User Guide

GenIP 30i

Reference: EG_GenIP30i_1016_UG_004_UK

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Document History

Rev.	Modifications	Author	Date	Validation	Date
000	CREATION	YST	10/05/2012	LGO	14/05/2012
001	§ 3.2.1.2 Screw connectors and § 6.7 Input / Output Interface la pin 19 O4-is actually O3- § 5.2.1.1 Definition of course of actions in a scrip adding this paragraph. § 5.2.3.1 Management of characters in the buffer § 5.2.6 Macro Commands update the presentation, adding macros. § 5.2.7 Dynamic messages update the message list. § 5.2.8.2 Sequence of script adding an application example. § 5.2.16.1 Connect disconnect WAN link in the script adding this paragraph. § 5.2.26 Hardware Option adding this paragraph. § 5.2.27 Inactivity Timer adding this paragraph. § 5.3.2.3 Format of data and number of registers that can be read Adding parameter INVERTED. § 5.3.7 Addressable memory of the GenIp modification updating the address space. § 6.8 External Supply V_O and § 7.2.7 External power supply VO uploading the limitation of the output V_O. § 7.2.5.2 Analog Inputs in current (0-25mA) adding information on the conversion range. §8.1 General security added used precaution	YST	03/05/2013	LGO	03/05/2013
002	Fixed dialing paragraph §5.2.5 Add macro Command §5.2.7.1 to 5.2.7.3 Dynamics messages § 5.2.8.2 Default value script number § 5.2.9.1 Integrate address 132.xxx.xxx.xxx §5.2.15 Setting GSM CSD Update screen shot ModBus § 5.3.2.1 ModBus Structure Update comsumption § 7.2 Electrical characteristics	LGO YST	26/03/2014	YST	14/10/2014
003	Add § 5.4 Information on SNMP function § 7.2.8 Output Input and External Power supply behavior	LGO	22/10/2014	YST	24/10/2014
004	Add § 5.2.6 Macro command reset modem § 5.2.8 PHP language § 5.2.24 IPsec Tunnel § 5.2.25.1 Chart used § 7.2.5.1 Analog Inputs in Voltage (0-25V § 7.2.5.2 Analog Inputs in current (0-25mA § 7.2.6.2 Add scheme Output active	LGO	21/10/2015	YST	10/11/2014

The main modifications of this document compared to the previous version are easily identifiable on the screen by the blue color of the text.

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Presentation

Entirely dedicated to the most critical and sensible industrial applications, the **GenIP 30i** with its aluminum Din-rail casing associates the wired connections of high and very high speed (Ethernet / USB) with the wireless world (GSM / GPRS / and 3G).

Autonomous, simple to configure (intuitive and multi-language interface) and with a high performance (ARM9 processor), it will help you all along your industrial phases concerning alarm and events management, network interconnection (Ethernet, Modbus), command interpreter and secure storage of critical information. For added security, the **GenIP 30i** is equipped with a watchdog hardware and software.

It provides a communication interface GSM / GPRS / 3G and knows how to be available and/or how to monitor your critical equipments (Notification by email / SMS / WAN /FTP / TCP and Voice in option).

It is also able to interconnect your ASCII protocols to your new Ethernet platforms (Modbus RTU to Modbus TCP conversion).

5 years warranty, it has the same qualities as all our products: Robustness, Reliability and Long Life.

The **GenIP 30i** belongs to the DIN-rail range of **ERCOGENER**.

This document describes the product and provides the following information:

- General presentation,
- Functional description,
- Available basic services,
- Installation and use of the **GenIP 30i** (first level),
- Trouble shooting,
- Recommended accessories for the use of the product.

For more information concerning this document, **ERCOGENER** puts at your disposal (on the Internet www.ercogener.com or upon request) the following elements:

- Application Note
- Release Note
- Client support (Hot-Line)

Warning

- **ERCOGENER** r advises to read carefully all the documents concerning the products **GenIp 30i** (User Guide, Application Notes, Command List).

- **ERCOGENER** cannot be held responsible for:
    - The problems due to an inappropriate use of the **GenIP 30i.**
    - The problems due to a wrong configuration
    - The problems due to a wrong use of an embedded software application developed and supplied by a third party.
    - The dysfunctions due to the absence or a bad coverage of the GSM, WAN networks.
    - The dysfunctions if the product is used for the watching of physical persons where human life is engaged.

- **ERCOGENER** reserves the right to modify the functions of its products " **GenIP 30i**".

- In order to avoid any risk of electrocution, do not open the casing.

- For any functioning, the casing must be closed.

- No internal part can be repaired by the user. The **GenIP 30i** must be returned to the factory for any repair.

- The **GenIP 30i** must be placed in a normally ventilated area, out of sources of heat.

- In order to guarantee the electromagnetic compatibility, the length of the USB cable and the supply cable must not exceed 3 meters.

- The **GenIP 30i** must not be connected directly to the mains supply; a voltage adapter must be used.

SCRAP THE WORN BATTERIES ACCORDING TO INSTRUCTIONS.

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1 References

1.1 Referred documents

Software update Procedure:

EG_GenIP30i_1016_UP_xxx_UK

GSM reference documents:

- GSM 07.05.
- GSM 07.07.

1.2 Abbreviations

Abbreviations Definition

AC	Alternative Current
ACM	Accumulated Call Meter
AT	Attention (prefix for modem commands)
BTS	Base Transceiver Station
CLK	ClocK
CMOS	Complementary Metal Oxide Semiconductor
CS	Coding Scheme
CTS	Clear To Send
dB	Decibel
dBc	Decibel relative to the Carrier power
dBi	Decibel relative to an Isotropic radiator
dBm	Decibel relative to one milliwatt
DC	Direct Current
DCD	Data Carrier Detect
DCE	Data Communication Equipment as Modem...
DCS	Digital Cellular System
DSR	Data Set Ready
DTE	Data Terminal Equipment as Computer...
DTMF	Dual Tone Multi-Frequency
DTR	Data Terminal Ready
EEPROM	Electrically Erasable Programmable Read-Only Memory
EFR	Enhanced Full Rate
E-GSM	Extended GSM
EMC	ElectroMagnetic Compatibility
EMI	ElectroMagnetic Interference
ESD	ElectroStatic Discharges
ETSI	European Telecommunications Standards Institute
FIT	Series of connectors (micro-FIT)
FR	Full Rate
FTA	Full Type Approval
GCF	Global Certification Forum
GND	GrouND
GPIO	General Purpose Input Output
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
HR	Half Rate
I	Input
IEC	International Electrotechnical Commission
IMEI	International Mobile Equipment Identification
I/O	Input / Output

LED	Light Emitting Diode
MAX	MAXimum
ME	Mobile Equipment
MIC	MICrophone
Micro FIT	Family of connectors from Molex
MIN	MINimum
MNP	Microcom Networking Protocol
MO	Mobile Originated
MS	Mobile Station
MT	Mobile Terminated
NOM	NOMinal
O	Output
Pa	Pascal (for speaker sound pressure measurements)
PBCCH	Packet Broadcast Control Channel
PC	Personal Computer
PCL	Power Control Level
PDP	Packet Data Protocol
PDU	Protocol Description Unit
PIN	Personal Identity Number
PLMN	Public Land Mobile Network
PUK	Personal Unblocking Key
RF	Radio Frequency
RFI	Radio Frequency Interference
RI	Ring Indicator
RMS	Root Mean Square
RTS	Request To Send
RX	Receive
SIM	Subscriber Identification Module
SMA	SubMiniature version A RF connector
SMS	Short Message Service
SNR	Signal-to-Noise Ratio
SPI	Serial Peripheral Interface
SPL	Sound Pressure Level
SPK	SpeaKer
SRAM	Static RAM
TCP/IP	Transmission Control Protocol / Internet Protocol
TDMA	Time Division Multiple Access
TU	Typical Urban fading profile
TUHigh	Typical Urban, High speed fading profile
TX	Transmit
TYP	TYPical
UTC	Universal Time Clock
VSWR	Voltage Stationary Wave Ratio

1.3   Symbols

The following symbols are used to highlight the important information of this user guide.

A symbol for the essential information concerning the module integration and performance.

A warning symbol indicates the actions that could harm or damage the module

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2 Packaging

2.1 Content

The GenIp 30i is supplied with:

- a cardboard packaging,
- a GenIP 30i ,
- a straight RJ45 Ethernet cable,
- a Male/Female 9 pin cable,
- a pluggable connection female 2 pts with screw of 3.84mm,
- a pluggable connection female 22 pts with spring Push-In of 3.84mm,
- GSM hinged antenna (SMA-M),
- a technical sheet (Instructions Sheet).

2.2 Packing case

The external dimensions of the GenIP 30i packing case are:

- .Width .... :   163 mm,
- Height .... :   66 mm,
- Length .... :   295 mm.

An identification label is put on the box side. It shows:

- The product reference (GenIP 30i),

- The CE mark,

- The serial number.
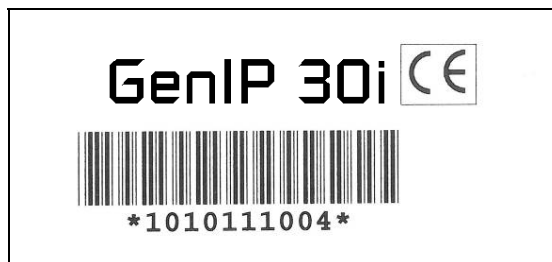
The dimensions of the label are:

- Height: 37 mm,

- Length: 70 mm.

2.3   Modem labels

Under the GenIP 30i, there is a label providing the following information:

- The ERCOGENER logo,

- The product name,

- The IP address and the subnet mask by default,

- The IMEI number with 15 digits,

- The serial number,

- The Mac address,

- The CE and RoHS Compliant marks,

- The crossed wheelie-bin mark (DEEE standards).

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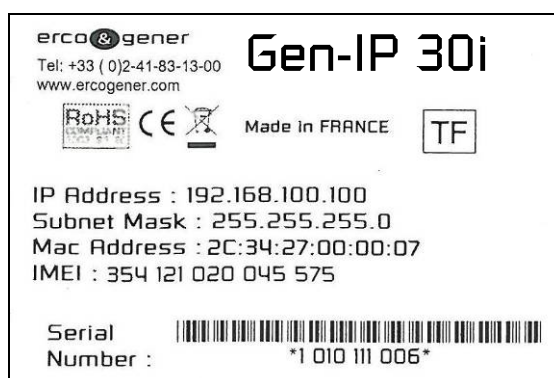
3 General presentation

3.1 Description

Description of the GenIP 30i:

Front side

Sub D 9pin/F connector

SMA/F antenna connector

SIM reader

LEDS

Ethernet and LAN Connector

USB Connector

LEDS

Connector

   - RS485

   - V_O

Reset Button

   - INPUT (Dig/Ana)

   - OUTPUT (Dig/Ana)

Supply Connector

   - GND

Rear side

DIN-Rail fixing

Clip

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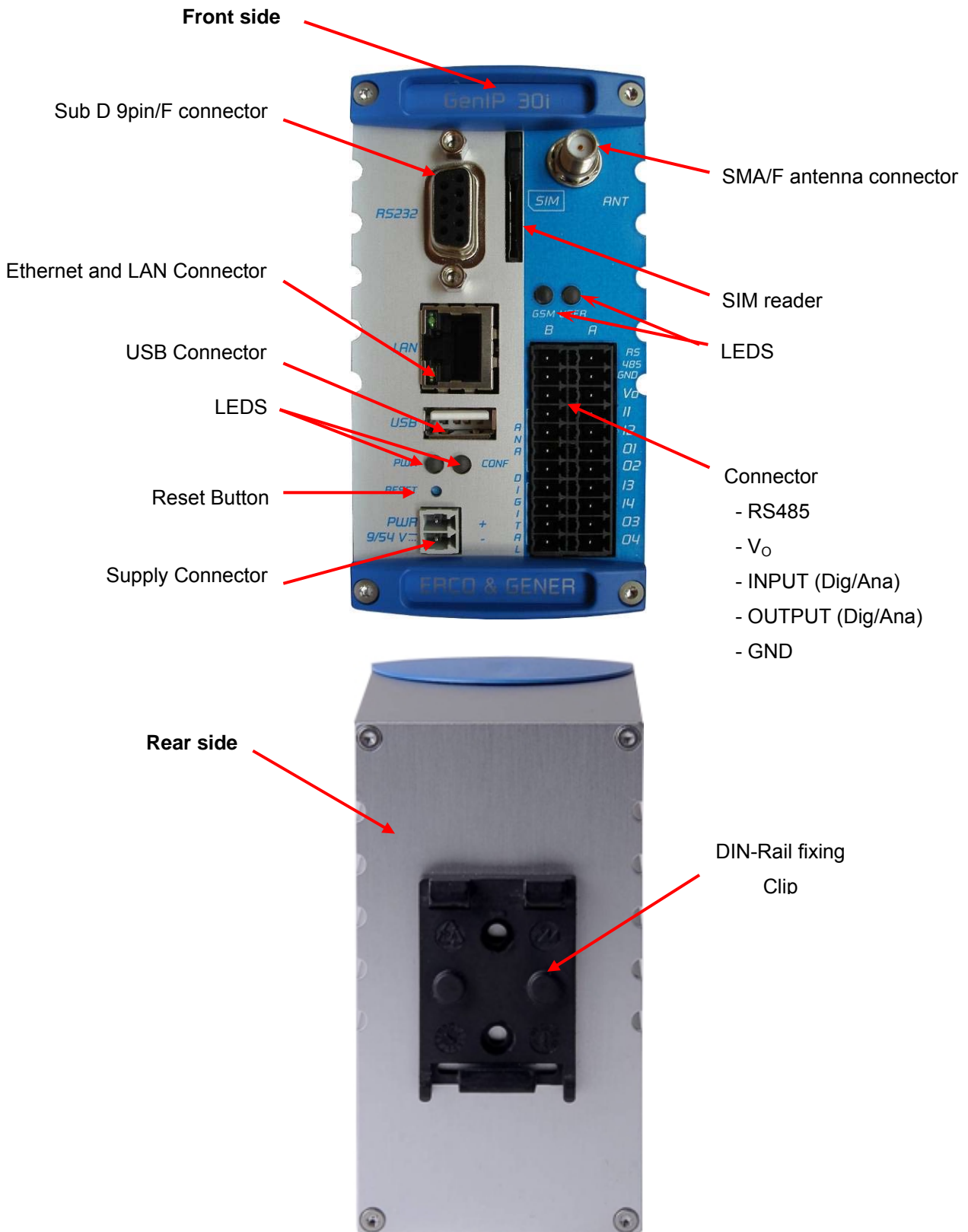
3.2 External connections

3.2.1 Connections

3.2.1.1 Antenna connector

GSM antenna connector:

The GSM antenna connector is SMA female with a 50Ω characteristic impedance.

3.2.1.2 Screw connectors

Screw connectors with 2 male pins supply $9/54V_{DC}$:

This connector is for the power supply.

Pin N°	Signal
1	+ VDC
2	- GND

Pluggable connection with 22 male pins:

This connector of the GenIP 30i is a connector for the RS485, the digital and analog Inputs/Outputs.
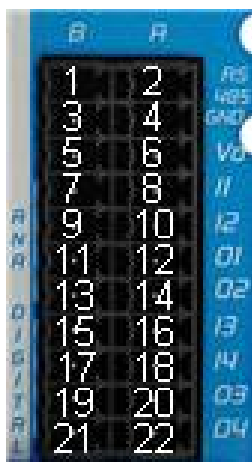
Pin N°	Signal	Pin N°	Signal
1	RS485 B–	2	RS485 A+
3	GND	4	GND
5	GND	6	V_O
7	GND	8	I1
9	GND	10	I2
11	O1-	12	O1+
13	O2-	14	O2+
15	GND	16	I3
17	GND	18	I4
19	O3-	20	O3+
21	O4-	22	O4+

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3.2.1.3   Sub D 9-pin connector

The Sub D 9-pin female connector is used for the RS232 serial link connection.

Pin N°	Description	Circuit (V24 – RS232C)	I/O
1	Signal detection	109 – DS – DCD	O
2	Data reception	104 – RD – RXD	O
3	Data transmission	103 – ED – TXD	I
4	Data terminal ready	108/2 – TDP – DTR	I
5	Signalization ground	102 – TS – GND	-
6	Data set ready	107 – PDP – DSR	O
7	Request to send	105 – DPE – RTS	I
8	Clear to send	106 – PAE – CTS	O
9	Ring indicator	125 – IA – RI	O

By default, all the outgoing signals are in high level. To dialog with the GenIP 30i, only the TXD, RXD and ground signals are essential. The other signals are not necessary.

3.2.1.4   RJ45 Ethernet LAN connector

The RJ45 connector is used for the Ethernet LAN connection. The LAN speed is 100 Mbits.
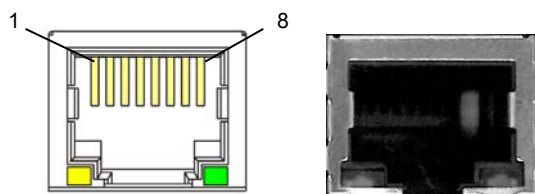
Pin N°	Signal
1	TD+
2	TD-
3	RD+
4	CT
5	CT
6	RD-
7	NC
8	GND

GenIP 30i accepts straight or crossed Ethernet cables.

Status of the connector leds

Action	LED	Status
At powering ON	Green and yellow	OFF
When LAN is electrically connected	Yellow	Fixed
Exchanges of information on LAN	Green	Flashing

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3.2.1.5   USB connectors

The GenIP 30i provides 2 connectors.
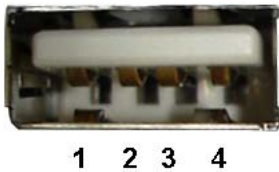
Pin name	Signal
1	Power +5V (V_{BUS}) 500mA max.
2	Data (D-)
3	Data (D+)
4	Ground (GND)

3.2.1.6   Reset Button

The "*Reset*" button is situated under the 2 LEDS "*PWR*" and "*CONF*".

It can be pressed thanks to an accessory of a diameter < 2mm (paperclip for example)

This button has two functions:

- Reloading the factory configuration,
- Reloading the reference configuration.

Procedure for reloading the factory configuration:

- Turn the GenIP 30i OFF,
- Press the Reset button,
- Turn the GenIP 30i ON,
- Wait 30 seconds before the CONF led flashes and the GSM led turns ON or flashes.
- Release the Reset button,
- Wait PWR fixed and after blinked
- From now on, the factory parameters are reloaded.

Procedure for reloading the reference configuration:

To work, there must have been a reference configuration saved in the GenIP 30i.

If there was no reference configuration saved, then the factory configuration will be loaded.

- The GenIP must be powered ON and the Power led must be flashing,
- Press during 5 seconds the Reset button,
- After a few seconds, the led Power is fixed.
- Release the button
- Then the Power led flashes, indicating that the procedure is now finished,
- From now on, the GenIP 30i has reloaded the reference configuration parameters (IP address, mask...).

3.2.2   Accessories supplied

3.2.2.1   Straight cable 9pin M/F

The straight cable 9pin M/F allows to dialog via the RS232.

DB9M   DB9F
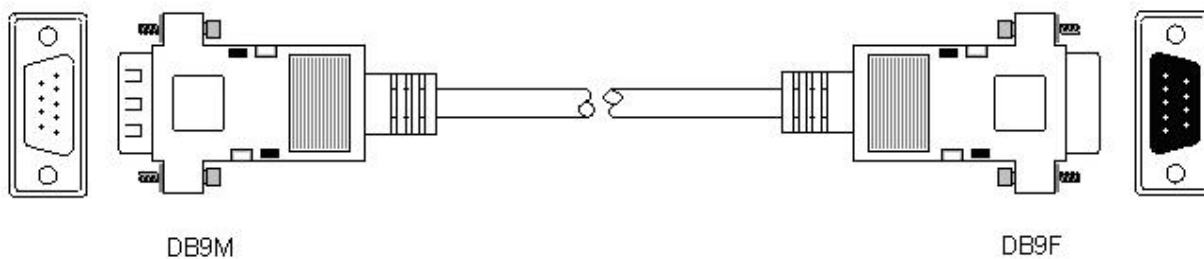
Component	Characteristics
Straight cables 9pin Male/Female	Length ≈ 2m
	9 wires
	Lockings

Pin N°	Designation	Circuit (V24 – RS232C)
1	Signal detection	109 – DS – DCD
2	Data reception	104 – RD – RXD
3	Data transmission	103 – ED – TXD
4	Data terminal ready	108/2 – TDP – DTR
5	Signalization ground	102 – TS – GND
6	Data set ready	107 – PDP – DSR
7	Request to send	105 – DPE – RTS
8	Clear to send	106 – PAE – CTS
9	Call indicator	125 – IA – RI

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3.2.2.2   Ethernet RJ45 straight cable

The RJ45 Ethernet cable allows to dialog via the LAN Ethernet.
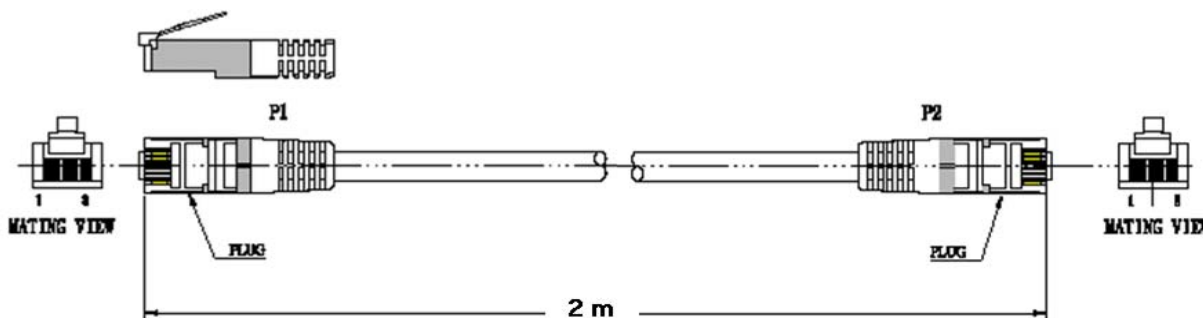
Component	Characteristics
RJ45 straight Ethernet cables	Length ≈ 2m
	8 wires
	RJ45+S/R (YUS-01)

3.2.2.3   GSM hinged antenna (SMA-M)

A GSM hinged antenna (SMA Male connection) is supplied with the GenIP 30i.

It is possible and advised to use an antenna with cable for swerving needs.

Component	Characteristics
GSM hinged antenna	Dimension straight : 90 mm Dimension bent at 90°C : 30 x 70 mm
SMA-M	GSM 850 / 900 / 1800 / 1900 / 3G

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4 Technical characteristics and Options

The GenIP 30i is a gateway Ethernet, RS232, RS485 to GSM / GPRS / 3G.

4.1 Technical characteristics

The GSM/GPRS/3G characteristics and the functions are summarized in the table hereunder.

