure 7 : eWON IP address configuration with eWONCf

3 Make a connection with the eWON

3.1 By Ethernet

1. Plug the Ethernet cable (see appendix A) between your eWON and your PC or onto your network
2. Configure your Internet browser connection, in order not to use a proxy server (please have a look at your browser help file).
With a direct connection between PC and eWON, TCP/IP settings can't have DHCP enable.
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 by default with Ethernet)
5. You should see the welcome eWON web page (see next page).

3.2 By Phone line or GSM

1. Open the root folder 'Dial-up Networking'.

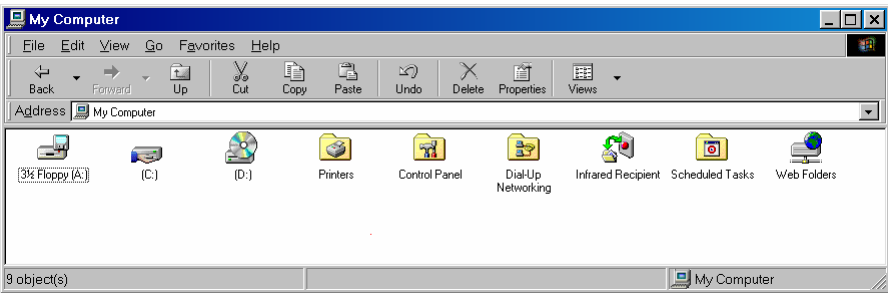


Figure 8 : Dial-up Networking location

2. Click on the icon ' Make new connection'.
3. Give a name to this connection (e.g. : eWON Broadway).
4. Select a local modem from the list.
5. Click 'Next'.
6. Introduce the phone number of your eWON.
7. Click 'Next'.
8. Click 'Finish'.
9. Double click on the Icon 'eWON Broadway' in the 'Dialup Networking' folder.
10. Wait until communication is established.
11. Launch our Internet Browser on your PC.
12. Types the eWON TCP/IP address on the address edit control of your Internet Browser (202.0.0.240 by default with dialup networking).
13. You should see the eWON welcome web page.

Important :

The eWON device, like a PC gets a different TCP/IP address for each of its network interfaces. If your eWON includes a modem, it has two different IP

addresses: one for the Ethernet (default: 10.0.0.53) and one for the modem connection (default: 202.0.0.240). This is because simultaneous connections can be made to the eWON. You can change these addresses into the Setup page.

Another important thing to understand is the client allocated IP address (§5.2.3). Indeed, as when you connect your PC to your Internet Service Provider (ISP), the eWON assigns an IP address to the PPP interface of your PC. This address has to be configured at an address outside your computer's network IP address range. For example if your company has got a base address of 10.0.0.0 and a subnet mask of 255.255.255.0, you can take any address outside of the range 10.0.0.0 to 10.0.0.255. Contact your system administrator in order to understand these features and to choose a correct assigned value.

4 Access to the eWON Technical Support

An eWON technical support is provided on our Web site (<http://www.ewon.be>). Just fill in the support request sheet or send your problem description to the tech@ewon.be.

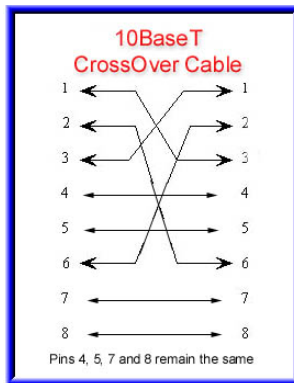
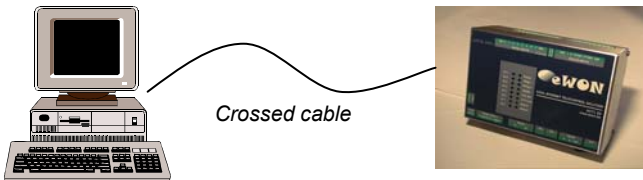
5 Appendix A: Ethernet cabling

The eWON can be connected by the mean of the 100BaseTX Ethernet connection. This connection can be realized through the use of two different cables. These cables are UTP5 copper cables with RJ45 connectors at each end.

The cable type depends on the device connecting the eWON4000. It can be, in most case, a Personal Computer running windows or a company hub.

5.1 Direct PC connection

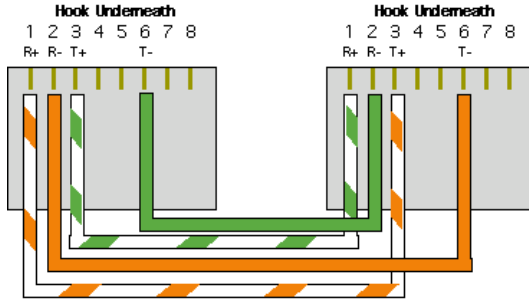
If the eWON is connected to a computer without the use of a hub, the cable has to be crossed:



When cabling over long distance, you have to take care of the twisted pairs. This mean 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:

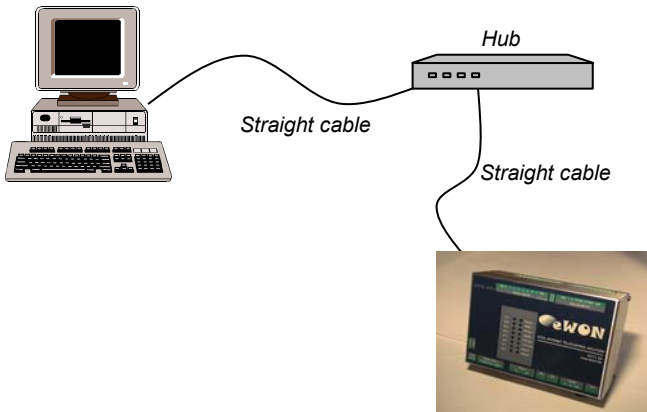
- ✓ TX+: pin3, TX-: pin6 Twisted pair 1
- ✓ RX+: pin1, RX-: pin2 Twisted pair 2

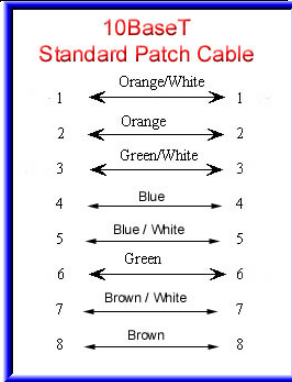
Pins 4, 5, 7 and 8 do not have to be connected. The following picture shows the twisted pair connections:



5.2 Hub connection

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:





5.3 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:

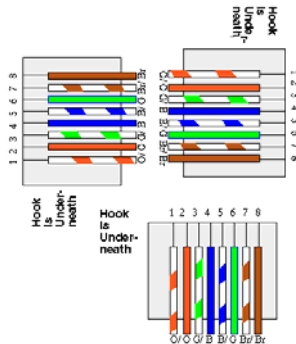
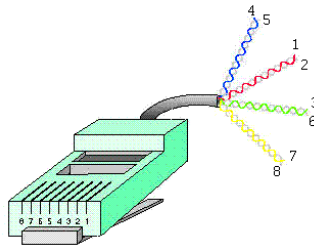




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