GSM/GPRS/3G characteristics		
- E-GSM	850 MHz	
	900 MHz	
	1800 MHz	
3G	2100 MHz	
- ETSI GSM Phase 2+	Class 4 (2W)	
	Class 1 (1W)	
- EGPRS Class 10 (Up to 4Rx / 2Tx)		
- HSDPA features – 3GPP Release 5		
- UMTS features - 3GPP Release 4		
Functions		
Secured parameters interface (HTTPS / Login / Password)		
Multi-language parameters interface (FR / UK)		
Multi-Language hotline (FR / UK)		
Embedded Web server: APACHE		
Parameters interface accessible via the Ethernet and GSM / GPRS link		
Back-up of a configuration in a text file		
Port Forwarding		
Firewall integrated with automatic management		
Alarms management : Transmission of email / SMS / GSM frame / GPRS frame		
Converter ModBus TCP / ModBus RTU		
Information storage		
Routing IP (RIP)		
Linux IP Stack: TCP / UDP / FTP, DHCP client and server, SMTP / POP3 (Via Ethernet and/or GPRS), HTTPS / HTTP Client : DYNDNS / SNTP VPN SSL or VPN IPSec Client : GnuDIP		
GPRS connection automatic, systematic or upon events		
Complete set of Macro Commands		
Diagnostic and administration tools integrated		
Events diary		
Watch Dog hard and soft		
Interfaces		
RS232 : Sub-D 9-M		
RS485 : Connector		
USB (Host)		
RJ45 Ethernet Port (10 / 100 Mbps)		
Antenna connector SMA-F		

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Large band supply : 9 to 54 Vdc
SIM reader with holder (3V – 1.8V)
4 Leds : PWR / CONF / GSM / USER (configurable)

4.2 Accessories and Options

The Accessories and Options are described in the table hereunder.

Accessories
Screw connection (Power supply, RS485)
Spring connections Push-In (RS485, V_O, I/O)
RS232 cable (Sub-D 9-M / Sub-D 9-F)
Straight Ethernet cable
GSM hinged antenna (SMA-M)
Options (*)
High output GSM / GPRS/3G antenna
USB cable
Standard mains block
Tropicalization

(*) Options, contact us.

4.3 Backup battery

The GenIP 30i is equipped with a battery which maintains the real-time clock.

This battery has a 20-week autonomy, with the equipment OFF.

The charging time is 4 days.

When it is discharged, it does not affect the good working of the equipment. Only a clock updating will be necessary when powering ON the GenIP 30i.

4.3.1 Characteristics of the battery

Technology	Ni-Mh (Nickel - Metal hydride)
Nominal Voltage	1.2 V
Capacity	40 mAh
Dimensions	Ø 11.5 x 5.35 mm

SCRAP THE WORN BATTERIES ACCORDING TO INSTRUCTIONS

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5 Using the GenIP 30i

5.1 Starting with the GenIP 30i

5.1.1 Assembling and disassembling the GenIP 30i

By default, the modem is provided with a Din-Rail fixing clip (35mm) directly assembled on the modem.

The Din-Rail fixing clip (35mm) allows a quick assembling/disassembling on a DIN-Rail (35mm) OMEGA (IEC/EN 60715 / DIN (35mm) 7.5mm).

To mount the modem on a DIN-Rail (35mm), follow the step 1 (pressure) and the step 2 (turn).
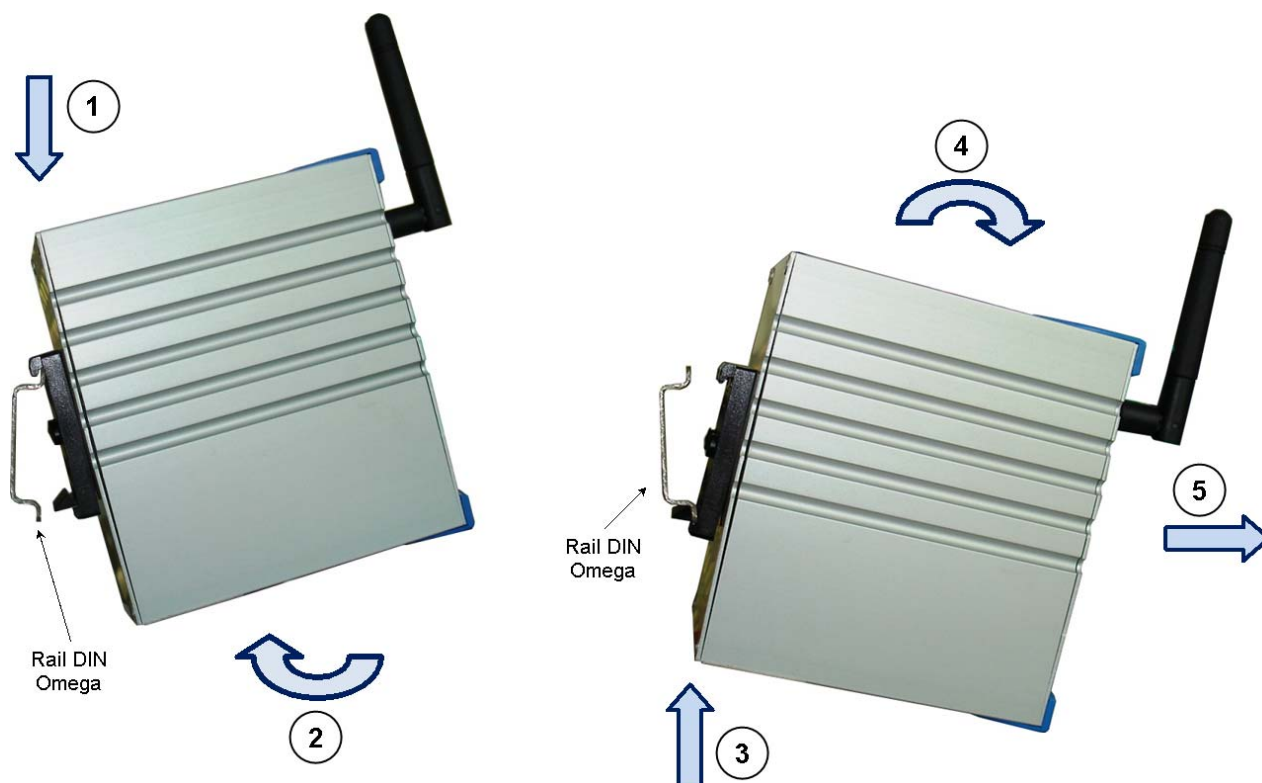
To remove the modem from the DIN-Rail (35mm), follow the step 3 (pressure) and the steps 4-5 (turn and remove).

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5.1.2 SIM card Access

5.1.2.1 Insertion Carte SIM

- Unlock
- Carefully insert the SIM card in the SIM card reader.
- Push the SIM card until hearing a "clic" which ensures its correct positioning.
- Lock
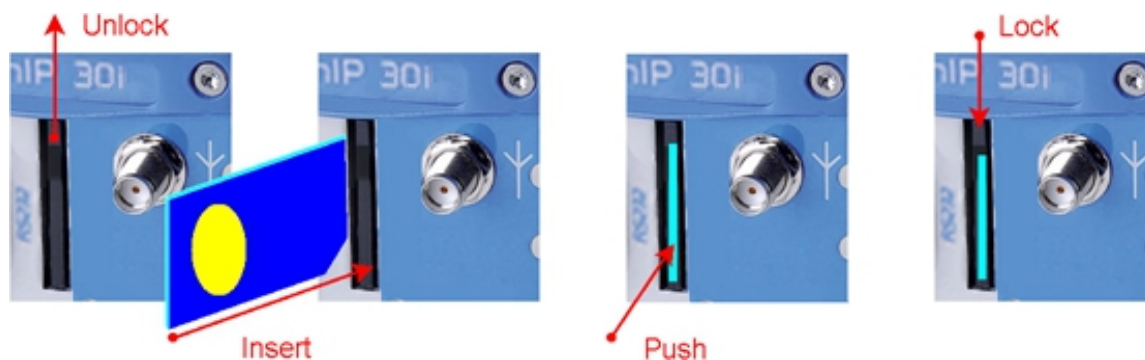
5.1.2.2 SIM card Removal

- Unlock
- Push the SIM card until hearing a "clic" which ensures its removal.
- Carefully remove the SIM card from the SIM card reader.
- Lock

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5.1.3   Installation of the GenIP 30i

To install the GenIP 30i, it is recommended to do the following operations with the modem turned off:

- Insert the SIM card in the drawer respecting the direction, and carefully insert them in the reader.
- Check that the SIM card is correctly positioned.
- Screw the GSM hinged antenna in the SMA connector.
- For the connection to the DTE, connect the LAN link via the straight Ethernet RJ45 cable.
- Screw the supply cable in the 2-pin connector, respecting the polarities, and connect to the external power DC supply source, stabilized and regulated.
- Connect the 2-pin connector with the supply cable in the GenIP 30i and turn the external supply source on (the LED PWR must turn on).

When the "*PWR*" led flash, The GenIP 30i is ready.

To set the parameters of the different functions of the GenIP 30i, the use of an internet browser is advised.

5.1.4   Using the GenIP 30i with the browser

To use and configure the GenIP 30i, the IP address and the subnet mask must be entered.

This window is in the Control Panel / Internet and Network Connections / Connection to local network / Internet Protocol (TCP/IP) / Properties

Example under XP.

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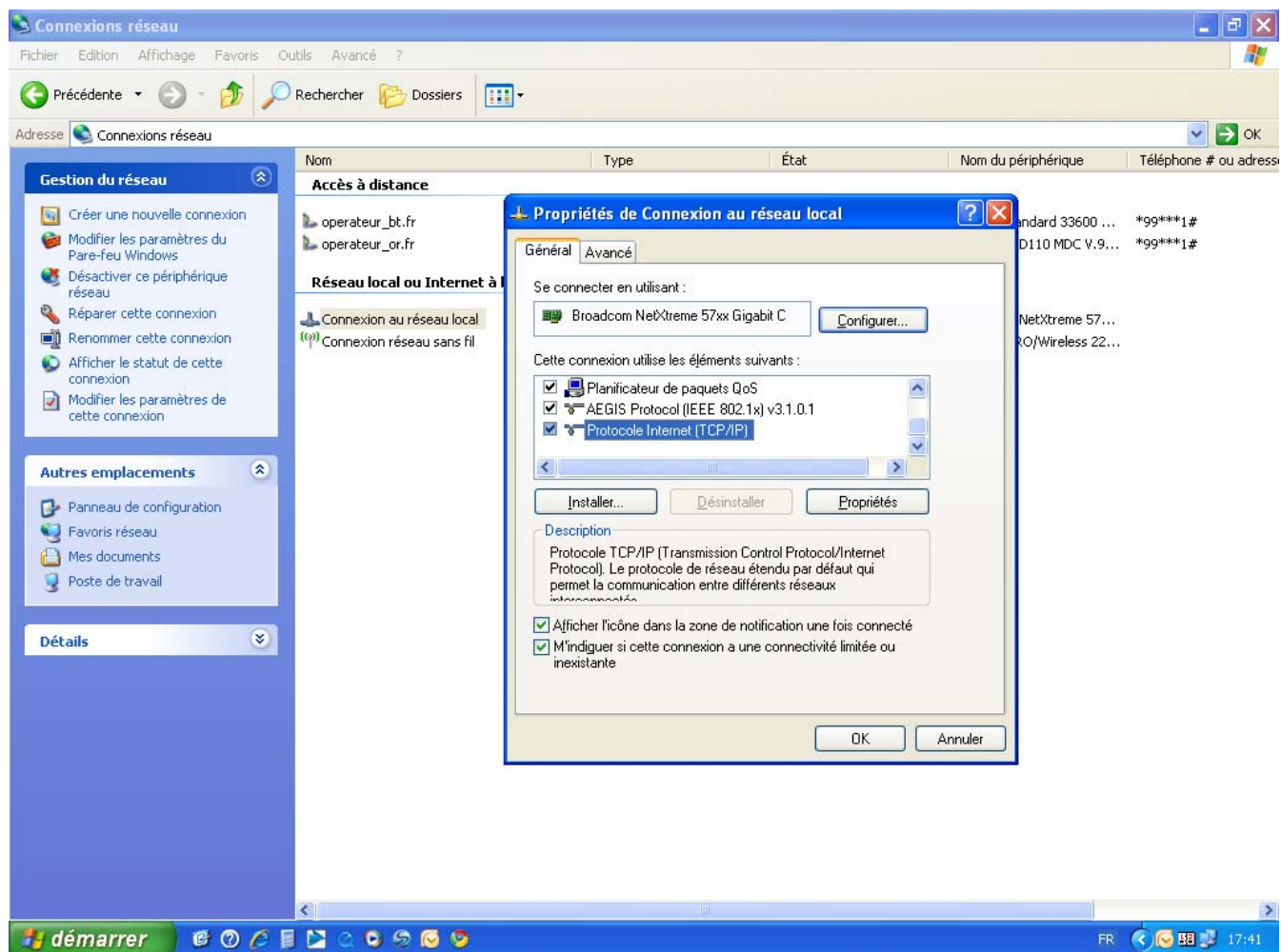
In the window Internet Protocol Properties (TCP/IP), enter an IP Address and the subnet mask (see hereunder) and validate with OK
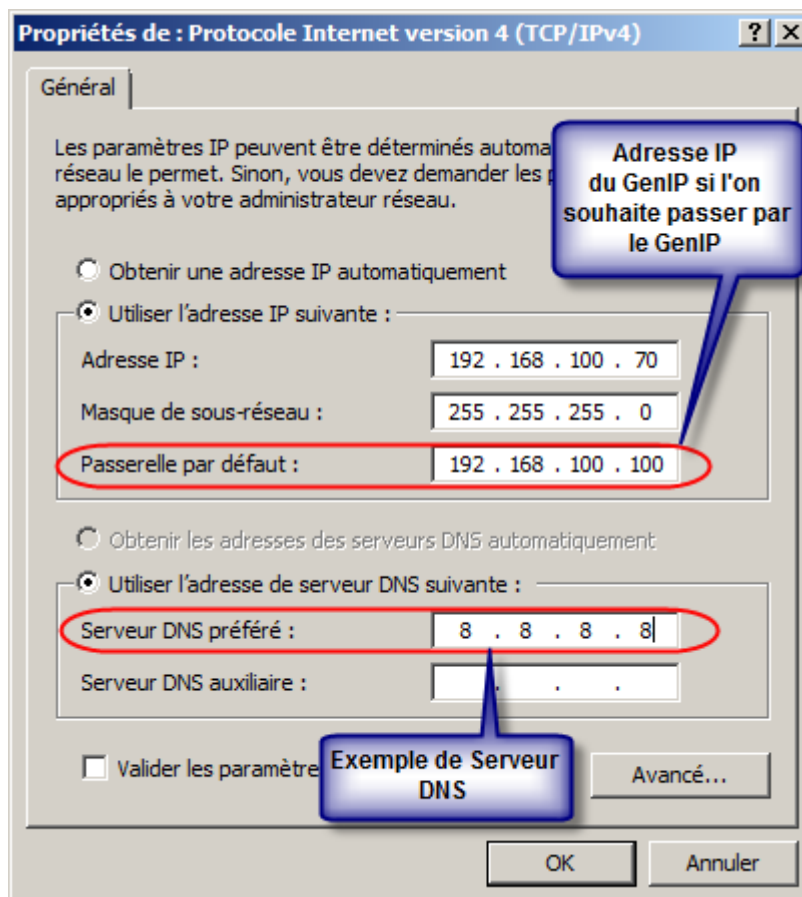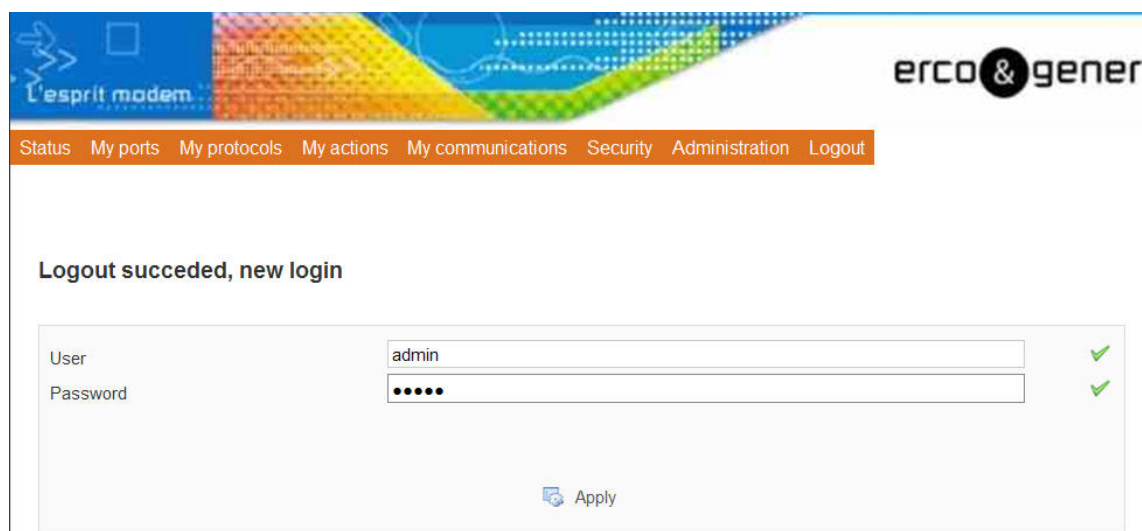
Use a browser (Internet Explorer for example) and enter the IP address by default of the GenIP 30i.
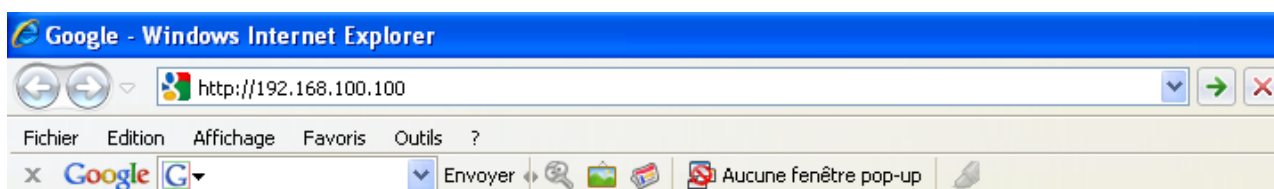
Just one access is possible to IHM.

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To authenticate, enter the user name (admin) and the password (admin) and validate.

To be able to validate a WAN connection, in the section "My communications / Modem" enter the parameters of the access supplier.

To be taken into account it has to be validated.
The GenIP 30i will warn you that it has to be restarted so that the new parameters can be taken into account.
Once the GenIP 30i has restarted, it is advised to make a WAN connection and to send a SMS to validate the GSM and WAN connectivity.

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WAN Connection

In the section "My actions / Action Management / Actions List", validate connect_me_to_WAN_now.

Fire action

Action to fire   connect_me_to_WAN_now   ✓

Apply

The page refreshes, then click on the section "Status" and place the mouse on the section "My Communications".

Once connected to the WAN network, a dynamic IP address is given (for example hereunder: 90.94.237.5).

Click "*Status*" and drag "*My communications*"

Status   My ports   My protocols   My actions   My communications   Security   Administration   Logout

Modem
Email
Port forwarding (local devices access)

Status

My communications
Connected to WAN, IP : 90.95.67.132, DNS 1 = 193.253.141.132, DNS 2 = 193.253.141.133
No call running
No PPP over SSL VPN running
0 IPSEC VPN active rules
Transmitted bytes count : 269 (during the last 1186 s)
Received bytes count : 216 (during the last 1186 s)
SMS sent count : 0
SMS received count : 0

The WAN connection can take a few seconds

To disconnect, in the section "My actions" you must execute the action disconnect_me_from_WAN_now.

Fire action

Action to fire   disconnect_me_from_WAN_now   ✓

Apply

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Sending a SMS

In the section "My actions / Action Management / Actions List", click on SMS_a_test_SMS.

In the window "Add or Edit an Action", enter the telephone number of the addressee and validate

Actions list

Filter :	Name ⌄		Apply filter	Cancel filter

▲ ID ⇕	Name ⇕	To remove ✖ ✖
1	connect_me_to_GPRS_now	☐
2	disconnect_me_from_GPRS_now	☐
3	send_a_test_SMS	☐

Apply changes

Add or edit an action

Add or edit an action	Edit send_a_test_SMS ⌄	✔
Type	Send by SMS ⌄	✔
Phone number	0123456789	✔
Message	test	✔
Need acknowledge	☐	✔
Comment		✔
Do this action in parallel	⌄	✔
Do this action on success	⌄	✔
Do this action on fail	⌄	✔

Apply

In the section "My actions / Actions Setting / Action to fire", validate SMS_test.

Fire action

Action to fire	send_a_test_SMS ⌄	✔

Apply

After a few seconds depending on the operator, the addressee will receive the following message: test.

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5.2 Basic principle

The GenIP 30i is a device which can follow on with actions upon internal or external events.

These events can come from or be initiated:

- by the interfaces : Ethernet, RS232 or RS485,
- by the logic, analog input,
- temporally,
- at powering on the GenIP 30i,
- from a distance via SMS, GPRS,3G, GSM Data or GSM PPP.

The actions may be chained and acknowledged.

In case of chaining, the actions must be compatible between each other. For example, if you are in WAN connection, you won't be able to receive at the same time a GSM Data communication.

As well, if you use a data or DTMF connection, the SMS and email reading cannot be done.

5.2.1 Actions

In the GenIP 30i, on the menu My actions and Actions management, you will find some predefined actions and you can add your actions.

An action is what the GenIP 30i will do after an event.

Once an action is realized, we can decide to wait for an acknowledgement.

For example sending a SMS and waiting for an acknowledgement.

5.2.1.1 Definition of course of actions in a script

The use of an action in a script allows to start this action and go to the next instruction even if this action is not finished. This is not the case with a macro which will wait for the action to be finished before going to the next instruction of the script.

Example : Sending SMS using a script in case of network problems

The action *Envoi_Sms* is created. This sent to +33111111111 the sms Test SMS

Using this action *Envoi_Sms* in a script tries to send the SMS and then go to the next instruction. If network problems persist, the SMS will be sent as soon as the network is operational without it disrupting the script.

In the case of the use the macro *send sms +3311111111 Test SMS* the GenIP reiterate the sending of SMS until the network again become operational, but will not go to the next instruction until the SMS is not send.

5.2.1.2 Pilot an action in DTMF

It is possible to activate an action by a DTMF command with the following syntax:

Action number   Example : *3*

The ' *Action number* ' is the number that appears in the list of actions of the web interface.

By default, this feature is not active.
The activation is done through the next hidden page.
http://vvv.xxx.yyy.zzz/actions_management_advanced.php

Choose "*Run an action*" then "*Apply*"

In the same communication, it is not possible to send and acknowledge an action.
For this it is necessary to establish two communications.

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5.2.2   Events

An event can be characterized by a local frame coming from the ports, an incoming SMS, an incoming email

or a temporal logic or analog input triggering.

These events can be associated to one or several actions.

Example: On a TCP or RS port, we can watch a frame like ALARM

If it appears, we decide to send a SMS to one or several numbers

5.2.2.1   Planning events

Events can be scheduled periodically or by date.

To access the program click on "Administration" and then drag the mouse on "*Time*"

Add a scheduled events

Add or edit a scheduled event	Add a scheduled event	✔
Name		✖
Enable	☑	✔
Minutes filter	*	✔
Hours filter	*	✔
Day of the month filter	*	✔
Month filter	*	✔
Day of the week filter	*	✔
Action		✖
Comment		✔

Apply

Some actions can be planned. To reduce the consumption of CPU resource, checking this acknowledgment is done by default every 60 seconds

It is possible to change this frequency through the next hidden page.

http://vvv.xxx.yyy.zzz/actions_management_advanced.php

You choose the right compromise.

Status   My ports   My protocols   My actions   My communications   Security   Administration   Logout   -71 dBm

Actions management

Settings

Schedules action check period (s)	60	✔
DTMF * char meaning		✔

Apply

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5.2.3   Pattern

A pattern can be a character or frame character AXCII or Hexa

For example, if we receive the following information on the RS232:

ABCD123456789AZERTY

You can search :

Character : D

Frame character : D123

5.2.3.1   Management of characters in the buffer

When viewing the contents of the buffer, some characters in the ASCII table are substituted. (See table below).

Ex : the carriage return (0x0D) is display \r.

Table of characters substituted

Decimal	Hexadecimal	ASCII	Substitution display
9	0x09	TAB	\t
10	0x0A	Line Feed	\n
13	0x0D	Carriage Return	\r
32 : 126	0x20 : 0x7E	Space ~	No think. All characters are displayed as such.

All other characters in the ASCII table are displayed in hexadecimal form \x00.
Ex : le character Back Space is display \x08
Ex : le character CtrlZ is display \x1A

The character \ (anti Slash) is doubled. It is displayed \ \.
Ex : the string sent \test\ It is displayed \\test\\

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5.2.4   Acknowledgements

The acknowledgements are digital (Between 1 and 65535) and can be done by:

- WAN via email, TCP connection on Service Port (by default : 1224) or via Web Interface,
- LAN via TCP connection on Service Port (by default: 1224) or directly in the Web interface,
- SMS
- GSM Data PPP in TCP connection on Service Port (by default: 1224) or via Web Interface,
- GSM Data directed to service Socket (by default: 1224).
- DTMF upon voice incoming call. It is possible to perform an action for the issuance of a voice message.

> A non-acknowledgement of an action is not considered as a failure of this action. An action is considered as a failure if it could not be done. For example, impossible to send an email or to connect in data mode.

5.2.4.1   Acknowledgement via Macro Command

For the acknowledgements syntax, see the table of Macro Commands (paragraph 5.2.6 Macro Commands).

Example of acknowledgements:

The GenIP 30i is protected by a password adminremote and we want to acquitter the alarm code 1.

Through a command port, you will have to send the following information:

> password adminremote;
>
> ack 1;
>
> end;

> Do not forget the semi colon after each command and the *end* which marks the end of the actions to do.

> - For the emails, you will have to activate a periodic reading of email or to validate the reading before deadline.
> - The acknowledgements can come from different services or access authorized. For example sending a SMS with acknowledgement does not require an acknowledgement by SMS.
> - Do not forget to activate the authorized sources; otherwise you won't be able to acknowledge the actions.
> - Acknowledgements by e-mail :
>
> Considering that the size and the content of the e-mail received are voluntarily limited to minimize consumption, you must:
> - Work in text (Necessary, otherwise email refused).
> - Remove from your e-mail the business cards, signatures or other elements which unnecessarily take a lot of place and generate additional consumption of data when connecting in WAN.

5.2.4.2 Acknowledgement via DTMF

With a telephone, call the GenIP 30i on the voice number.

On receipt of the call, the GenIP 30i answers and sends series of vocal frequencies.

After that, you can acknowledge an alarm with the following syntax:

      # Alarm number#   Example: #3#

If the syntax is correct you will receive a short beep, if it is incorrect a long beep.

Then you can hang-up your telephone.

It is possible to acquit an action during a voice message.

It is possible to acknowledged all actions pending acknowledge by the '*' character.
To do this, open hidden next page.
http://vvv.xxx.yyy.zzz/actions_management_advanced.php

Actions management

Choose "***Acknowledge all***" then "***Apply***"
Then receipt the DTMF character '*' all actions will be acknowledge.

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5.2.5 Remarks about syntax of acknowledgements, Macro Commands, patterns or frames received upon action starting

Some of them are sensitive to the case (Respect of small letters and CAPITAL LETTERS).

In certain fields of the Web interface, the following characters are not accepted:

- Character like –
- Stressed character
- White character

> When a character is not valid, a red cross in the Web interface or an error message in the case of acknowledgement or Macro Commands appear.

5.2.5.1 Reaction of the GenIP 30i in case of authorized sources and syntax error

In relation to the command channels and the Macro Commands syntax, the reaction of the GenIP 30i will be:

Action	Result
If number, IP address or email not authorized on the GenIP 30i side	The SMS is not read The TCP connection is denied The email is not read
If number, IP address or email authorized and Macro Command with syntax error	The Macro Command is read and the GenIP 30i does not reply. After 3 attempts, the number, IP address or email is Black Listed. To take it out from the Black List, you have to send again a correct syntax or make a Reboot of the GenIP 30i

Frames and fields quantification

Designation	
Size Maxi accepted for e-mail file	The e-mail file must not exceed 35 Kilos.
Size Maxi accepted for e-mail content	The content (text, signs, business cards ...) must not exceed 1024 bytes.
Size Maxi of the frame to program the dynamic messages	1024 bytes
Size Maxi for fields in the Web interface	1024 bytes
Size Maxi possible for diary	4,5 Mega bytes. (Careful, if you reach this size, the display of the page will take a long time)
Number of declarable users for the access to the Web interface	10 users

5.2.6   Macro Commands

A macro command corresponds to a command syntax allowing to do an action.

For example, the Macro command *connect_me_to_WAN_now* tells the GenIP 30i to connect to WANnetwork (GPRS or 3G) and to send back the WAN IP address obtained to the initiator of this Macro command. If you send this Macro Command to the GenIP 30i via SMS, then you will receive the WAN IP address via SMS.

As well as for the acknowledgements, you have to be registered on the authorized sources.
(See the Table Macro command hereunder).

The Macro commands may come from:

- WAN via e-mail, TCP connection on Service Port (by default : 1224) or via Web Interface,
- LAN via TCP connection on Service Port (by default: 1224) or directly in the Web Interface,
- SMS
- GSM Data PPP in TCP connection on Service Port (by default: 1224) or via Web Interface,
- GSM Data directed to service Socket (by default: 1224).

Example of Macro Commands:

The GenIP 30i is protected by a password adminremote and we want to read the GenIP 30i version.

Through a command port, you will have to send the following information:

password adminremote;version;end;

> Do not forget the semi colon after each command and the "**end;**" which marks the end of the Macro commands to do.

On the Web interface of the GenIP 30i, you will find a Macro command builder which will help you to enter these Macro commands.

Macro	ack
Format	ack {code}
Description	Acknowledges the acknowledgement waiting time for the code 1
Remarks about Macro commands	Different possibilities: ack x-y acknowledges the actions whose codes are between x and y included. ack name acknowledges the action by its name (Characters * and ? as joker).
Example	ack 1;end;
Message sent after execution of the action	ack 1 OK

Macro	define apn	From software release > V450
Format	define apn	
Description	Define temporarily the apn.	
Remarks sur les Macro commands	Useful if you forget to set apn into the Gen IP	
Example	define apn name apn;end;	
Remarks sur les Macro commands	define apn name apn OK	

Macro	delete all gv	From software release > V450
Format	delete all gv	
Description	Delete all global variables.	
Remarques sur les Macro commandes	Useful for the development of scripts	
Exemple	delete all gv;end;	
Remarques sur les Macro commandes	delete all gv OK	

Macro	do action	
Format	do action {name of the action}	
Description	Sends the content of the message 0 (with the example above TEST)	
Remarks about Macro commands		
Example	do action nom_action;end;	
Message sent after execution of the action	do action name_action OK	

Macro	echo	
Format	echo	
Description	Return text that follows the command Return the value of the variable LAN_IP	
Remarks about Macro commands		
Example 1	echo LAN_IP;end;	
Message sent after execution of the action 1	LAN_IP OK	
Example 2	echo LAN_IP;end;	
Message sent after execution of the action 2	192.168.100.100 OK	

Macro	email receive	
Format	email receive	
Description	Triggers the reading of e-mails	
Remarks about Macro commands	Via the Data link, the action will be done after hanging-up the Data communication and in this case, no message is sent back.	
Example	email receive;end;	
Message sent after execution of the action	email receive OK	

Macro	emergency reboot	
Format	emergency reboot	
Description	Emergency Reboot, no response	
Remarks about Macro commands	Works only via SMS	
Example	emergency reboot;end	
Message sent after execution of the action		

Macro	end	
Format	end	
Description	Signals the end of macro commands series to avoid problems of advertisings, signatures...	
Remarks about Macro commands	Instruction necessary after each Macro command or after Macro commands frame. See here after the example	
Example	end	
Message sent after execution of the action	None	

Macro	ftp get binary	
Format	ftp get binary {ftp server port} {file path} {account} {password} {hex binary content}	
Description	Receive binary from file FTP server.	
Remarks about Macro commands	File < 20 Ko	
Example	ftp get binary linux.fr.oleane.com 21 FCO/fabien.txt myusername mypassword;end;	
Message sent after execution of the action	ftp get binary linux.fr.oleane.com 21 FCO/fabien.txt myusername mypassword 9 bytes 010203040506070809 OK	

Macro	ftp get file	From software release > V408
Format	Ftpget file {ftp server port} {file path} {account} {password} {unsaved_user_file_name}	
Description	Receive a file using FTP and store it into the GenIP	
Remarks about Macro commands	Maximum storage 100 méga bytes in RAM Maximum storage 1 méga bytes in NVRAM.	
Example	Receive a file using FTP and send it by mail: ftp get file 192.168.100.175 21 /configuration.zip Loging PassWord unsaved_user_file_test;end; send email xxx@yyy.zz file://unsaved_user_file_test;end;	
Message sent after execution of the action	tp get file 192.168.100.175 21 /configuration.zip Loging PassWord unsaved_user_file_test 13133 bytes got OK send email xxx@yyy.zz file://unsaved_user_file_test OK	

Macro	ftp get text	
Format	ftp get text {ftp server address} {ftp server port} {file path} {account} {password}	
Description	Receive text from file server FTP	
Remarks about Macro commands	File < 20 Ko	
Example	ftp get text linux.fr.oleane.com 21 FCO/fabien.txt myusername mypassword;end;	
Message sent after execution of the action	ftp get text linux.fr.oleane.com 21 FCO/fabien.txt myusername mypassword 12 Bytes test message OK	

Macro	ftp put binary	
Format	ftp put binary {ftp server address} {ftp server port} {file path} {account} {password} {hex binary content}	
Description	Send binary file to server FTP	
Remarks about Macro commands	File < 20 Ko	
Example	ftp put binary linux.fr.oleane.com 21 FCO/fabien.txt myusername mypassword AA5A2F8e11;end;	
Message sent after execution of the action	ftp put binary linux.fr.oleane.com 21 FCO/fabien.txt myusername mypassword AA5A2F8e11 OK	

Macro	ftp put file	From software release > V408
Format	ftp put file{ftp server port} {file path} {account} {password} {unsaved_user_file_nom de fichier}	
Description	Post file from internal GenIP to FTP server	
Remarks about Macro commands	Maximum storage 100 méga bytes in RAM Maximum storage 1 méga bytes in NVRAM.	
Example	ftp put file 192.168.100.175 21 /Fichier.zip Identifiant MotDePasse unsaved_user_file_test;end;	
Message sent after execution of the action	ftp put file 192.168.100.175 21 / Fichier.zip Identifiant MotDePasse unsaved_user_file_test 13133 bytes put OK	

Descriptions and non-contractual illustrations in this document are given as an indication only.
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Macro	ftp put text
Format	ftp put text {ftp server address} {ftp server port} {file path} {account} {password} {text content}
Description	Send text to server FTP
Remarks about Macro commands	File < 20 Ko
Example	ftp put text linux.fr.oleane.com 21 FCO/fabien.txt myusername mypassword test message;end;
Message sent after execution of the action	ftp put text linux.fr.oleane.com 21 FCO/fabien.txt myusername mypassword test message OK

Macro	get custom
Format	get custom {index}
Description	Sends the content of the message 0 (with the example above TEST)
Remarks about Macro commands	
Example	get custom 0;end;
Message sent after execution of the action	get custom 0 TEST OK

Macro	get lan ip
Format	get lan ip
Description	Provides the IP address LAN
Remarks about Macro commands	
Example	get lan ip;end;
Message sent after execution of the action	get lan ip y.y.y.y

Macro	get wan ip
Format	get wan ip
Description	Provides the IP address on WAN side
Remarks about Macro commands	
Example	get wan ip;end;
Message sent after execution of the action	get wan ip WAN IP = x.x.x.x

Macro	last_macro_command_result
Format	last_macro_command_result
Description	Save the result of the last order. *last_macro_command_result* return *1* for *OK* or *0* for *ERROR*
Remarques sur les Macro commandes	If you use this command, it is interesting to use the command *no all* for not have a duplicate reporting
Exemple 1	version;echo $last_macro_command_result$;end;
Message renvoyé après l'exécution de l'action	Version 000464 OK echo 1 1 OK
Exemple 2	no all;version;echo $last_macro_command_result$;end;
Message renvoyé après l'exécution de l'action	000464 1

Macro	last_macro_command_result_string
Format	last_macro_command_result_string
Description	Save the result of the last order. *last_macro_command_result_string* return *OK* or *ERROR*
Remarques sur les Macro commandes	If you use this command, it is interesting to use the command no all for not have a duplicate reporting.
Exemple 1	version;echo $last_macro_command_result_string$;end;
Message renvoyé après l'exécution de l'action	Version 000464 OK echo OK OK OK
Exemple 2	no all;version;echo $last_macro_command_result_string$;end;
Message renvoyé après l'exécution de l'action	000464 OK

Macro	modbus write
Format	modbus write {@} {code} {reg} {nb} {type} {val}
Description	Write the value *val* into register *reg* at the peripheral 'address *@*. @ peripheral 'address. code write function (5, 6, 15 ou 16) reg register address in decimal nb number of register to write (register de 16 bits) type type of the write value (int, uint, hex, bit …) val write value
Remarques sur les Macro commandes	See § 5.3.5.5, 5.3.5.6, 5.3.5.7 and 5.3.5.8
Exemple	modbus write 1 5 0 1 bit 0;end; Close the logic output 1 of the GenIp.
Message renvoyé après l'exécution de l'action	modbus write 1 5 0 1 bit 0 OK

Macro	**no all**	
Format	no all	
Description	Remove both echo and reporting commands	
Remarks about Macro commands		
Example	no all; version;end;	
Message sent after execution of the action	0.xx	

Macro	**no command**	
Format	no command	
Description	removes echo	
Remarks about Macro commands		
Example	no command;version;end;	
Message sent after execution of the action	0.XX OK	

Macro	**no response**	
Format	no response	
Description	Return nothing	
Remarks about Macro commands		
Example	No response;version;end;	
Message sent after execution of the action		

Macro	**no terminal**	
Format	no terminal	
Description	Remove reporting commands	
Remarks about Macro commands		
Example	no terninal;version;end;	
Message sent after execution of the action	Version 0.XX OK	

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Macro	password	
Format	password {my password}	
Description	On the side of the command channels, if a password was activated, it allows accessing to the GenIP in order to send Macro Commands. This combines with the validated sources.	
Remarks about Macro commands	If a password was activated, it must be sent before each action or chain of action. On the contrary case, we receive the message password request.	
Example	password adminremote	
Message sent after execution of the action	Si OK Password ***** puis OK Si NOK password ***** puis rejected	

Macro	ping	
Format	ping {IP address}	
Description	Get ping to an address	
Remarks about Macro commands		
Example	ping 192.168.100.254;end;	
Message sent after execution of the action	--- 192.168.100.254 ping statistics --- 4 packets transmitted, 4 packets received, 0% packet loss round-trip min/avg/max = 0.880/0.958/1.037 ms OK	

Macro	reboot	
Format	reboot	
Description	Reboots the GenIP within 60 seconds	
Remarks about Macro commands		
Example	reboot;end;	
Message sent after execution of the action	Reboot Rebooting in 60 s OK	

Macro	reboot now	
Format	reboot now	
Description	Reboots the GenIP within 2 seconds, no response	
Remarks about Macro commands	reboot now;end;	
Example		
Message sent after execution of the action		

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Macro	register dyndns
Format	register dyndns
Description	Get register dyndns
Remarks about Macro commands	
Example	register dyndns;end;
Message sent after execution of the action	register dyndns OK

Macro	reset modem
Format	reset modem
Description	Reset the GSM modem
Remarks about Macro commands	
Example	reset modem;end;
Message sent after execution of the action	reset modem OK

Macro	scp get text
Format	scp get text {scp server address} {scp server port} {file path} {account} {password} { server fingerprint } {text}
Description	Same functionality as the reception FTP but in safe mode.
Remarks about Macro commands	If fingerprint = *, there is no control of the fingerprint.
Example	scp get text 192.168.100.181 22 /home/root/GenIP051_Macro.txt account password * test macro commande;end;
Message sent after execution of the action	scp get text 192.168.100.181 22 /home/root/GenIP051_Macro.txt account password * test macro commande 19 bytes

Macro	scp put text
Format	scp put text {scp server address} {scp server port} {file path} {account} {password} {server fingerprint} {text}
Description	Same functionality as the sending FTP but in safe mode.
Remarks about Macro commands	If fingerprint = *, there is no control of the fingerprint.
Example	scp put text 192.168.100.181 22 /home/root/GenIP051_Macro.txt account password * test macro commande;end;
Message sent after execution of the action	scp put text 192.168.100.181 22 /home/root/GenIP051_Macro.txt account password * ... 19 bytes

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Macro	send email	
Format	send email {adresse email} {message}	
Description	Transmission of email	
Remarks about Macro commands	The support can be WAN or Gateway. Defined in the Email settings.	
Example	send email xxx.yyy@zzz.com message	
Message sent after execution of the action	send email xxx.yyy@zzz.com message OK	

Macro	send rs232 binary	
Format	send rs232 Hexa Value	
Description	Binary is send on the serial port RS 232	
Remarks about Macro commands		
Example	send rs232 binary 47454E4552;end;	
Message sent after execution of the action	send rs232 binary 47454E4552 5 bytes OK *Receive message on RS232:* *GENER*	

Macro	send rs485 binary	
Format	send rs485 binary message	
Description	Permet d'envoyer le message sur le port RS 485	
Remarks about Macro commands		
Example	send rs485 binary 47454E4552;end;	
Message sent after execution of the action	send rs485 47454E4552 5 bytes OK *Receive message on RS485:* *GENER*	

Macro	send rs232 text	
Format	send rs232 text message	
Description	The message is send on the serial port RS 232	
Remarks about Macro commands		
Example	send rs232 text envoi sur port série RS232;end;	
Message sent after execution of the action	send rs232 text envoi sur port série RS232 26 bytes OK	

Macro	send rs485 text
Format	send rs485 text message
Description	Send text on RS 485
Remarks about Macro commands	
Example	send rs485 text envoi sur port RS485;end;
Message sent after execution of the action	send rs485 text envoi sur port RS485 26 bytes OK

Macro	send sms
Format	send sms {telephone number} {message}
Description	Transmission of sms : test send message
Remarks about Macro commands	
Example	send sms 0611111111 test send message
Message sent after execution of the action	send sms 0611111111 test send message OK

Macro	send tcp
Format	send tcp {IP address IP}:{IP port {message}
Description	Send date and time to TCP server
Remarks about Macro commands	The support can be WAN or LAN
Example	send tcp 192.168.100.150:8110 $DATE_LOCAL$;end;
Message sent after execution of the action	send tcp 192.168.100.150:8110 Tue, 10 Jan 2012 11:30:03 +0100 OK

Macro	set custom
Format	set custom {index} {content}
Description	Programs the custom message 0 with the content TEST
Remarks about Macro commands	A custom message is a dynamic message which be load into the GenIP. This custom is not save.
Example	set custom 0 TEST;end;
Message sent after execution of the action	set custom 0 TEST; OK

Macro	set time with ntp	
Format	set time with ntp	
Description	Setting time of GenIP via the NTP server "*pool.ntp.org*" It is possible to change server.	
Remarks about Macro commands	If GenIP is connected to WAN then this connection is used. If it is not connected to the WAN then the LAN is used through the gateway.	
Example	set time with ntp	
Message sent after execution of the action	set time with ntp offset -0.039070 sec OK	

Macro	set variable
Format	Set variable {name} {value}
Description	Assigns a *value* to the variable *name*.
Remarks about Macro commands	
Example	set custom 0 TEST;end;
Message sent after execution of the action	set variable CUSTOM_MESSAGE_0 TEST OK

Macro	update ipsec
Format	update ipsec
Description	Regenerate IPSec rules
Remarks about Macro commands	
Example	update ipsec;end;
Message sent after execution of the action	update ipsec OK

Macro	update skin
Format	update skin {link} {ftp server address} {ftp server port} {file path} {account} {password}
Description	Ask to remote GenIP to run client PP SSL to the server 90.1.2.3, port 5555 during one hour
Remarks about Macro commands	
Example	update skin wan linux.fr.oleane.com 21 FCO/fts.zip myusername mypassword;end;
Message sent after execution of the action	update skin wan ftp-linux.fr.oleane.com 21 FCO/fts.zip myusername mypassword Update will be applied on next boot

Macro	update software
Format	update software {link} {ftp server address} {ftp server port} {file path} {account} {password}
Description	Upload firmware update from FTP server Will be applied after reboot
Remarks about Macro commands	
Example	update software wan linux.fr.oleane.com 21 FCO/fts.zip myusername mypassword;end;
Message sent after execution of the action	update software wan linux.fr.oleane.com 21 FCO/fts.zip myusername mypassword Update will be applied on next boot

Macro	update spi
Format	update spi {remote IP address} {SPI ID 1} {SPI ID 2} …
Description	Indicate to remote GenIP that its own GPRS IP had changed according IPSec rules 5000 et 5001
Remarks about Macro commands	
Example	update spi 90.3.4.1 5000 5001;end;
Message sent after execution of the action	update spi 90.3.4.1 5000 5001 OK

Macro	version
Format	version
Description	Sends the software release of the GenIP.
Remarks about Macro commands	
Example	version;end;
Message sent after execution of the action	version 0.XX OK

Macro	vpn connect pppossl
Format	vpn connect pppossl {server address} {server port} {max duration in s}
Description	Ask to remote GenIP to run client PP SSL to the server 90.1.2.3, port 5555 during one hour
Remarks about Macro commands	
Example	vpn connect pppossl 90.1.2.3 5555 3600
Message sent after execution of the action	

Macro	wait	
Format	wait {time in s}	
Description	Wait 60 seconds and asks the software release of the GenIP.	
Remarks about Macro commands		
Example	wait 60;version;end;	
Message sent after execution of the action	wait 60 OK Version 0.XX OK	

Macro	wan connect	
Format	wan connect	
Description	Triggers a WAN connection	
Remarks about Macro commands	Via the Data link, the action will be done after hanging-up the Data communication.	
Example	wan connect;end;	
Message sent after execution of the action	wan connect WAN IP = X.Y.Z.W OK	

Macro	wan disconnect	
Format	wan disconnect	
Description	Triggers a WAN disconnection.	
Remarks about Macro commands	Does not work in Data mode, as when we work with WAN link, we cannot establish a Data communication.	
Example	wan disconnect;end;	
Message sent after execution of the action	wan disconnect OK	

Macro	wget test	
Format	wget test	
Description	Get test to web access	
Remarks about Macro commands		
Example	wget test google.com;end;	
Message sent after execution of the action	Recieve informations in HTTP	

Macro command chaining example:

wan connect ;wait 10 ;get lan ip ;get wan ip ;wan disconnect ;end;

Indicates to the GenIP 30i to do the following actions:

- Connect to WAN
- Wait 10 seconds
- Send its LAN IP address
- Sends its WAN IP address
- Disconnect from WAN

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5.2.7 Dynamic messages

To access the messages click on "*My actions*" and then drag the mouse over "*Dynamic messages*"
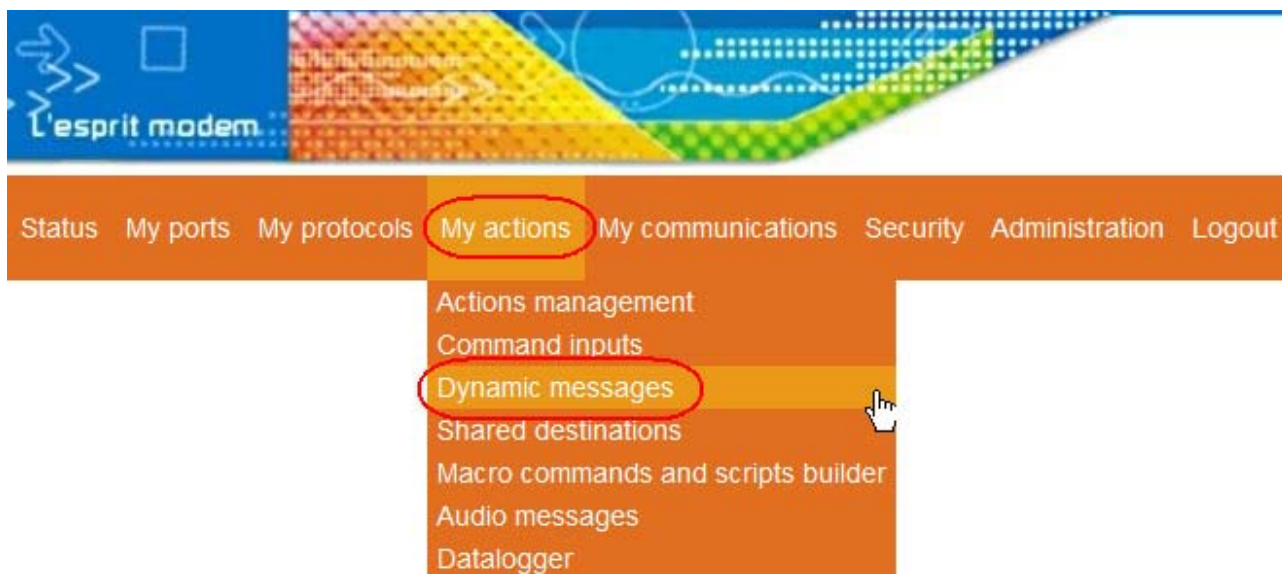
5.2.7.1 Identifications and states messages

The messages below correspond at identification of the GenIP. They cannot be changed.

Identifications messages list

N°	Nom	Valeur
1	$IDENTIFICATION_NAME$	no name
2	WAN_IP	
3	LAN_MAC	2C:34:27:09:00:26
4	LAN_IP	192.168.100.189
5	$MODEM_IMEI$	354121020046260
6	SIM_ID	208017100539513
7	$DYNDNS_ALIAS$	
8	$CALL_STATUS$	
9	$VPN_PPPOSSL_STATUS$	0
10	SMS_SENT	107
11	$SMS_RECEIVED$	11
12	$WAN_TX_TRAFFIC$	43671459
13	$WAN_RX_TRAFFIC$	82999457
14	$DATE_LOCAL$	Wed, 30 Jan 2013 11:08:03 +0100
15	$DATE_UTC$	Wed, 30 Jan 2013 10:08:03 UTC
16	$DATE_TIMESTAMP$	1359540483

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5.2.7.2 Systems messages

The System messages below are used by the GenIp. These can be changed via the web interface, the control port Service port (default: 1224) or via macro command.

Some messages that correspond to the entries are read-only.

> All massages can be changed except 133-139
> Once entered and validated, these messages are saved automatically.

Descriptions and non-contractual illustrations in this document are given as an indication only.
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System messages list

84	$SHARED_EMAIL_ADDRESS_NAME_0$	
85	$SHARED_EMAIL_ADDRESS_VALUE_0$	
86	$SHARED_EMAIL_ADDRESS_NAME_1$	
87	$SHARED_EMAIL_ADDRESS_VALUE_1$	
88	$LOGIC_VALUE_LOGIC_INPUT_1$	1
89	$LOGIC_DURATION_LOGIC_INPUT_1$	1965888
90	$LOGIC_FREQUENCY_LOGIC_INPUT_1$	0
91	$LOGIC_COUNTER_LOGIC_INPUT_1$	0
92	$LOGIC_COUNTER_WITH_RESET_LOGIC_INPUT_1$	0
93	$LOGIC_VALUE_LOGIC_INPUT_2$	1
94	$LOGIC_DURATION_LOGIC_INPUT_2$	1965890
95	$LOGIC_FREQUENCY_LOGIC_INPUT_2$	0
96	$LOGIC_COUNTER_LOGIC_INPUT_2$	0
97	$LOGIC_COUNTER_WITH_RESET_LOGIC_INPUT_2$	0
98	$LOGIC_VALUE_RS232_DTR$	1
99	$LOGIC_DURATION_RS232_DTR$	1965890
100	$LOGIC_FREQUENCY_RS232_DTR$	0
101	$LOGIC_COUNTER_RS232_DTR$	0
102	$LOGIC_COUNTER_WITH_RESET_RS232_DTR$	0
103	$LOGIC_VALUE_ANALOG_INPUT_1$	0
104	$LOGIC_DURATION_ANALOG_INPUT_1$	1965892
105	$LOGIC_FREQUENCY_ANALOG_INPUT_1$	0
106	$LOGIC_COUNTER_ANALOG_INPUT_1$	0
107	$LOGIC_COUNTER_WITH_RESET_ANALOG_INPUT_1$	0
108	$LOGIC_VALUE_ANALOG_INPUT_2$	0
109	$LOGIC_DURATION_ANALOG_INPUT_2$	1965892
110	$LOGIC_FREQUENCY_ANALOG_INPUT_2$	0
111	$LOGIC_COUNTER_ANALOG_INPUT_2$	0
112	$LOGIC_COUNTER_WITH_RESET_ANALOG_INPUT_2$	0
113	$LOGIC_VALUE_LOGIC_OUTPUT_1$	0
114	$LOGIC_DURATION_LOGIC_OUTPUT_1$	1965894
115	$LOGIC_FREQUENCY_LOGIC_OUTPUT_1$	0
116	$LOGIC_COUNTER_LOGIC_OUTPUT_1$	0
117	$LOGIC_COUNTER_WITH_RESET_LOGIC_OUTPUT_1$	0
118	$LOGIC_VALUE_LOGIC_OUTPUT_2$	0
119	$LOGIC_DURATION_LOGIC_OUTPUT_2$	1965896
120	$LOGIC_FREQUENCY_LOGIC_OUTPUT_2$	0
121	$LOGIC_COUNTER_LOGIC_OUTPUT_2$	0
122	$LOGIC_COUNTER_WITH_RESET_LOGIC_OUTPUT_2$	0
123	$LOGIC_VALUE_SIM_LOCK$	0
124	$LOGIC_DURATION_SIM_LOCK$	1965898
125	$LOGIC_FREQUENCY_SIM_LOCK$	0
126	$LOGIC_COUNTER_SIM_LOCK$	0
127	$LOGIC_COUNTER_WITH_RESET_SIM_LOCK$	0
128	$COMBINATIONAL_1$	?
129	$COMBINATIONAL_2$	?
130	$COMBINATIONAL_3$	?
131	$COMBINATIONAL_4$	?
132	$COMBINATIONAL_5$	?
133	$ANALOG_VALUE_MA_ANALOG_INPUT_1$	0.000
134	$ANALOG_VALUE_MV_ANALOG_INPUT_1$	0.0
135	$ANALOG_VALUE_XX_ANALOG_INPUT_1$	0.0 mV
136	$ANALOG_VALUE_MA_ANALOG_INPUT_2$	0.000
137	$ANALOG_VALUE_MV_ANALOG_INPUT_2$	0.0
138	$ANALOG_VALUE_XX_ANALOG_INPUT_2$	0.0 mV
139	$ANALOG_VALUE_MV_ANALOG_OUTPUT_1$	0.0
140	$ANALOG_VALUE_MA_ANALOG_OUTPUT_1$	0.000
141	$ANALOG_VALUE_XX_ANALOG_OUTPUT_1$	0.0 mV
142	$ANALOG_VALUE_MV_ANALOG_OUTPUT_2$	0.0
143	$ANALOG_VALUE_MA_ANALOG_OUTPUT_2$	0.000
144	$ANALOG_VALUE_XX_ANALOG_OUTPUT_2$	0.000 mA
145	$RS232_RX_BUFFER_CONTENT$	
146	$RS232_RX_BUFFER_CONTENT_WITH_RESET$	
147	$RS232_RX_OVERFLOW_FLAG$	0
148	$RS232_RX_OVERFLOW_FLAG_WITH_RESET$	0
149	$RS232_RX_OVERFLOW_COUNT$	0
150	$RS232_RX_OVERFLOW_COUNT_WITH_RESET$	0
151	$RS232_RX_BUFFER_COUNT$	0
152	$RS232_FORWARDER_STATUS$	0

5.2.7.3   Users messages

The Users messages below are for the user. They can be changed via the web interface, the control port
Service port (default: 1224) or the macro command.

Unlike identifications messages and systems messages, these messages are not saved.

> *$ message_name$* is case sensitive (Respect the lowercase and UPPERCASE).

Example :

> *set custom 0 ercogener ;end;* load the text ercogener in the slot 0
>
> > set custom 0 ercogener;end;
> >
> > OK
>
> *get custom 0 ;end;* ask to GenIP sent the content of slot 0
>
> > get custom 0
> >
> > ercogener
> >
> > OK

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Users messages list

	N°	Nom		Valeur
	17	$CUSTOM_MESSAGE_0$		
	18	$CUSTOM_MESSAGE_1$		
	19	$CUSTOM_MESSAGE_2$		
	20	$CUSTOM_MESSAGE_3$		
	21	$CUSTOM_MESSAGE_4$		
	22	$CUSTOM_MESSAGE_5$		
	23	$CUSTOM_MESSAGE_6$		
	24	$CUSTOM_MESSAGE_7$		
	25	$CUSTOM_MESSAGE_8$		
	26	$CUSTOM_MESSAGE_9$		
	27	$CUSTOM_MESSAGE_10$		
	28	$CUSTOM_MESSAGE_11$		
	29	$CUSTOM_MESSAGE_12$		
	30	$CUSTOM_MESSAGE_13$		
	31	$CUSTOM_MESSAGE_14$		
	32	$CUSTOM_MESSAGE_15$		
	33	$CUSTOM_MESSAGE_16$		
	34	$CUSTOM_MESSAGE_17$		
	35	$CUSTOM_MESSAGE_18$		
	36	$CUSTOM_MESSAGE_19$		
	37	$CUSTOM_MESSAGE_20$		
	38	$CUSTOM_MESSAGE_21$		
	39	$CUSTOM_MESSAGE_22$		
	40	$CUSTOM_MESSAGE_23$		
	41	$CUSTOM_MESSAGE_24$		
	42	$CUSTOM_MESSAGE_25$		
	43	$CUSTOM_MESSAGE_26$		
	44	$CUSTOM_MESSAGE_27$		
	45	$CUSTOM_MESSAGE_28$		
	46	$CUSTOM_MESSAGE_29$		
	47	$CUSTOM_MESSAGE_30$		
	48	$CUSTOM_MESSAGE_31$		
	49	$CUSTOM_MESSAGE_32$		
	50	$CUSTOM_MESSAGE_33$		
	51	$CUSTOM_MESSAGE_34$		
	52	$CUSTOM_MESSAGE_35$		
	53	$CUSTOM_MESSAGE_36$		
	54	$CUSTOM_MESSAGE_37$		
	55	$CUSTOM_MESSAGE_38$		
	56	$CUSTOM_MESSAGE_39$		
	57	$CUSTOM_MESSAGE_40$		
	58	$CUSTOM_MESSAGE_41$		
	59	$CUSTOM_MESSAGE_42$		
	60	$CUSTOM_MESSAGE_43$		
	61	$CUSTOM_MESSAGE_44$		
	62	$CUSTOM_MESSAGE_45$		
	63	$CUSTOM_MESSAGE_46$		
	64	$CUSTOM_MESSAGE_47$		
	65	$CUSTOM_MESSAGE_48$		
	66	$CUSTOM_MESSAGE_49$		
	67	$CUSTOM_MESSAGE_50$		
	68	$CUSTOM_MESSAGE_51$		
	69	$CUSTOM_MESSAGE_52$		
	70	$CUSTOM_MESSAGE_53$		
	71	$CUSTOM_MESSAGE_54$		
	72	$CUSTOM_MESSAGE_55$		
	73	$CUSTOM_MESSAGE_56$		
	74	$CUSTOM_MESSAGE_57$		
	75	$CUSTOM_MESSAGE_58$		
	76	$CUSTOM_MESSAGE_59$		
	77	$CUSTOM_MESSAGE_60$		
	78	$CUSTOM_MESSAGE_61$		
	79	$CUSTOM_MESSAGE_62$		
	80	$CUSTOM_MESSAGE_63$		

Filtre : Nom   Appliquer le filtre   Annuler le filtre

5.2.8 Script

Curently it is possible to write script in GenIP language and PHP language.

The maximum capabilities in GenIP language is 35 K octets.

The maximum capabilities in PHP language is 100 K octets.

5.2.8.1 Creation of a script in GenIP language

A script is a sequence of macro commands for performing an operation.

They can be created from:

- The web interface (see below),

- A text editor and then imported.

Click on "**My actions**" and then drag the mouse to "**Macro commands and scripts builder**"

In the field "**Add or edit a script**", set the name of the script.

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Using the macro command builder

In the list "*I want to*" select the action to complete,

fill in the fields that appear,

then "*Add to script*".

Descriptions and non-contractual illustrations in this document are given as an indication only.
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Example of creating a script for sending an SMS

1 - Set the name of the script,

2 - In the list choose "*Unclassified / Send a SMS*",

3 - Inform the telephone number,

4 - Fill in the message content,

5 - "*Add to script*",

6 - "*Apply*".

The script is added in the "*Scripts list (1/50)*". It can be used.

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5.2.8.2   Creation of a script in PHP language

See to PHP manuel.

5.2.8.2.1   Header function dedicaded to GenIP

```php
<?php
$stringsys=systemelog;
$stringuser=systemeuser;
$stringdata=systemeData;
send_to_system_log($stringsys);
send_to_user_log($stringuser);
send_to_data_log(phplog, $stringdata);

// execute a defined action
// call the action using the name defined in the actions management page
run_action("send_a_test_SMS");

// read / write modbus function
// data type : INT - UINT - FLOAT - STRING - HEX - BIT
$Valeur=read_modbus_value(02,01,1600,8,BIT);
set_variable_value("CUSTOM_MESSAGE_2",$Valeur);
write_modbus_value(02,15,1600,8,BIT,10000100);

// getter / setter for genip variables
set_variable_value("CUSTOM_MESSAGE_3",Sauv);

// save / restore a genip variable
save_variable("CUSTOM_MESSAGE_3");
//set_variable_value("CUSTOM_MESSAGE_63",$CUSTOM_MESSAGE_3);
restore_variable("CUSTOM_MESSAGE_4","123");
//set_variable_value("CUSTOM_MESSAGE_62",$CUSTOM_MESSAGE_4);

// getter / setter for logic pins
//function get_logic_output($logic_pin)
//function set_logic_output($logic_pin, $value)
// getter / setter for analogic current pins
//function get_analog_current_value($analog_pin)
//function set_analog_current_value($analog_pin, $value)
// getter / setter for analogic voltage pins
//function get_analog_voltage_value($analog_pin)
//function set_analog_voltage_value($analog_pin, $value)
?>
```

5.2.8.3   Sequence of script

The GenIP 30i provides the possibility to create up to 50 scripts.

By default, the sequence of scripts is sequential. It means that a script can operate only if the current script is completely done.

The GenIP 30i provides the possibility to proceed to a sequence of several scripts in parallel. It means that they operate at the same time.

This parameter can be set through the hidden WEB page at the IP address of the GenIP

http://vvv.xxx.yyy.zzz/macro_command_builder_advanced.php

> ⚠ For the use of this function, make sure that there is no incompatibility between the scripts.
> For example: a script sends a file to a server, another script cuts the WAN link.

1 – Define the number of scripts to be executed simultaneously.

> ⚠ If you set to 1 and during the script run, you wish to execute a macro command for example loading a custom message, this action will be execute after the end of the script. To avoid this set more 1.

2 – Adjust the "***Max executed command count protection***". This protection acts like a watchdog to avoid any blocking. Once the number of commands executed in the script is reached, this one is stopped.

> This value must be correctly adjusted.
> As soon as this value is reached, the script is immediately stopped.

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Example:

The action on input 1 executes the script-1 which sends a file to a server.

The action on input 2 executes the script-2 which sends a SMS

Sequential Access
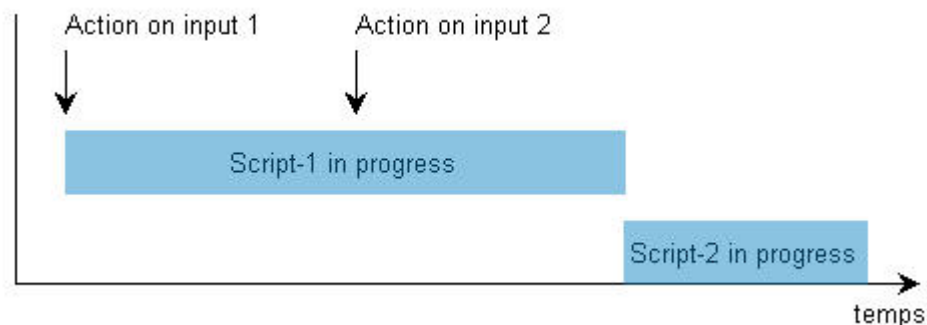
Parallel Access
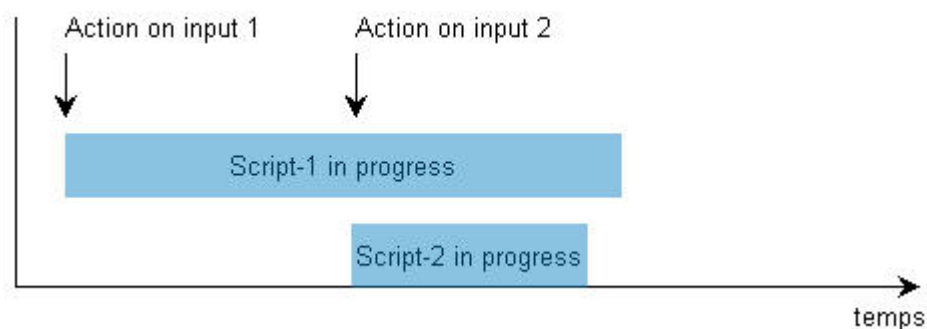
Application :

In the script below, information is sent to a server in function of the value of **CUSTOM_MESSAGE_0**. A second script must run in parallel, which updates the value of **CUSTOM_MESSAGE_0**.

```
while $CMP_#$CUSTOM_MESSAGE_0$#==#10#$;
    wait 5;
    send tcp 192.168.100.37:100 toto;
end while;
end;
```

The number of instances of the script interpreter must be at least 2.
See § 5.2.8.2 Sequence of script

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5.2.9 IP Information

5.2.9.1 LAN IP Address managed by the GenIP 30i

Today, the GenIP 30i recognizes the following ranges IP address:

- 192.xxx.xxx.xxx
- 172.xxx.xxx.xxx
- 132.xxx.xxx.xxx
- 10.xxx.xxx.xxx

5.2.9.2 GenIP 30i in DHCP server

In the case where the GenIP 30i is in DHCP server, the attributed lease is 2 days.

DHCP range should be before or after the IP address of the GenIP 30i, it should not be any overlap with the IP address of GenIP 30i.

The choice of the address assignment of IP address based on the MAC must be within the IP range of the DHCP range.

By default, the subnet mask is 255.255.255.0

The gateway address transmitted is the one registered in "*IP Address of the network gateway*" of the GenIp.

Ethernet (local network)

Settings

Local domain name	
Hostname	genip
Addresses configuration	Static configuration
Router IP address	192.168.100.180
Subnet IP mask	255.255.255.0
Network gateway IP address	192.168.100.1
Network name server 1	8.8.8.8
Network name server 2	8.8.4.4
Network name server 3	

5.2.9.3 GenIP 30i as Client DHCP

For the gateway address corresponding to the LAN on which the GenIP 30i is connected, it will have to be entered manually on the Web interface of the GenIP 30i.

The GenIP 30i does not require the network gateway.

5.2.9.4   Definition of Masquerade

When the masquerade is active, the WAN address obtained by the GenIP 30i is replaced by the GenIP 30i address on LAN side. This function is used when the equipment connected on the LAN network cannot provide the gateway address.

When this function is not active, the WAN address is presented on LAN side.

5.2.9.5   Ports management

For some services, there are some mirror ports. These mirror ports can not be modified and are used in certain cases for remote accesses via GPRS or Data PPP. In local you have to use the ports by default.
The GenIP 30i provides the following functions:

- Redirection of port

  In this case, an external port is put in relation with a local port.

  In this case, the external equipment and the local equipment are clients for the GenIP 30i.

- Port Forwarding

  In this case, we put in relation an external port and a local port which is associated to a local IP address.

  This allows to put a server equipment on local; then, via the WAN IP address and the external port, we can access this equipment.

  Today it is not possible to put a client equipment on LAN side in the case of a Port monitoring rule.

5.2.9.6   Incoming PPP connection

The GenIP 30i provides the RAS Server function.
To accede it, a client RAS session has to be created on the remote side.
The user name is ppp_in
The password is the one defined in the Web interface on the section modem.

During the PPP connection, the addresses are:

- GenIP 30i : 10.10.10.1
- The RAS client: 10.10.10.2
- We can define a limit of life time of this connection via the Web interface.

5.2.9.7   Outgoing PPP connection

Today the email service is not available in Data PPP connection mode.

5.2.10 Time out of connection and disconnection on TCP service

Services	Time Out or Disconnection
Web	After 3 minutes with no action, the led CONF turns off and another user can connect on the GenIP 30i.
Service Port	After 5 minutes with no activity, the port released.
RS232 service Port	During a change of parameter RS232 on the Web interface, the TCP session is closed.
RS485 service Port	During a change of parameter RS485 on the Web interface, the TCP session is closed

5.2.11 PIN code and SIM card management

In the case where the SIM card has a PIN code, it has to be entered in the field of the Web interface.

> Inserting the SIM card when the GenIP 30i is ON requires a rebooting of the GenIP 30i.

5.2.12 Reloading a configuration from a backup file

> From version V360, the saved configurations cannot be loaded into GenIP 30i with an earlier version.

If we are for example in IP 192.168.100.104 and if we load a configuration whose IP address IP was 192.168.100.147; we have the possibility to keep the current LAN parameters or to accept the new parameters. If you accept them, your parameters must be positioned in accordance with the ones of the GenIP 30i.

When we change only the IP address of the GenIP 30i, the Web interface of the GenIP 30i will be accessible again with the new IP address of the GenIP 30i.

> - The led CONF turns OFF once the GenIP is available again.
> - On the Web interface, each validation saves the information in the GenIP 30i.
> - After configuration change, the GenIP will be operating after 2 seconds.
> - In some cases, it is necessary to reboot the GenIP 30i. In case of doubt, do not hesitate to reboot the GenIP 30i.

Descriptions and non-contractual illustrations in this document are given as an indication only.
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5.2.13 Notes about the definition and the behavior of the actions

An action with no acknowledgement request can lead to one or several other actions in the following cases:

- Action in parallel

- Action if success (An action is considered as a success if it succeeded) (Example SMS sent, WAN connection established...). A non-acknowledgement of an action does not consider the action as a failure.

- Action if failure. This action occurs when the action fails.

> Some action are not possible at the same time, it depends on the communication status of the socket. For example, in the case of a permanent WAN connection, it is not possible to establish in parallel a GSM Data connection.

An action with acknowledgement request can lead to one or several other actions in the following cases:

- Action in parallel

- Action if success (An action is considered as a success if it succeeded) (Example SMS sent, WAN connection established...). A non-acknowledgement of an action does not consider the action as a failure.

- Action if failure. This action occurs when the action fails.

- Spare action. This action occurs in case of a non-acknowledgement of the action.

5.2.14 Loss and recovering of network (LAN)

The GenIP waits for the time of filtering before doing an action in case of cut and recovering.

This action is managed whatever the status of the GenIP can be: Client Server DHCP or Static

5.2.15   Remarks about GSM/WAN/SMS connections

Firstly, these services are under a good GSM network.
In weak GSM reception mode, we can consider that the SMS service is the most adapted to send information. But careful, in SMS mode, we are subjected to a passage via a SMS server center and in some cases, it can lead to a certain time for the information transmission.

Concerning the GSM Data, we are in point to point Data bi-directional (avis V32/9600) mode. In this case, check your subscription conditions with your operator. Also you must choice 2G connection into Gen IP setting.

Status   My ports   My protocols   My actions   My communications   Security   Administration   Logout

Modem

WAN settings

Allowed generations   2G
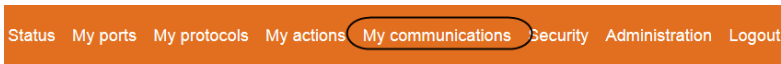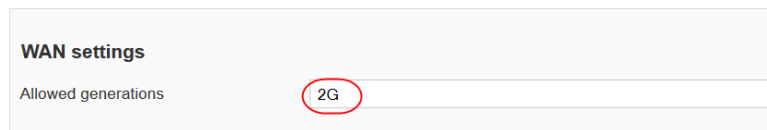
In the case of WAN, we are on a TCP/IP base with dynamic or fixed IP addresses depending on your subscription conditions with your operator.

In this case, your operator gives you an APN or a public or private access point.

It is advised to inform yourself about connection rules (time of connection limited as well as on ports supported in TCP/UDP/FTP/HTTP... depending on subscriptions and operators.).

5.2.16   Remarks of WAN connection disconnection of the GenIP 30i

The GenIP works with a connection disconnection meter which can be visualized on the system log.

If for example you launch two WAN connections and only one disconnection, then the GenIP will remain connected to the WAN network as its connection meter did not come back to zero. To come back to zero, another disconnection will be necessary.

When we ask for two successive connections without disconnection between these two requests, we keep the first WAN IP address given by the WAN network.

Concerning the WAN connection, the GenIP has an embedded internal function of permanent connection to compensate for possible cut of the WAN network. The time for automatic reconnection depends on the coverage conditions when the cut occurs.

In the case of a temporized connection, if we ask for a disconnection before the end of the temporization, then the temporization comes back to zero and the WAN connection disappears.

5.2.16.1   Connect disconnect WAN link in the script

If you want a script make a WAN connection for to send multiple email without increasing the counter, you must use *connect_me_to_wan_now*. After connecting, sending all mail will be made.

> In this case it is necessary to use *disconnect_me_from_WAN_now* after sending mails to close the WAN connection

> If you use several *do action* '*Send mail*', during the time of the connection the sending action will be initiated and there is a risk that the counter is greater than 1, in this case WAN disconnection will not be performed.

5.2.17   Remarks concerning the clock management

The GenIP is equipped with a real time clock (HTR) which is saved by battery.

The time setting is possible via the link LAN or WAN. In this case, we can use:

- The clock of the computer connected to the GenIP 30i
- A NTP server via the gateway LAN or the WAN

The GenIP takes the UTC time for the time management.

On the Web interface, when you are in the time menu, you are in real time. Consequently, the available choices depend on the status of the GenIP 30i.

For example, if the GenIP is connected in WAN, you will have the choice to set the clock via WAN, otherwise the option will not be available. Also if you informed the gateway and the server the network name (DNS) you will have the possibility to go through the network gateway.

5.2.18   Remarks concerning the management of the network gateway or LAN

When the GenIP is connected on a LAN, it can use the gateway of the LAN for the time setting or to be accessed from the outside (if the LAN parameters authorize it).

In the case of an external access, it will be possible via the LAN gateway if the GenIP is not in WAN connection. In fact, in the case where the GenIP is connected in WAN, by default this is this WAN access which has priority. So if we want to reach the GenIP via the LAN gateway, the GenIP must be disconnected from the WAN.

> A change in the bridge requires a reboot of the GenIP 30i.

5.2.19 Remarks concerning the management of the DNS service

By default, in the GenIP, the address of the DNS server entered in the Ethernet parameters is 8.8.8.8.

The DNS was chosen because it is not locked with any operator. It can be used regardless of SIM card. This is the "google" DNS.

It is the same for the DNS to 8.8.4.4.

If you want to change this DNS by the DNS of your FAI, you have to do a WAN connection, to recover this address on the system log and to integrate it on the Ethernet parameters.

5.2.20 Remarks concerning the tools

The GenIP 30i provides some analysis or tracks tools like bytes meter, signal level measure, possibility to track some modem commands, manual ping.

These tools are indicators and cannot be considered sufficient in the case of precise measures.

5.2.20.1 Bytes meter

There is a byte meter on the LAN and a byte meter on the WAN. These meters can be put back to zero through the menu administration and tool, or by restarting the product.

In the case of an estimation concerning the WAN compared with a precise action, it is advised to:

- Program only the concerned action on the GenIP

- Cancel the Ping and TCP connection for keep alive and connection.

- Unvalidate the gateway address from your computer if it uses the address of the GenIP 30i

Your connected equipment can generate traffic. (For example Windows automatic update)

5.2.20.2 Modem commands tracks

It is possible to recover the commands exchanged between the Linux and the communicating part.

This occurs via a UDP link orientated towards a port and a machine address present on the LAN.

5.2.20.3 System log tracks

It is possible to recover the tracks of the system and user diary via a UDP link orientated towards a port and a machine address which present on the LAN.

If this function is not active, it is still possible to download the log.

5.2.21 Remarks concerning Allowed sources

By default, no sources are authorized in order to avoid inopportune connections

> In the case of authorization and in order to avoid problems of excessive communications, you must fill the only authorized sources.
> For example, if you authorize all sources and if you receive advertising, the GenIP will reply with a non-acknowledgement and you will be invoiced.

5.2.21.1 Unwanted connections BlackList

To protect against unwanted connections, after receiving three unauthorized sources, the GenIP block the response. Example of Ping Pong SMS with an advertising server.

> The BlackList will be deleted automatically upon receipt of an authorized source.

5.2.22 Remarks about tunnels

It is possible to establish 2 kinds of tunnels:

Tunnel SSL

Tunnel IPSec manual or IKE.

It is not possible to use the 2 kinds of tunnels together. If you use the SSL, do not forget to un-validate the IPSec tunnel(s).

By default, it is set with examples of IPSec tunnels, and the action of establishing the SSL tunnel is defined.

> The GenIP does not support both manual IPsec tunnels and IKE

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5.2.22.1 SSL Tunnel

The GenIP allows to open only one tunnel at the same time.

All information is directed inside the tunnel, consequently when the tunnel is open, only the SMS function remains available. All other functions that do not use the SSL tunnel is not available.

For the installation, see the application note AN068, or use the action defined by default.

Aim of the defined action:

- Create a SSL tunnel between 2 GenIP using the SMS service.

Principle of use of the defined action:

- Between the 2 GenIP, one will be considered as the Server and the other one as the Client
- The GenIP server will connect to the WAN and will indicate to the GenIP client to connect to the WAN and to establish a SSL tunnel towards the GenIP server
- For that, you will have to:
    o On the side of the GenIP client, you must authorize the telephone number of the GenIP server, in the field of the allowed sources.

- You must have 2 different sub-network (In our case, it will be 192.168.100.0 and 192.168.2.0).
    o Start client
    o On server's side, launch the action «VPN_SSL_Automatic_Connexion_by_SMS ».
    o Wait until the GSM LEDs flash quickly at each end and do the test with the ping.

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5.2.23 Data Logging

There are 10 different records (USB and internal memory) with a limit size for each record:

     - 1 MB internal memory (10 MB total)

     - 1 GB on USB key (10 GB total)

5.2.24 IPSec Tunnel

The GenIP allows to open 5 tunnels at the same time.

Compared with the SSL tunnel, there is no restriction concerning the outgoing functions. Only the restriction below has to be taken into account.

If a rule is defined towards a remote site, all exchanges with this remote site are encrypted. For example, if you have defined a rule concerning your ADSL, and if you try to ping the WAN IP address of the GenIP, you will have no response. The same thing will occur if you try to make a remote access to the Web interface. To access it, you will have to go through the tunnel.

For example, your GenIP has the LAN address 192.168.3.100 and the WAN address 94.90.10.120. If the rule IPSec is active, the way to ping or access to the GenIP will be to set the address 192.168.3.100. If the rule IPSec is inactive, we will set 94.90.10.120

Aim of the tunnels defined by default:

- To create an IPSec tunnel between 2 GenIP using the SMS service.
- To create an IPSec tunnel towards a router

1) Principle of use of the IPSec manual tunnel between 2 GenIP:

For the installation, see the application note AN081, or use the tunnels already defined by default.

- The 2 GenIP will use the le SMS service. A GenIP will be considered as the Local (192.168.100.xxx) and the other one as the Remote (192.168.2.xxx).
- The 2 GenIP will connect to the WAN and will send themselves their WAN IP addresses
- For that, you will need to :
  - On each GenIP, authorize the telephone number of the other GenIP, in the field of the authorized sources.

2) Principle of use of the IPSec (manual or IKE):

For the installation, see the application note AN132.

5.2.25 User Management and Password

This menu is used to set "Users" who have access to GenIP 30i.

5.2.25.1 Creating a User

Enter the different fields and "**Apply**"

In the fields "**Name**" and "**Password**" use only the characters
  - **A** à **Z**
  - **a** à **z**
  - **0** à **9**
  -&(_@)=+*!:/.,?<> -

Once created, the user is listed.

The "**Comment**" appears in a tooltip when you mouse is over the user.

(See example below).

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Users and password

Users list

ID	Enable	Name	Level	Password	To remove ✗✗
	Filter : Name ▾			Apply filter Cancel filter	
1	☑	admin	10	******	☐
2	☑	Level5	5	55555	☐
3	☑	Level3	3	3333	☐
4	☑	Level1	1 (read only)	1111	☐

Apply changes

Level3
Access for DEF

The maximum number of users is 20

5.2.25.2 Change Password

Enter the old password, the new password, confirm the password and then "*Apply*".

Change my password

Old password	••••	✔
New password	••••	✔
New password (confirm)	••••	✔

Apply

Only the "*User*" connected can change their password.

5.2.25.3 Hierarchy

There are two possible levels of hierarchy:

Level 1 .... : Read access only.

Level 2-10 .... : Read access, write to create, edit scripts, settingsGenIP 30i.

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You cannot create or delete a user level 10. It is frozen and remains unique.

A level user **X** can create, delete a user of a lower level.

Once created, the password of a user Y can be modified, by logging as Y.

In the example below the "*User5*" can:

- Create users level 1 to 4
- Delete Users 3 and 1

In the example below "*User1*" "is connected to GenIP 30i.

He can only do the consultation and cannot change his "*Password*"

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5.2.26 Remarks about the function Bridge

The GenIP provides the Bridge function between the RS ports.

The possible combinations are:

RS232	RS232
RS485	RS485
RS232	RS485

NB: We cannot make a RS towards two RS.

> We cannot make a RS towards two RS.

During the connection and the bridge logout, it is possible to generate a message on the RS.

During a request of WAN Disconnection, the message will arrive within 2 minutes.

On the other cases, the time depends on the time of network connection for the connection message.

5.2.27 Hardware Option

For some options of the GenIP, it is necessary to declare them in the hidden web page at the current IP
address of the GenIP *http://vvv.xxx.yyy.zzz/hardware_options.php*

For this check the box setting.

After validation a pop up appears.
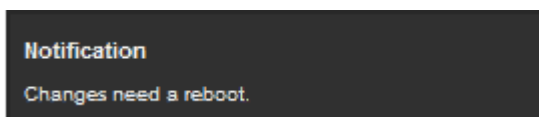
5.2.28 Inactivity Timer

It is possible using the system message $WAN_TX_TRAFFIC$, $WAN_RX_TRAFFIC$ (see § 5.2.7.2 Systems messages) and using a script to create a inactivity timer on the traffic of the WAN link.

<u>**Application :**</u>

In this example below a counter of 10 seconds is initiated by an action and it is refreshed every second.

Once there is no traffic on the WAN link for 10 seconds, the WAN connection is disconnected.

For this create 2 actions

   1st action   : ***StartTimer*** qui appelle le script ci-dessous.

   2nd action   : ***StartConnexionWan*** initiates the WAN link and when this action is successful, it call ***StartTimer***.

Script : :

```
GV_Timer=10;
while $CMP_#$GV_Timer$#!=#0#$;
    if $OR_#$CMP_#$WAN_RX_TRAFFIC$#!=#$GV_Rx_Traffic$#$#
$CMP_#$WAN_TX_TRAFFIC$#!=#$GV_Tx_Traffic$#$#$;
        GV_Timer=10;
    else if $CMP_#$GV_Timer$#>#0#$;
        GV_Timer=$SUB_#$GV_Timer$#1#$;
        If $CMP_#$GV_Timer$#==#0#$;
            wan disconnect;
        end if;
    end if;
    GV_Tx_Traffic=$WAN_TX_TRAFFIC$;
    GV_Rx_Traffic=$WAN_RX_TRAFFIC$;
    wait 1;
end while;
end;
```

The number of instances of the script interpreter must be at least 2.
See § 5.2.8.2 Sequence of script.

5.3 Information about the function ModBus

The GenIP offers the possibility of gateway ModBus RTU ModBus TCP on the links RS, LAN and WAN and it also includes the following features.

- Modbus master. This function is under the form of a dynamic variable. It can be integrated inside the message of a SMS, an email or TCP. The result can be posted on a FTP or TCP server, data-logged in a file stored on USB or in the flash memory or send to SMS or Mail.

- Modbus slave. This function interacts with the digital and analog inputs/outputs (reading, writing); it allows to trigger some actions predefined on the web interface, and to execute some macro commands.
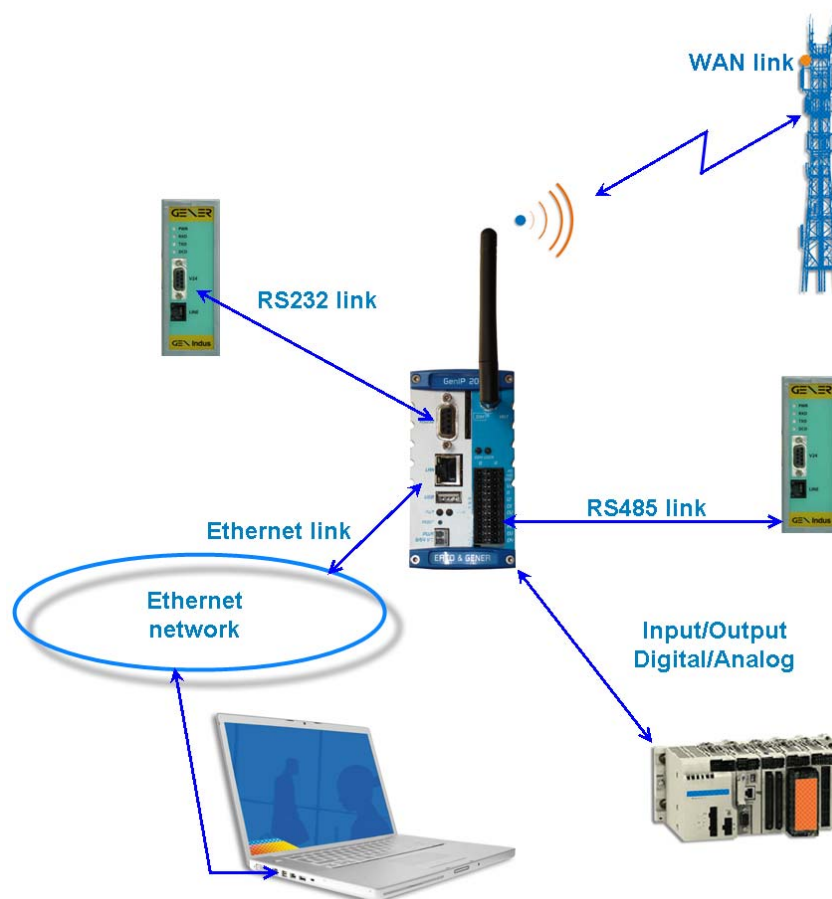
The configuration of the functions Modbus and I/O can be done only via the web interface.

It is not possible to modify the I/O configuration by Modbus frames. However, it is accessible in reading mode only on the Modbus slave.

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Access to the different parameters of configuration of the Modbus "***Mes protocoles/Modbus***" *(My protocols/Modbus)*

Then, cross the case "***Modbus***"
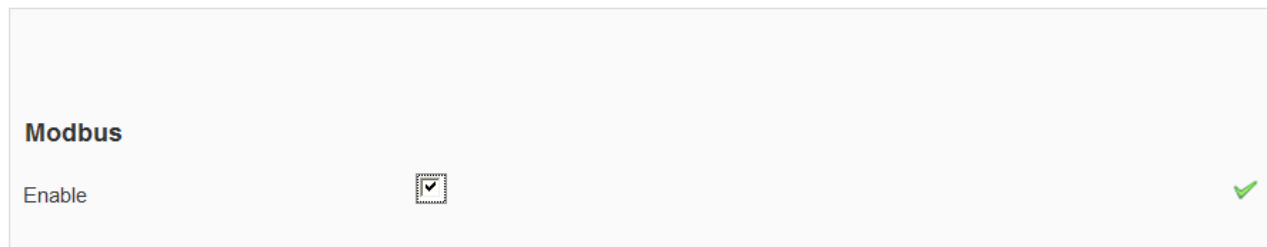
5.3.1   Configuration

List of configuration parameters associated to the slave Modbus:

- Modbus slave address: 01 – 247.

- Listening port TCP, internal on the GenIP. The selection of this port is provided to the user in order not to conflict with a port number that he wants to affect to another function.
- Access to the function Modbus slave via the Web interface :

Modbus slave

Enable	☑	✔
Modbus address	1	✔
TCP port (not for user, system internal usage)	5000	✔
Security code	1234	✔
Allow actions requests	☑	✔
Allow scripts requests	☑	✔

Apply

- Security code used to authorize the triggering of action and the implementation of macro commands.

- Configuration of the analog Inputs/Outputs in current or tension.(**MesPorts/Entrées et sorties**) *(My ports/Inputs and Outputs).*
- Creation of action.(**Mes actions/Paramétrage des actions**) *(My actions/Setting the actions).*
- Creation of macro commands.(**Mes actions / Constructeur de macro commandes et de scripts**) *(My actions / Builder of macro commands and scripts).*

For more information, download on our website http://www.ercogener.com/modem-routeur-passerelle-industriel-rail-din-genip-20i.html#applications the applications notes:

Configuration of the RS232 serial link

RS-232

RS-232 port is reserved for Modbus	☑	✔
Baudrate (bits / s)	9600	✔
Data bits	8	✔
Stop bits	1	✔
Parity	none	✔
Handshake	none	✔
Mode	RTU	✔
Timeout (ms)	5000	✔
DTR monitoring	☑	✔
Action to do on change to 1		✔
Action to do on change to 0		✔

Configuration of the RS485 serial link

RS-485

RS-485 port is reserved for Modbus	☑	✔
Baudrate (bits / s)	9600	✔
Data bits	8	✔
Stop bits	1	✔
Parity	none	✔
Mode	RTU	✔
Timeout (ms)	5000	✔

Configuration of the link TCP gateway Modbus

Modbus TCP

TCP port	502	✔
Timeout (ms)	5000	✔
IP addresses allowed	0.0.0.0-255.255.255.255	✔

List of Modbus equipments defined on the gateway (Example)

Modbus network

Filter : Device name ▼   Apply filter   Cancel filter

Device name	Type	Modbus address	Link	To remove ✕✕
Esc10	Slave	10	Ethernet (local network) 192.168.100.154:5048 Don't close TCP socket	☐
Esc12	Slave	12	RS-232	☐
Esc23	Slave	23	RS-485	☐
			🗔 Apply changes	

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Creation of Modbus equipment for the gateway

Add a new Modbus device

Add or edit a device	Add a device	✔
Device name	Esc12	✔
Link	RS-232	✔
Type	Slave	✔
Modbus address	12	✔
Comment		✔

Apply

Setting the GenIp in Modbus slave.

Modbus slave

Enable	☑	✔
Modbus address	1	✔
TCP port (not for user, system internal usage)	5000	✔
Security code	1234	✔
Allow actions requests	☑	✔
Allow scripts requests	☑	✔

Apply

> *Security code* allows to secure the access to the actions and macro commands.

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5.3.2 Modbus Master

This function is under the form of a dynamic variable. It can be integrated in a message of a SMS, an email or TCP server. The result can be posted on a FTP or TCP server, data-logged in a file stored on USB or in the flash memory or send to SMS or Mail.

This variable can also be used in an action, compared with a fixed value in order to trigger an action or do a macro-command.

The function Modbus master is permanently available. It activates when sending a request. All requests sent by the master pass through the gateway Modbus. Consequently, you have to register the slaves which are consulted in the page *Mes protocoles->modbus* *(My protocols->modbus)* of the web interface.

> ⚠ In the case where a master RS485 is declared and if the GenIP must send requests to slaves on the RS485, it is possible that some collisions lead to the loss of the request.

5.3.2.1 Structure of the messages Modbus Master

The structure of the message or variable is as follows:

Field	Description
$MODBUS	Delimiter of frame heading
@SLAVE	Address of slave Modbus, this slave must be declared in the list of the slaves Modbus, or correspond to the slave address of the GenIP. You can be used Custom Message Shared Destination or Dynamic Message.
CODEF	Code Modbus function. Must belong to the list of function codes authorized (see § 5.3.2.2 Function Code authorized).
@REGISTER	Address of the memory register of the slave Modbus to read. The value must be decimal.
NBREGISTER	Number of registers Modbus to read. This value is conditioned to the type of format of the response (cf. Format of data and number of registers that can be read). The registers have a size of 16 bits. In the case of function codes Modbus 01 and 02, this value will be the number of bits to read.
FORMATRESPONSE	Format of presentation of the response. (for more details, see § 5.3.2.3 5.3.2.3 Format of data and number of registers that can be read)
$	Delimiter end of frame

Each field is separated by an '**under score**'

Example

$MODBUS_02_03_00_01_UINT$

Allows to read a register at the address 0 of the slave Modbus address 2 by using the function code 3.

The return is of type entire not signed.

The variable is replaced by the character string '5982'.

	Heading	@SLAVE.	CODEF	@REGISTER	REGISTER NB	FORMAT RESPONSE	Delimiter
	$MODBUS	02	03	00	01	UINT	$

It is necessary to have an idea about the response expected.
For example: The expected result is **99084** (0x1830C) corresponding to 2 registers of 16 bits.
If the number of register is **1** and a format **UINT** the response returned is: **33548** (0x830C)
If the number of register is **1** and a format **INT** the response returned is: **-31966** (0x830C)
In this case, the number of register must be **2**.

5.3.2.2   Function Code authorized

Only the reading function codes are available.

- **0x01**   Reading of N bits of output   (See § 5.3.5.1   Reading of N bits of output)
- **0x02**   Reading of N bits of inputs   (See § 5.3.5.2   Reading of N bits of input)
- **0x03**   Reading of N exploitation registers   (See § 5.3.5.3   Reading of N registers of exploitation)
- **0x04**   Reading of N inputs registers   (See § 5.3.5.4   Reading of N registers of input)

For the codes 0x01 and 0x02 (reading of bit) the value returned is a multiple of 8 bits.
All the bits of the Modbus response are taken into account.
Example :
Value of registers (MSB, LSB) : 0xFF05
Reading of 10 bits returned : 0x0503

Descriptions and non-contractual illustrations in this document are given as an indication only.
ERCOGENER reserves the right to make any modifications.

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5.3.2.3   Format of data and number of registers that can be read

The format of the response can be with the following format:

Format	Description
INT	Number of registers that can be read: 1, 2 or 4. Format: entire signed. String of characters ascii. Example : '5896', '-986'
UINT	Number of registers that can be read: 1 to 4. Format: entire not signed. Example: '6952'
HEX	Number of registers that can be read: 1 to 64. Format: hexadecimal value of the registers. Example, for a value read of 35372, the character string will be '8A2C'.
BIT	Number of registers that can be read: 1 to 16. Number of bits that can be read: 1 to 128. Format: binary value of the registers. Example for a value read of '103' (8 bits), the character string displayed is '01100111'. '1' (1 bit), the character string displayed is '00000001'.
FLOAT	Number of registers that can be read: 2 (float32) or 4 (float64). Format: digit with floating comma. Example: '36,987'.
STRING	Number of registers that can be read: 1 to 64 registers. Format: characters string. In this case, no conversion is done on the data read. The user must ensure that the registers contain only characters that can be displayed. Example: 'Alarm'.
INVERTEDn	To reverse the reading direction of the register With $0 \leq n \leq 3$ Example: value of register in hex 'AC57BD13'. Normal reading : modbus_11_3_0_2_hex = AC57BD13 INVERTED Normal reading : modbus_11_3_0_2_invertedhex = 13BD57AC INVERTED0 Normal reading : modbus_11_3_0_2_inverted0hex = AC57BD13 INVERTED1 Reverse reading : modbus_11_3_0_2_inverted1hex = 13BD57AC INVERTED2 Reverse reading : modbus_11_3_0_2_inverted2hex = 57AC13BD INVERTED3 Reverse reading : modbus_11_3_0_2_inverted3hex = BD13AC57

5.3.2.4 Example of use of a variable

The dynamic variable Modbus can be used in any action that sends a message.

For example, to send the Modbus response by SMS, email, TCP/UDP, ftp in a text file.

It is also possible to data log the responses in a file stored on a USB key or inside the flash memory of the GenIP.

Example of transmission of the Modbus response towards SMS

Create an action which sends a SMS; the content of the message will be for example:

GenIp_Site_North:$MODBUS_01_01_00_02_UINT$

Add or edit an action

Add or edit an action	Add an action	✔
Name	SMSExample	✔
Type	Send by SMS	✔
Phone number	0102030405	✔
Message	GenIp_Site_North:$MODBUS_01_01_00_02_UINT$	✔
Need acknowledge	☐	✔
Comment		✔
Do this action in parallel		✔
Do this action on success		✔
Do this action on fail		✔

Apply

This action will be triggered upon the change of status of a logical output.

SMS received: GenIp_Site_North:0003 (003 is the read value).

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Data-logging Example

Create a file of data-logging, in the page *My actions->Data logger*.

Create an action which adds a message to a data registration, by selecting the file previously created. The content of the message can be:

$DATE_LOCAL$GenIp_Site_North:$MODBUS_01_01_00_02_UINT$$CR$$LF$

Create a periodic event in *Administration->Time* which calls the action previously created.

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Add a periodic events

Add or edit a periodic event	Add a periodic event	✔
Name	ReadIpNorth	✔
Enable	☑	✔
Interval (seconds)	3600	✔
Action to do	LogIpNorth	✔
Comment		✔

Apply

The event created is cyclically called. At each execution of the action, a line will be added in the USB key.

Example of Comparison

Create a script:

$IF_$CMP_$MODBUS_01_03_00_01_UINT$_== 3$ #send sms 0102030405 Door Open GenIp Site North##;end;

Script builder

Add or edit a script	Add a script	✔
Name	DoorOpen	✔
Script	$IF_$CMP_$MODBUS_01_03_00_01_UINT$_==_3$_#send sms 0102030405 porte ouverte genIp Site Nord##$;end;	
Comment		✔

Apply

When the read value of the register 00 of the slave at the address 01 is equal to 0001, the message *Door open GenIp Site North* is sent via SMS. In the contrary case, no action is done.

In the case where the slave Modbus does not respond, the script is not executed and the message below is written in the system diary:

"$IF_$CMP_$MODBUS_01_03_00_01_UINT$_== 3$ #send sms 0102030405 Door Open GenIp Site North##;" is not a valid command"

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List of operators can be used

Operator	Description
==	equality
!=	non equality
<	lesser
<=	lesser or equal
>	greater
>=	greater or equal

5.3.3   Structure of messages Modbus RTU

Request

Designation	@ Slave	Function code	@ register	Nb register to read	CRC 16
Size	1 Byte	1 Byte	2 Bytes Msb - Lsb	2 Bytes Msb - Lsb	2 Bytes Msb - Lsb
Example *	01	03	1000	0001	80CA

* Request of reading of 1 byte of the register at the address 1000 of the slave at the address 01

Response of a request

Designation	@ Slave	Function code	@ register	Nb register to read	CRC 16
Size	1 Byte	1 Byte	1 Byte	2 Bytes Msb - Lsb	2 Bytes Msb - Lsb
Example *	01	03	02	0030	B850

* Response to the previous request.

The number of byte to follow does not take into account the 2 bytes of the CRC16.

Example

Request of reading of 4 registers from the address 1000 of the slave at the address 01

	@ Esc	Fct. Code	@ Reg.	Nb of register to read				CRC 16
Request	01	03	1000	0004				40C9
	@ Esc	Fct. Code	Nb byte	Data 1	Data 2	Data 3	Data 4	CRC 16
Response	01	03	08	0030	0034	0045	0016	840B

5.3.4 Structure of messages Modbus TCP

The message Modbus TCP is made of a heading TCP followed by the classical frame Modbus RTU without CRC.

Request

Designation	TCP Idle	Protocol	Nb of byte to follow	Modbus Frame without CRC
Size	2 Bytes	2 Bytes	2 Bytes	n Bytes
Example *	*0001*	*0000*	*0006*	010200000001

TCP Idle ....:   This identification is provided by the Master.

Protocol..........................:   The protocol code Modbus is 0000.

Nb of byte to follow ....:   The number of byte of the frame Modbus RTU.

Response of a request

Designation	TCP Idle	Protocol	Nb of byte to follow	Modbus Frame without CRC
Size	2 Bytes	2 Bytes	2 Bytes	n Bytes
Example *	*0001*	*0000*	*0004*	01020100

5.3.5 Functions codes of the Modbus standards supported

Here, MSB and LSB concern the order of the bits of each byte.

For the bytes, the terms Hi and Lo are used.

All registers have a size of 16 bits.

5.3.5.1 Reading of N bits of output

Read	of N bits of output	
Request	@Modbus slave	
	function code = **0x01**	
	Bit Address Hi	Address of the bit to read
	Bit Address bit Lo	
	Nb bit Ho	Number of bit to read
	Nb bit Li	
Response	@Modbus slave	
	function code = **0x01**	
	Nb byte	Number of data that follow
	Data LSB	
	Data MSB	
	...	

5.3.5.2 Reading of N bits of input

Read	of N bits of input	
Request	@Modbus slave	
	function code = **0x02**	
	Address H	Address of the bit to read
	Address L	
	Nb bit H	Number of bit to read
	Nb bit L	
Response	@Modbus slave	
	function code = **0x02**	
	Nb bytes	Number of data that follow
	Data LSB	
	Data MSB	
	...	

5.3.5.3 Reading of N registers of exploitation

Read	of N registers of exploitation	
Request	@Modbus slave	
	function code = **0x03**	
	Address Hi	Address of register to read
	Address Lo	
	Nb reg Hi	Number of register to read
	Nb reg Lo	
Response	@Modbus slave	
	function code = **0x03**	
	Nb byte	Number of data that follow
	Data Hi	Value of the register
	Data Lo	
	...	

5.3.5.4 Reading of N registers of input

Read	of N registers of input	
Request	@Modbus slave	
	function code = **0x04**	
	Address H	Address of register to read
	Address L	
	Nb reg H	Number of register to read
	Nb reg L	
Response	@Modbus slave	
	function code = **0x04**	
	Nb bytes	Number of data that follow
	data Hi	Value of the register
	Data Lo	
	...	

5.3.5.5 Writing of 1 bit of output

Writing	of 1 bit of output	
Request	@Modbus slave	
	Function code = 0x05	
	Address HI	Address of the bit to write
	Address LO	
	Data LSB	FF00 to put the output to ON
	Data MSB	0000 to put the output to OFF
Response	Idem request	

5.3.5.6 Writing of 1 register of exploitation

Writing	of 1 register of exploitation	
Request	@Modbus slave	
	Function code = 0x06	
	Address reg Hi	Address of the register to write
	Address reg Lo	
	Data Hi	Value to write
	Data Lo	
Response	Idem request	

5.3.5.7 Writing of N bit of output

Writing	of N bit of output	
Request	@Modbus slave	
	Function code = 0x0F	
	Address Hi	Address of the bit to write
	Address Lo	
	Nb bits MSB	Number of bit to write
	Nb bits LSB	
	Nb bytes	Number of byte to write
	Data Hi	Value to write
	Data Lo	
	...	
Response	@Modbus slave	
	Function code = 0x0F	
	Address Hi	
	Address Lo	
	Nb bits Hi	
	Nb bits Lo	

This function code is mainly used by the access of digital outputs.

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5.3.5.8 Writing of N registers of exploitation

Writing	of N registers of exploitation	
Request	@Modbus slave	
	Function code = 0x10	
	Address Hi	Address of the register
	Address Lo	
	Nb registers Hi	Number of consecutive register to write
	Nb registers Lo	
	Nb bytes (Nb registers * 2)	Number of byte that follow
	Data0 Hi	Value to write
	Data0 Lo	
	Data1 Hi	
	Data1 Lo	
	...	
Response	@Modbus slave	
	Function code = 0x10	
	Address Hi	
	Address Lo	
	Nb registers Hi	
	Nb registers Lo	

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5.3.6 Error codes Modbus

The example below is given with the following slave address: 0x01

Designation	@ Slave	Function Code	Error Code	CRC 16
Size	1 Byte	1 Byte	1 Byte	2 Bytes Msb - Lsb
Example	*01*	*90*	*05*	*8C03*

Code	Name	Description
01	ILLEGAL FUNCTION	The function code received in the query is not an allowable action for the slave. If a poll Program Complete command was issued, this code indicates that no program function preceded it.
02	ILLEGAL DATA ADDRESS	The data address received in the query is an allowable address for the slave.
03	ILLEGAL DATA VALUE	A value contained in the query is an allowable value for the slave.
04	SLAVE DEVICE FAILURE	An unrecoverable error occurred while the slave was attempting to perform the requested action.
05	ACKNOWLEDGE	The slave has accepted a request and is processing it, but a long duration of time is required. This response is returned to prevent a timeout error from occurring in the master. The master can next issue a Poll Program Complete message to determine if processing is complete.
06	SLAVE DEVICE BUSY	The slave is processing a long duration program command. The master should retransmit the message later when the slave is free.
07	NEGATIVE ACKNOWLEDGE	The slave cannot perform the program function received in the query. This code is returned for an unsuccessful programming request using function code 13 or 14 decimal. The master should request diagnostic or error information from the slave.
08	MEMORY PARITY ERROR	The slave attempted to read extended memory, but detected a parity error in the memory. The master can retry the request, but service may be required on the slave device.

5.3.7   Addressable memory of the GenIp

		Address	
Digital inputs **Ro**	Simple inputs	0x0000 0x0001 to 0x003F	Bit0:Logical INPUT 1 Bit1:Logical INPUT 2 Not used
	Counting inputs	0x0040 to 0x0043 0x0044 to 0x0047 0x0048 to 0x007F	Logical INPUT 1 Logical INPUT 2 Not used
Digital outputs **R/W**	Simple outputs	0x0080 0x0081 0x0081 to 0x00BF	Bit0:Logical OUTPUT 1 Bit1:Logical OUTPUT 2 Not used
	Not used	0x00C0 to 0x00FF	Not used
Analog inputs **Ro**		0x0100 0x0101 0x0102 to 0x01FF	Analog input 1 Analog input 2 Not used
Analog outputs **R/W**		0x0200 0x0201 0x0202 to 0x02FF	Analog output 1 Analog output 2 Not used
Triggering of actions **R/W**	Action code Lo	0x0300	
	Action code Hi	0x0301	
	Action	0x0302 to 0x0341	
	Not used	0x0342	Not used
	Not used	0x0343 to 0x04FF	Not used
Execution of a script **R/W**	Script code lo	0x0500	
	Script code hi	0x0501	
	Size of script	0x0502	
	Script	0x0503 to 0x057F	
	Not used	0x0580 to 0x05FF	Not used
	Size of return data	0x0600	
	Return data	0x0601 to 0x07FF	
Not used R/W		0x0800 to 0x08FF	Not used
Configuration		0x0900 à 0x094A	See § 5.3.8 Configuration register
Not used		0x094C à 0x0967	Not used
Free use register of 16 bits [1] **(From Software version > V419) R/W**		0x0968 à 0x2FFF	Free use
Not used		0x3000 à 0xFFFF	Not used

⚠   [1]   Writing in the GenIP is only access in mode register. The write bit (Code 05 and 15) is not possible in the area of free use.

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5.3.8 Register of configuration

register	address	Size	Access	
	0x0900 to 0x0907	16 bits	Ro	Not used
Configuration analog input 1	0x0908	16 bits	Ro	Value = 0x0000 : Not used
Configuration analog input 2	0x0909	16 bits	Ro	0x0001 : in current 0x0002 : in tension 0x0003 to 0x007F : Not used
	0x090A to 0x0927	16 bits	Ro	Not used
Configuration analog output 1	0x0928	16 bits	Ro	Value = 0x0000 : Not used
Configuration analog output 2	0x0929	16 bits	Ro	0x0001 : in current 0x0002 : in tension 0x0003 to 0x007F : Not used
	0x092A to 0x0947	16 bits	Ro	Not used
Reset counter 1	0x0948	16 bits	Wo	Value to write 0xFFA5, any other value is denied
Reset counter 2	0x094A	16 bits	Wo	
	~~0x094C to 0x09FF~~	~~16 bits~~	~~Wo~~	

Ro Read only

Wo Write only

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5.3.9 Reading of digital inputs

The inputs 1 and 2 respectively correspond to the bit 0 and 1 of the register at the address 0x0000.

> The authorized function codes Modbus are 0x02, 0x03 and 0x04. Normally, in respect with the standards, the only function code authorized should be '*02*', but or flexibility reasons, all reading function codes are authorized.

Example of frame

The examples below are given with the following slave address: 0x01

Read of input 1			
Access	**Request**	**Response**	**Status of input**
bit	010200000001B9CA	01020100A188	OFF
		010201016048	ON

Read of input 2			
Access	**Request**	**Response**	**Status of input**
bit	010200010001E80A	01020100A188	OFF
		010201016048	ON

Read of input 1 and 2			Status of inputs	
Access	**Request**	**Response**	**1**	**2**
bit	010200000002F9CB	01020100A188	OFF	OFF
		010201016048	OFF	ON
		010201022049	ON	OFF
		01020103E189	ON	ON
Register	010300000001840A	0103020000B844	OFF	OFF
		01030200017984	OFF	ON
		01030200023985	ON	OFF
		0103020003F845	ON	ON
	01040000000131CA	0104020000B930	OFF	OFF
		010402000178F0	OFF	ON
		010402000238F1	ON	OFF
		0104020003F931	ON	ON

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5.3.10 Inputs of counting

2 meters corresponding to the inputs 1 and 2 are accessible on the addresses 0x0040 and 0x0044.

The counting value is saved on 32 bits. Even if an input is set for counting, its value is still available in the reading registers of the digital inputs.

The counting starts from the beginning, and can be reset at 0 at any time, with a writing command in the configuration registers.

> It is strongly advised for the masters Modbus to read the 4 bytes of one or several inputs in one single Modbus request. The access to the meter of an input in several readings can return a wrong value in the case where the value changed between the reading of the different bytes.

The function codes Modbus authorized are 0x03 and 0x04.

The examples below are given with the following slave address: 0x01

Example of frame

Reading the meters of digital inputs			
Counter	**Request**	**Response**	**Value of meter**
1	010300400002C5DF	010304000000127A3E	18
2	010300420002641F	010304000000053A30	5

Reset the meters of digital inputs			
Counter	**Request**	**Response**	**Value of meter**
1	01100948000102FFA5B153	0110094800018243	0
2	01100949000102FFA5B082	011009490001D383	0

5.3.11 Reading/Writing of digital outputs

The outputs 1 and 2 respectively correspond to the bit 0 and 1 of the register at the address 0x0080.

> The outputs value is accessible in reading mode. The value read is the one of the latest instruction; it is not the real value.
> The bits corresponding to unwired outputs can be used as storage bit. Any value written is registered. By default, the value is '0'.

The 8 function codes Modbus implemented in the GenIP can be used.

The examples below are given with the following slave address: 0x01

Example of frame

Writing of output 1			
Access	**Request**	**Response**	**Status of output**
bit	010500000000CDCA	010500000000CDCA	Closed
	01050000FF008C3A	01050000FF008C3A	Open
	010F0000000101002E97	010F00000001940B	Closed
	010F000000010101EF57		Open

Writing of output 2			
Access	**Request**	**Response**	**Status of output**
bit	0105000100009C0A	0105000100009C0A	Closed
	01050000FF00DDFA	01050000FF00DDFA	Open
	010F0001000101001357	010F00010001C5	Closed
	010F000100010101D297		Open

Writing of outputs 1 and 2			Status of outputs	
Access	**Request**	**Response**	**1**	**2**
Register	01060080008822	01060080008822	Closed	Closed
	010600800149E2	010600800149E2	Open	Closed
	010600800209E3	010600800209E3	Closed	Open
	0106008003C823	0106008003C823	Open	Open
	011000800001020000B990	0110008000010021	Closed	Closed
	011000800001020001785O		Open	Closed
	011000800001020002385|		Closed	Open
	011000800001020003F991		Open	Open

Writing of output 1			
Access	**Request**	**Response**	**Status of input**
bit	010100000001FDCA	010101005188	Closed
		010101019048	Open

Writing of output 2			
Access	Request	Response	Status of input
bit	010100100001AC0A	010101005188	Closed
		010101019048	Open

Reading of outputs 1 and 2			Status of outputs	
Access	Request	Response	1	2
Bit	0101000000029801	010101005188	Closed	Closed
		010101019048	Open	Closed
		01010102D049	Closed	Open
		010101031189	Open	Open
Register	0103008000185E2	0103020000B844	Closed	Closed
		01030200017984	Open	Closed
		01030200023985	Closed	Open
		0103020003F845	Open	Open
	0104008000013022	0104020000B930	Closed	Closed
		01040200178F0	Open	Closed
		01040200023822	Closed	Open
		0104020003F931	Open	Open

5.3.12 Reading of analog inputs

The values of the analog inputs 1 and 2 are respectively stored in the address registers 0x0100 and 0x0101.

The analog inputs can be set in current or in tension. The value of an analog input is stored on 16bits, with 10 bit useful, the others are at 0. If an input is set in tension, the value read is in millivolt. If the input is set in current, the value read is in micro-ampere.

The values min and max for all inputs, in current and in tension as well as their configuration (current or tension) are available in reading mode only in the configuration registers.

The function codes Modbus authorized are 0x03 et 0x04.

The examples below are given with the following slave address: 0x01

Example of frame

Reading the configuration of analog inputs			
Inputs	Request	Response	Config. of input
1	0103090800010654	01030200017984	µA
		01030200023985	mV
	010409080001B394	010402000178F0	µA
		010402000238F1	mV
2	0103090900015794	01030200017984	µA
		01030200023985	mV
	010409090001E254	010402000178F0	µA
		010402000238F1	mV

Reading of analog inputs			
Inputs	Request	Response	Value of input
1	01030100000185F6	010302114975E2	4425[1]
	010401000013036	01040211497496	
2	010301010001D436	010302116175FC	4449[1]
	01040101000161F6	01040211617488	

[1] Value in decimal. The unit depends on the input configuration.

5.3.13 Reading/Writing of analog outputs

The values of the analog outputs 1 and 2 are respectively stored in the address registers 0x200 and 0x201. The outputs value will be also accessible in reading mode; the value read will be the one of the latest instruction and not the real value.

> The value of reading of the analog outputs can be different from the one of the instruction..
> This is due to the conversion to 10 bits of the converter.
> The reading of an instruction of 500 mV is 448 mV.

The analog outputs can be set in current or in tension. The value of an analog output is stored on 16bits, with 10 bit useful, the others been ignored during a writing and at 0 for a reading. If an output is set in tension, the value is in millivolt. In the case where the output is set in current, the value is in micro-ampere.

> The registers corresponding to unwired outputs can be used as storage registers. Any value written is registered. By default, the value is '0x0000'.

The function codes Modbus authorized are 0x03 and 0x04 for the reading, 0x0F and 0x10 for the writing.

The examples below are given with the following slave address: 0x01

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Example of frame

Reading the configuration of analog outputs			
Output	Request	Response	Config. of input
1	010309280001079E	01030200017984	µA
		01030200023985	mV
	010409280001B25E	010402000178F0	µA
		010402000238F1	mV
2	010309290001565E	01030200017984	µA
		01030200023985	mV
	010409290001E39E	010402000178F0	µA
		010402000238F1	mV

Writing the analog outputs			
Output	Request	Response	Value of output
1	01060200000A0875	01060200000A0875	10 [1]
	0110020000010200 0A0597	01100200000 10071	
2	01060201000A59B5	01060201000A59B5	10 [1]
	0110020100010200 0A0446	01100201000151B1	

[1] Value in decimal. The unit depends on the output configuration.

Reading of analog outputs			
Output	Request	Response	Value of output
1	01030200000185B2	010302000A3843	10 [1]
	010402000013072	010402000A3937	
2	010302010001D472	010302000A3843	10 [1]
	010402010001 61B2	010402000A3937	

[1] Value in decimal. The unit depends on the output configuration.

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5.3.14 Triggering of actions

A master Modbus can at any time trigger an action defined in the web interface, by sending the security code (defined on the web interface), followed by the name of the action to do, whose size must not exceed 64 bytes.

In case the number of bytes of the action name is an odd number, the byte of weak weight of the last register must be "*Null*". Otherwise, the action may be not recognized.

Security code ....:   0x0300 and 0x0301(value by default 0).

Name of action.............................:   from 0x0302 to 0x0341

> The reading of the register containing the security code of the action will always return 0x0000. During the reading of the action name, the character of end of string 0x00 is used.

If the writing of registers for an action triggering runs well, the slave Modbus sends the message « ACKNOWLEDGE », 0x05, as the action is not done immediately.

The examples below are given with the following slave address: 0x01

> The triggering of an action can be protected by a security code. This one must correspond to the one entered in the parameters "*Slave Modbus*" via the web interface.

Structure of the message Triggering of Actions

Request	@Modbus slave	01
	Function code = 0x10	10
	Address Hi	03
	Address Lo	00
	Nb registers Hi	Nb of consecutive registers to write
	Nb registers Lo	
	Nb bytes (Nb registers * 2)	
	Security code 0 Lo	It corresponds to the value in hexadecimal of the code entered via the web interface.
	Security code 1	
	Security code 2	
	Security code 3 Hi	
	Name Action 0 (Hi)	*Name of action*
	Name Action 1	
	Name Action n (Lo)	00 if the *Name of action* is an odd number
	CRC Hi	
	CRC Lo	

Example of frame

An action was created on the web interface   :   "*SetOutDig01*"

Security code   :   "*1234*"

Respect the capital and small letters for the name of the action.

Writing an action		
Request with same security code	**Response**	**Comment**
0110030000081004D20000436C724F7574446967303100C762	0190058C03	ACKNOWLEDGE,
Request without security code		
01100300000810000000000436C724F757444696730310097FC	0190030C01	ILLEGAL DATA VALUE

If the capital and small letters for the *Name of the action* are not respected, a message "*ACKNOWLEDGE*" is sent but the action is not done.

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5.3.15 Execution of Macro command

A master Modbus can at any time trigger the execution of a Macro command which was previously written in a buffer Modbus of the GenIP. The management of Macro commands has the same restrictions as the commands port; the macro-commands used are the same. When a password for command channels is configured from the web interface, the same password must be sent to the list of macro commands (eg pwd mypassword; version; end;). The restrictions are independently configured.

- Management of a security code (value by default 0).
- Management of the authorized source(s): RS only, address IP LAN and/or WAN.

For this function, the GenIP provides 2 buffers:

- The authorization code must be written at the address 0x0500 and 0x0501. The reading of this register will always return 0x0000.
- The size of Macro commands, in bytes, must be written at the address 0x0502;
- Registers of Macro command: addressable from 0x0503 to 0x057B included, corresponding to a size of 244 bytes accessible in reading and writing for the execution of the Macro commands written. The writing in this buffer must absolutely be done in one single request Modbus, at the address 0x0503. Any other writing request at a different address is ignored and returns an error.
- The size of return data of Macro commands is at the address 0x0600, in bytes. The size automatically goes back to 0 when writing the Macro commands.
- Return Buffer: addressable from 0x0601 to 0x07FF included with a size of 1020 bytes accessible in reading mode only.

In the case where the length of Macro commands has an odd number of bytes, the byte of weak weight of the last register must be a character "*Null*".

If the writing of registers for the execution of Macro commands goes well, the slave Modbus returns the message «ACKNOWLEDGE», 0x05, as the execution of the Macro commands is not immediate.

> The triggering of an action can be protected by a security code. This one must correspond to the one entered in the parameters "*Slave Modbus*" via the web interface.

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Structure of the message Execution of Macro commands		
Request	@Modbus slave	01
	Function code = 0x10	10
	Address Hi	03
	Address Lo	00
	Nb registers Hi	Nb of consecutive registers to write
	Nb registers Lo	
	Nb bytes (Nb registers * 2)	
	Security code 0 Lo	It corresponds to the value in hexadecimal of the code entered via the web interface.
	Security code 1	
	Security code 2	
	Security code 3 Hi	
	Nb bytes script Hi	Number of bytes of "*Macro commands*". Does not take into account the character "*Null*" if the size of Macro commands is odd
	Nb bytes script Lo	
	Name Script 0 (Hi)	List of Macro commands
	Name Script 1	
	Name Script n (Lo)	00 if the size of Macro commands is odd
	CRC Hi	
	CRC Lo	

Example of frame

Reading the version of GenIp   :   List of macros commands *version;end;*

Security code   :   "*1234*"

Writing the Macro commands		
Request with security code	**Response**	**Comment**
0110050000091204D20000000C76657273696F6E3B656E643B0903	0190058C03	ACKNOWLEDGE

As the Macro command must return an information, this one is present when the value of the register "*Size of return data*" @ 0x0600 is different from 0

Reading the presence of information of return		
Request	**Response**	**Comment**
0103060000018482	0103020000B844	Value null. The script has not finished its processing yet
	0103020019798E	Value not null. The information of return is present in the buffer "*Return data*".

If the "*Size of return data*" @ 0x0600 is different from 0, the return information is available in the buffer "*Return data*" @ 0x601.

Reading the information of return	
Request	**Response**
01030601000C1487	010318 **76657273696F6E0D0A3030303235390D0A0D0A4F4B0A**2873

After decoding, the information is	
Information	**Decoding**
76657273696F6E0D0A3030303235390D0A0D0A4F4B0D0A0D	version 000259 OK

⚠️ After 3 attempts of execution of an incorrect macro command, the following message can be read in the buffer "***Return data***"
GenIP modbus Slave 1 (234) is blacklist
From this moment, the GenIp will not take into account any macro command until it receives a valid macro command.

5.4 Information on SNMP function

The GenIP embeds SNMP V2 agent function.

He is able to read or write information to an SNMP server.

For this we will use scripts written in PHP to access a server equipment with an MIB.

5.4.1 Example of reading a variable and sending SMS

```php
<?php
// PHP line for read the OID
$test = snmp2_get("192.168.100.201", "public", "ifDescr.1");
// Load the custom
set_variable_value("CUSTOM_MESSAGE_0", $test);
// Send sms
run_action("send_a_test_SMS");
?>
```

5.5 Leds of the GenIP 30i

The GenIP has 4 leds (LED) on the front side.

Only the PWR, CONF, GSM and USER leds are described hereunder.

5.5.1 PWR led of the GenIP 30i

The GenIP status is given by the LED PWR status situated on the front side of the GenIP 30i.

The table hereunder explains the signification of the different available status of the LED PWR.

LED status PWR	LED activity	GenIP 30i status
Off	LED off	The GenIP is off.
On	LED fixed on	The GenIP is on, in boot phase.
	LED flashing	The GenIP is ready to work.

5.5.2 CONF led of the GenIP 30i

The table hereunder explains the signification of the different available status of the LED CONF.

LED status CONF	LED activity	GenIP 30i status
Off	LED Off	Someone is on the configuration web interface page of the GenIP or the GenIP is in RESET phase.
On	LED flashing	Nobody is on the configuration web interface page of the GenIP 30i .

5.5.3 GSM led of the GenIP 30i

The attachment to the GSM network is given by the GSM Led status placed in front of the GenIP 30i.

The table hereunder describes the signification of the different available status for the LED GSM.

LED status GSM	LED activity	GenIP 30i status
On	LED fixed on	The GenIP is powered on and ready to work but it is not recognized by the network; the PIN code has not been entered or the antenna is not connected.
	LED flashing (once every 2 seconds)	The GenIP is powered on, the PIN code has been activated, the GenIP is recognized by the network and it is ready to call or receive calls (Idle mode).
	LED flashing (once every second)	The GenIP is powered on and in connection : Vocal, Data or WAN
Off	LED off	The GenIP is off or in RESET phase.

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5.5.4   User led of the GenIP 30i

By default, this Led is OFF

The management of this led is made by web interface My actions / Actions management and Add or Edit an action

Add or edit an action

Add or edit an action	Add an action	✔
Name	User_Led	✔
Type	Set logic output	✔
Logic output	User LED	✔
Value	0	✔
Need acknowledge	☐	✔
Comment	Set a User led	✔
Do this action in parallel		✔
Do this action on success		✔
Do this action on fail		✔

Apply

5.6   Procedure for updating the GenIP 30i

In order to benefit of the latest functions of the GenIP 30i, an updating procedure can be used for the change of the software embedded in the GenIP 30i.

This procedure consists in downloading the Firmware of the GenIP in the internal Flash memory of the GenIP via the LAN link available via the RJ45 Ethernet connector, or can be run from a remote.

See our website in "Software updating procedure" for a detailed description.

> If you want to update down, for example switching from to a version lower (V282), this may cause a malfunction.
> Thank you contact us before performing this operation

5.7   Trouble shooting

Problem of access for the GenIP 30i Web page

- Check that the PWR led flashes and that on the LAN side, the LEDs are correctly ON.

- Check that the CONF led is OFF

- Check that you are on the same IP range as the GenIP 30i

- With the Ping command under Invite command, launch a Ping and check that you get a reply.

Problem of GSM/WAN/SMS access

- Check the antenna connection

- Check that the SIM card is correctly inserted

- Via the Web interface, consult the Diary and via the tool menu check the reception level (CSQ).

- In the case of a WAN connection, check that the APN (Access Supplier) is correctly entered.
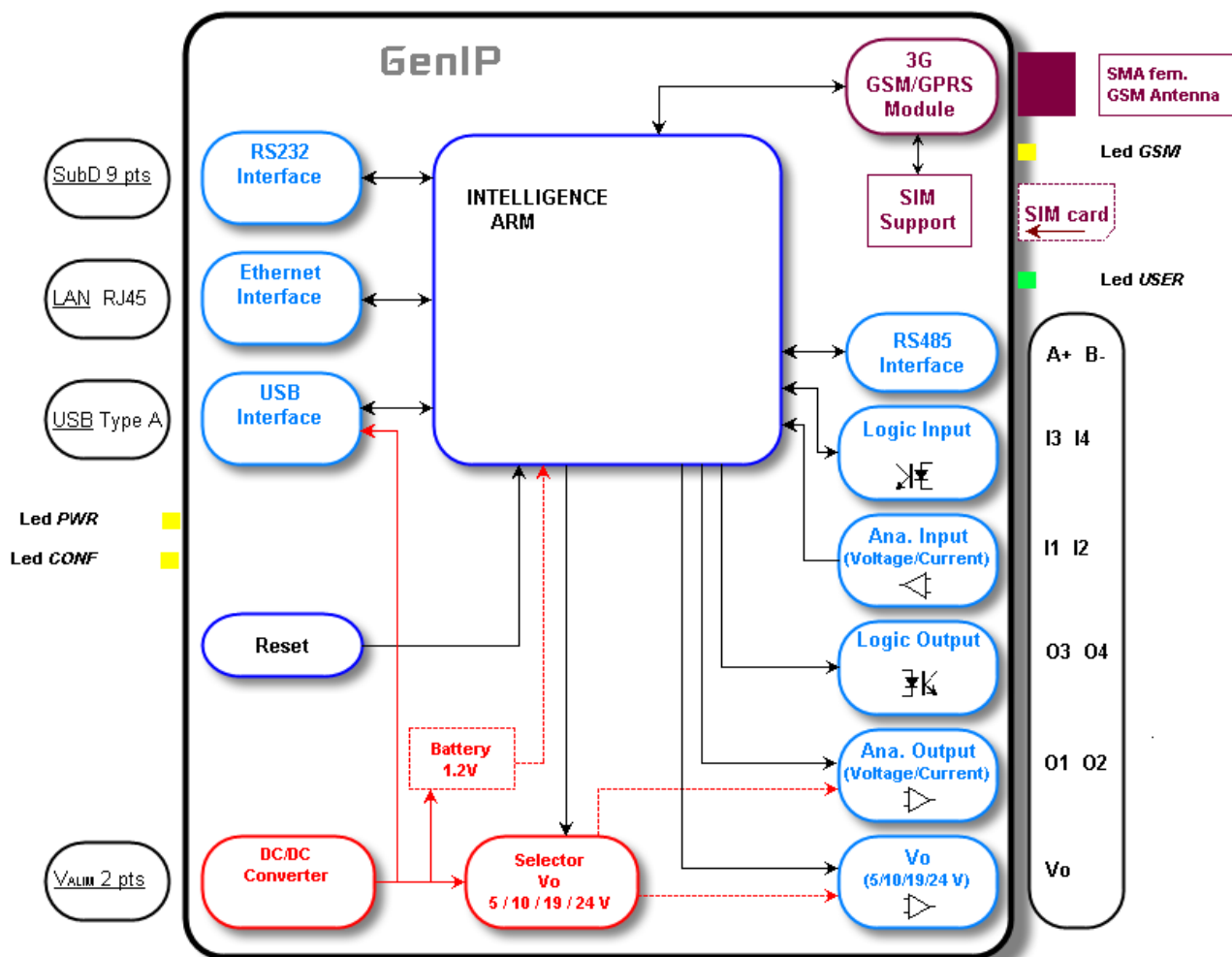

Problem of RS232 dialogue

- Check the cable conformity

    o   In the case of a DTE like a PC, a straight cable is needed (RX/TX and Ground).

    o   In the case of a DCE, a crossed cable is needed (RX/TX and Ground).

- Check the concordance between the speed programmed in the GenIP and the one of your equipment.

Problem of RS485 dialogue

- Check A and B (inverted)

- Check the concordance between the speed programmed in the GenIP and the one of your equipment.

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6 Functional Description

6.1 Architecture

The GenIP intelligence is the heart of the de GSM/WAN Ethernet gateway.

This part allows the GenIP to work in autonomy thanks to the parameters saved in it through components like the Flash, EEPROM...

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6.2 Power supply

The GenIP must be powered by a DC external tension (VALIM) between +9 and +54VDC.

The regulation of the du GenIP power supply is done with an internal DC/DC converter, in order to supply all the necessary internal DC tensions.

ERCOGENER does not guarantee a correct functioning of the GenIP in communication if the input tension falls below 8V. The GenIP is protected against polarity inversions and internally protected against tension peaks up to 54V.

Filtering guarantees: EMI/RFI protection in input and output, and signals smoothing.

6.3 Ethernet LAN link

The Ethernet interface realizes the adaptation of tension levels between the LAN Port and the ARM intelligence.

The LAN signals available on the RJ 45 connector are standard.

RJ45 Pin	10Base-T Signal 100Base-TX Signal	1000Base-T Signal
1	Transmit+	BI_DA+
2	Transmit-	BI_DA-
3	Receive+	BI_DB+
4	Unused	BI_DC+
5	Unused	BI_DC-
6	Receive-	BI_DB-
7	Unused	BI_DD+
8	Unused	BI_DD-

6.4 RS485 link

The GenIP provides a RS485 interface for a use in 2 wires.

For the ending resistance, see § 7.2.2   RS485 link

Pin N°	Signal	Pin N°	Signal
1	RS485 B–	2	RS485 A+

Dct_427_02

6.5   RS232 serial link

The RS232 interface realizes the adaptation of tension levels between the communication port of a PC (DTE) and the ARM intelligence. The RS232 interface is internally protected (by ESD protection) against electrostatic peaks coming via the RS232.

Filtering guarantees: EMI/RFI protection in input and output, and signals smoothing.

Signal	Connector Sub D Pin N°	I/O	RS232 standards	Description
CTXD/CT103	3	I	TX	Transmit serial data
CRXD/CT104	2	O	RX	Receive serial data
CRTS/CT105	7	I	RTS	Request To Send
CCTS/CT106	8	O	CTS	Clear To Send
CDSR/CT107	6	O	DSR	Data Set Ready
CDTR/CT108-2	4	I	DTR	Data Terminal Ready
CDCD/CT109	1	O	DCD	Data Carrier Detect
CRI/CT125	9	O	RI	Ring Indicator
CT102/GND	5			Ground

6.6   RESET

A Reset (Button) is possible on the GenIP 30i.

At powering on, if we press the Reset button until the leds flash, the factory configuration is reloaded in the GenIP. For that, press the button Reset, turn on and wait until the PWR led flashes and the GSM led turns on. It takes around thirty seconds.

In normal operation, if we press the Reset button, the reference configuration is reloaded in the GenIP 30i. For that, press the button Reset and wait until the PWR led is fixed on, and release the button.

6.7   Input / Output Interface

The GenIP provides 4 Inputs/Outputs

- 2 Digital Inputs (TOR), see § 7.2.3 Digital Inputs opto-coupled (I3, I4),
- 2 Digital Outputs (TOR), see § 7.2.4 Digital opto-coupled Output (O3, O4),
- 2 Analog Inputs (Voltage or Current), see § 7.2.5 Analog Input (I1, I2),
- 2 Analog Outputs (Voltage or Current), see § 7.2.6 Analog Outputs (O1, O2),

Available on the connector on the front side.

Pin N°	Signal	Pin N°	Signal
7	GND	8	I1
9	GND	10	I2
11	O1-	12	O1+
13	O2-	14	O2+
15	GND	16	I3
17	GND	18	I4
19	O3-	20	O3+
21	O4-	22	O4+

6.8   External Supply V_O

The GenIP provides an external supply output of 5, 10, 19 or 24 V_{DC} (by default : 5 V_{DC}) driven by software to provide power to an external sensor for example.
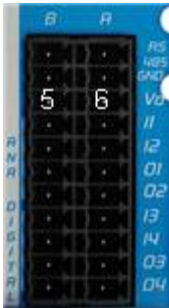
Pin N°	Signal	Pin N°	Signal
5	GND	6	V_O

⚠ This power supply cannot be used to supply an external reader in current loop. (See § 7.2.6.2 Analog Outputs in Current (0-25mA).

⚠ The output is protected from short circuit during < 15 seconds.
Over this the output will be destroy.

6.9   USB Interface (Host)

The aim is to make data logging.

6.10 Socket Module

The Socket module of the GenIP is Tri-bands 900/1800/2100 MHz (automatic detection of the band). The Socket module allows an automatic attachment to the GSM/GPRS/3G network.

6.11 Watch Dog

The GenIP has two watchdogs. As soon as they set off, restarting the GenIP is caused.

material: It is managed by the processor (the ARM9), it has a periodicity of 24 hours.

software: Each process activates the watchdog. Whenever a process crashes, the watchdog triggers.

7   Technical characteristics

7.1   Mechanical characteristics

Dimensions	105 x 55 x 94 mm (without the connectors)
Complete dimensions	105 x 55 x 105 mm (with the connectors)
Weight	≈ 430 grams (GenIP only) < 895 grams (complete : GenIP + cables ...)
Volume	543 cm³
Casing	Rail DIN OMEGA (EN 50022 / DIN 7.5mm)
Material	Aluminum
Waterproof level	IP31

The diagram hereunder shows the dimensions of the GenIP including the clearances necessary for the installation of the GenIP 30i.

Dct_427_02
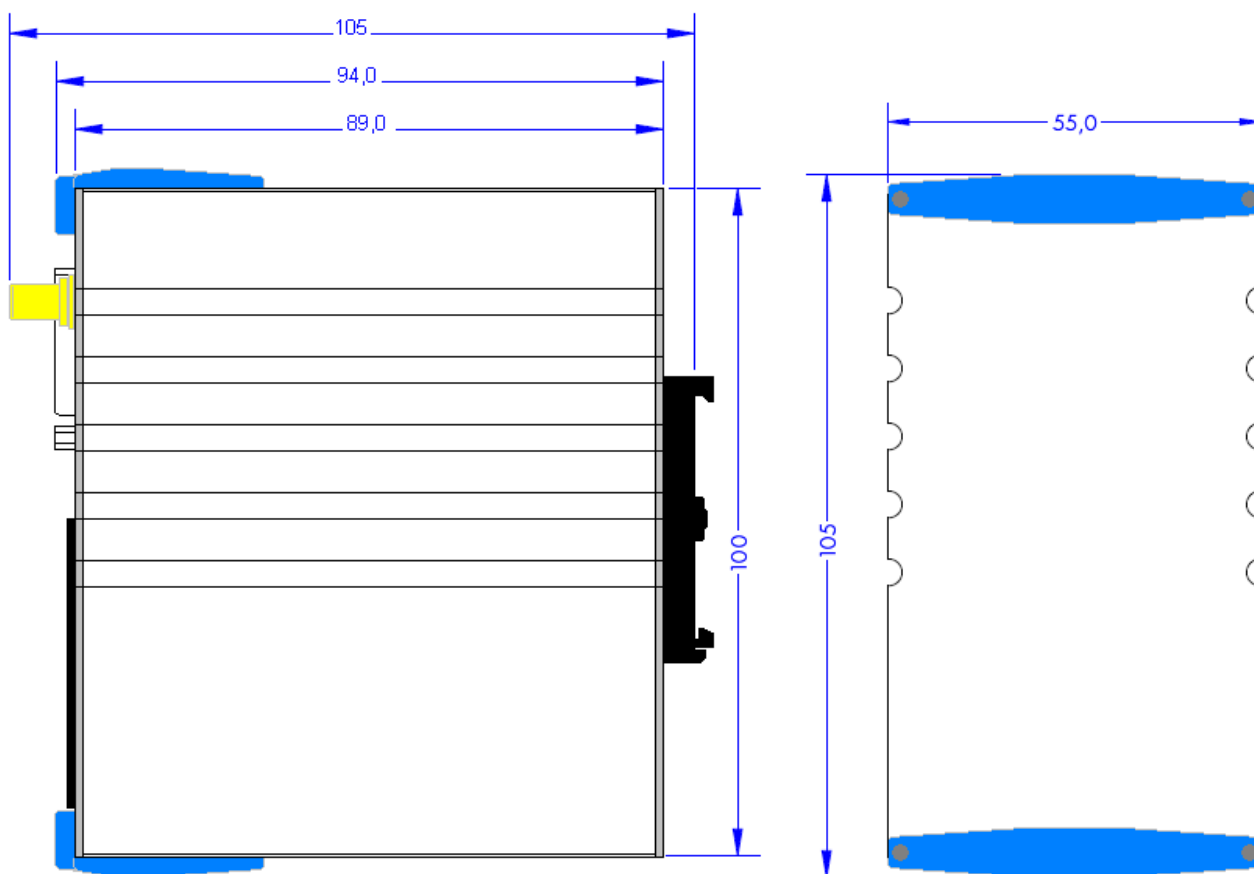
7.2 Electrical characteristics

7.2.1 Power supply

The GenIP must be powered by a DC external tension regulated and stabilized (VALIM) between +9 and +54V$_{DC}$.

> Once the power supply is connected, the GenIP is permanently consuming.
> Moreover, the bursts for the GenIP consumptions must absolutely be taken into account (see table of power supply consumption).
> ERCOGENER advises to use a referenced power supply for its GSM products (for example the power supply 12V 1A – order code 0471210700).

The following table describes the consequences of over-voltage or insufficient voltage on the GenIP 30i.

Table: Effects of power supply default

| If:	Then:
▪ Tension falls below 9V	▪ The functioning is not guaranteed.
▪ Tension above 54V	▪ The GenIP guarantees its own protection up to 54V and again the polarity inversions (short). The functioning is not guaranteed.

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7.2.1.1   Consumption

The curves below indicate the limits of consumption of the GenIP 30i,

- Limit $I_{MIN.}$: (in green), The GenIP 30i
  - is not connected to the Ethernet, GSM network
  - is not connected on RS232, USB port, Input/Output.
- Limit $I_{MAX.}$: (in blue), The GenIP 30i
  - is connected to the Ethernet network, is in WAN communication,
  - the RS232 link, the USB port and the Inputs/Outputs are connected.
- Limit $I_{BURST\ MAX.}$: (in red), Peak of consumption. This current is not permanent; it corresponds to the current peaks necessary during the GSM, WAN communication.

> For a good functioning, the power supply must be able to supply the current $I_{PEAK\ MAX.}$

Estimated consumption GenIp 30i

----- Imean Limit min.   ----- Imean Limit max.   ----- Iburst Limit max.
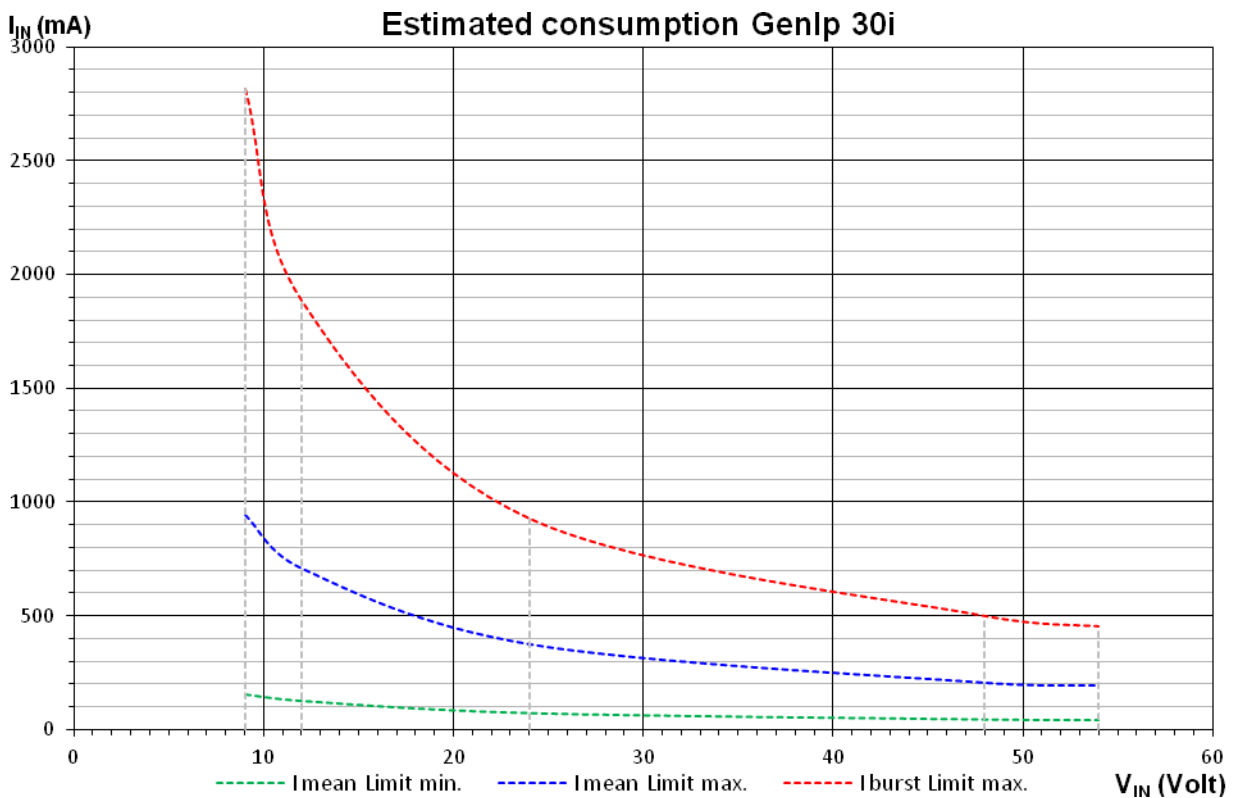
$V_{POWER\ SUPPLY}$	@ 9V	@ 12V	@ 24V	@ 54V	
$I_{MIN.}$	160	130	75	45	mA
$I_{MAX.}$	950	710	375	210	mA
$I_{BURST\ MAX.}$	2800	1900	950	450	mA

7.2.1.2   Consumption in 'Idle' mode

For information, in 'IDLE' mode

- Is registered on the GSM, WAN network but not in communication,
- Is not connected to the Ethernet network, and there is no IP traffic,
- The RS 232, RS 485 and USB port are not connected,
- No connection Inputs/Outputs.

Consumption with V_O* = +5V without charge

$V_{POWER\ SUPPLY}$	@ 9V	@ 12V	@ 24V	@ 54V	
$I_{AVERAGE.}$	175	140	82	48	mA
I_{PEAK}	175	140	82	48	mA

Consumption with V_O* = +24V without charge

$V_{POWER\ SUPPLY}$	@ 9V	@ 12V	@ 24V	@ 54V	
$I_{AVERAGE.}$	200	160	92	50	mA
I_{PEAK}	200	160	92	50	mA

* V_O is an external programmable power supply (see § 7.2.7   External power supply V_O)

> The power supply consumptions may vary of 5% depending on the temperature range (-20 °C to +60 °C).

7.2.1.3 Consumption in GSM communication mode

For information, in GSM communication mode, the

- Is registered on the GSM, WAN network,
- Is connected on the Ethernet network, with IP traffic,
- The RS 232, RS 485 are connected,
- The USB port is not connected.
- V_O = +5V without charge,
- No connection Inputs/Outputs.

Consumption in communication GSM 900 MHz* with V_O* = +5V without charge

$V_{POWER\ SUPPLY}$	@ 9V	@ 12V	@ 24V	@ 54V	
$I_{AVERAGE}$	415	320	175	100	mA
I_{PEAK}	1900	1425	740	390	mA

Consumption in communication GPRS 900 MHz* with V_O* = +5V without charge

$V_{POWER\ SUPPLY}$	@ 9V	@ 12V	@ 24V	@ 54V	
$I_{AVERAGE}$	660	500	270	145	mA
I_{PEAK}	1150	875	470	255	mA

Consumption in communication EDGE 900 MHz* with V_O* = +5V without charge

$V_{POWER\ SUPPLY}$	@ 9V	@ 12V	@ 24V	@ 54V	
$I_{AVERAGE}$	470	365	200	110	mA
I_{PEAK}	960	740	400	220	mA

Consumption in communication UMTS* with V_O* = +5V without charge

$V_{POWER\ SUPPLY}$	@ 9V	@ 12V	@ 24V	@ 54V	
$I_{AVERAGE}$	525	400	220	120	mA
I_{PEAK}	910	700	380	210	mA

Consumption in communication HSPA* with V_O* = +5V without charge

$V_{POWER\ SUPPLY}$	@ 9V	@ 12V	@ 24V	@ 54V	
$I_{AVERAGE}$	540	410	220	120	mA
I_{PEAK}	930	720	390	220	mA

* Max consumption in communication.

> The power supply consumptions may vary of 5% depending on the temperature range (-20 °C to +60 °C).

7.2.2 RS485 link

The GenIP provides a RS485 link, on which we can:

- Cancel the termination resistance,
- Cancel the resistances of PullUp and PullDown,
- Invert the signals polarity: A+ becomes A- and B- becomes B+,

By moving the internal straps (Contact us).

By default, the straps are put in place (See scheme below).

Table: Characteristics of the internal components of the interface RS485 @ 25°C

Characteristics	Symbols	Conditions	Min.	Typ.	Max.	Unit
Output						
Differential Voltage	V_{OD}		2.0			V
Delta V differential	ΔV_{OD}				0.2	V
Common Mode	V_{OC}			1.65	3	V
Delta V Common Mode	ΔV_{OC}				0.2	V
Input						
Current	I_A, I_B	V_{IN} = +12V			250	µA
		V_{IN} = -7V			-200	
	V_{TH}	-7 V ≤ V_{CM} ≤ 12 V	-200		+50	mV
Hysteresis	ΔV_{TH}	V_A + V_B = 0		25		mV

Internal electric scheme
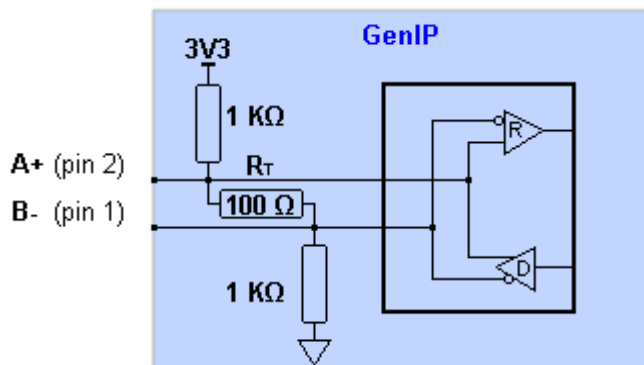
Example of assembly
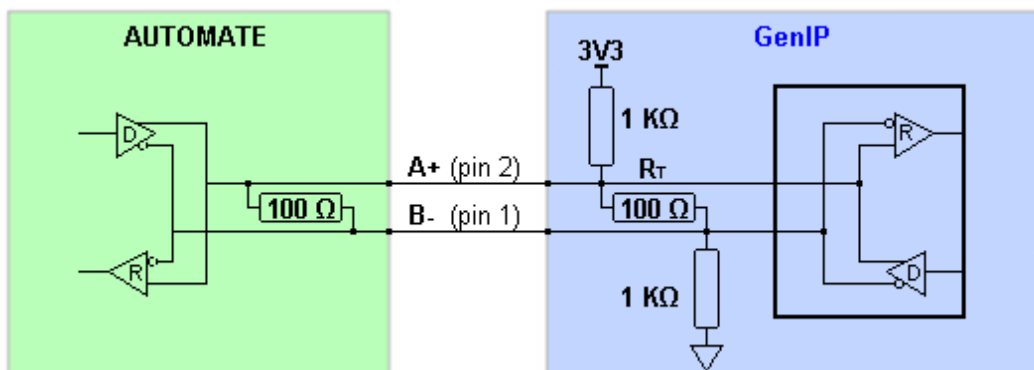
⚠️ No protection is insured. The user must respect the values of the table above.

7.2.2.1 Position of straps

Below are the different positions of jumper settings.

Table: positions of jumper
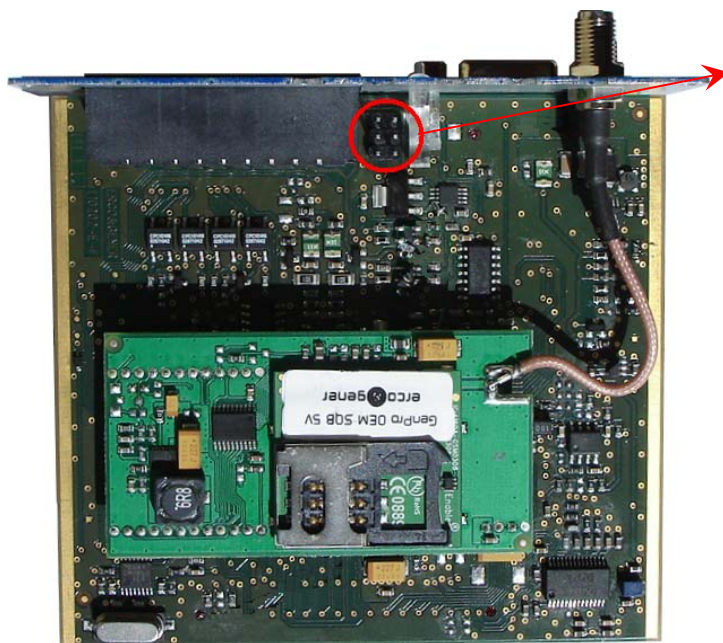
Dct_427_02

### 7.2.3   Digital Inputs opto-coupled (I3, I4)

The GenIP provides 2 digital inputs (TOR =Tout Ou Rien).

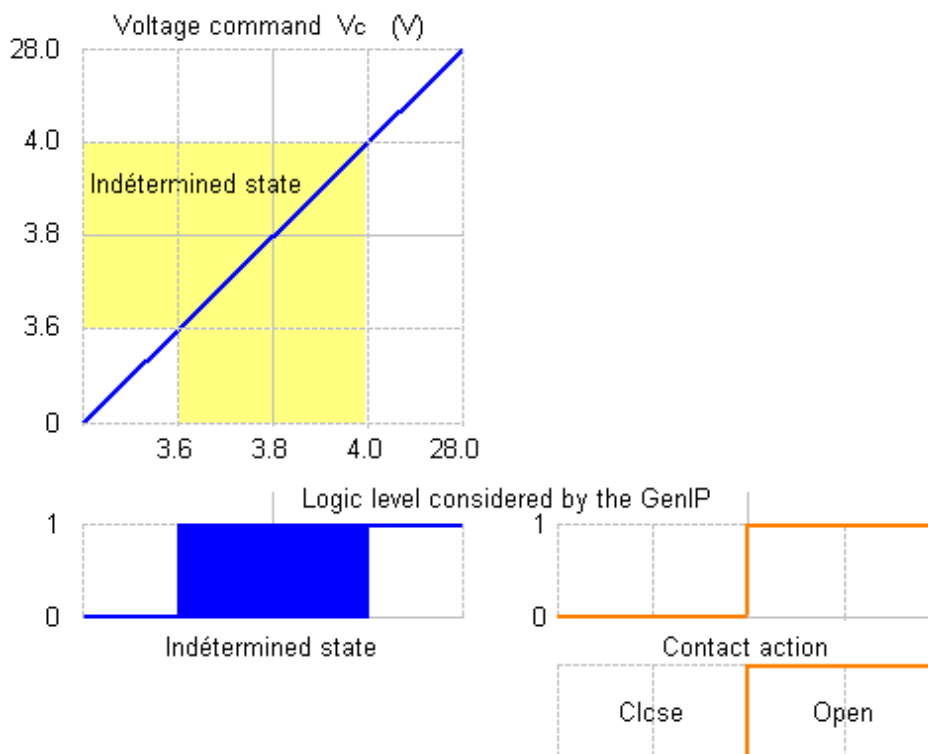These inputs are activated upon a contact closing or by a tension.

Table: Characteristics of the opto-coupled Inputs @ 25 °C

Characteristics	Symbols	Conditions	Min.	Typ.	Max.	Unit
Current Max.	$I_{F (rms)}$				10	mA
Command voltage	V_c		-18		28	V
Detection threshold	V_{seuil}		3.6	3.8	4.0	V
Sample Rate	T_{ECH}		100			ms

Internal electrical scheme of the 2 Inputs

Logical state

Dct_427_02
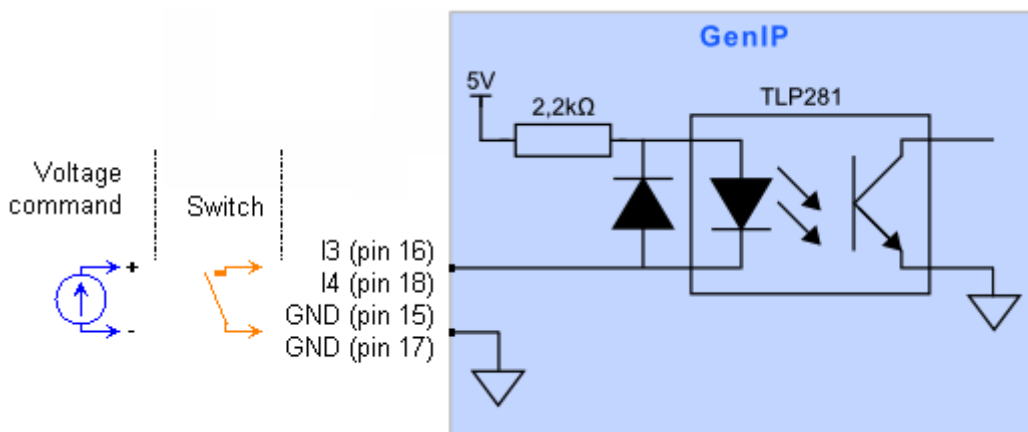
Example of assembly
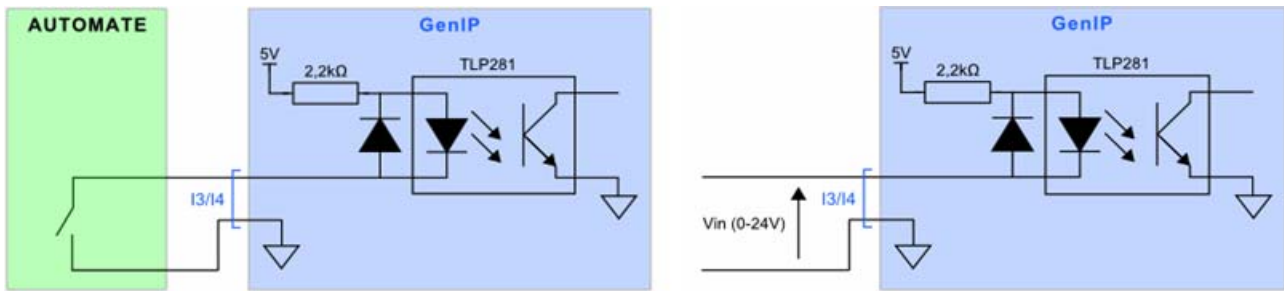
In the command voltage range of 3.6V to 4V, the logic output of the opto-coupler is undetermined.

The maximum command voltage is: $-19V \leq V_C \leq 28\ V$

Dct_427_02

7.2.4   Digital opto-coupled Output (O3, O4)

The GenIP provides 2 digital outputs (TOR = Tout Ou Rien).

Table: Characteristics of the Output @ 25 °C

Characteristics	Symbols	Conditions	Min.	Typ.	Max.	Unit
Tension	V_L				48	V
Charging current	I_L	AC/DC			120	mA
Current Peak	I_{LPK}	10 ms max.			350	mA
Resistance	R_{ON}			25	35	Ω
Capacity	C_{OUT}	48V; f = 1MHz		25		pF
Commutation time	T_{ON} / T_{OFF}	I_F=5mA, V_L=10V			3 / 3	ms
Sample rate	T_{ECH}		100			ms

Drop of charging voltage V_L on transistor connections
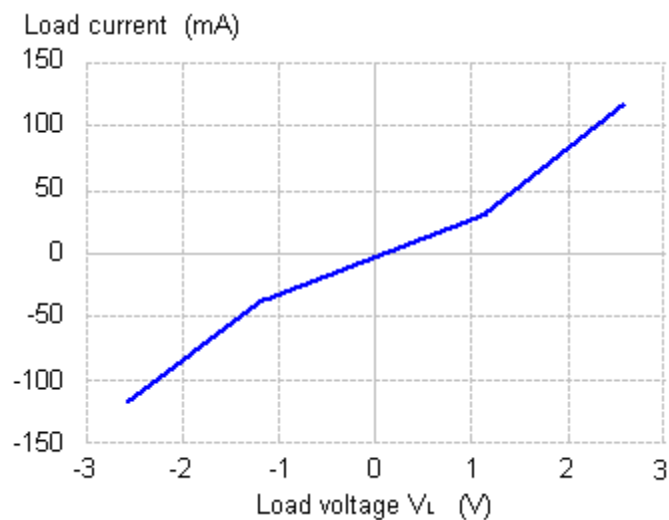
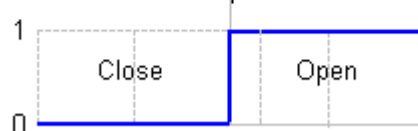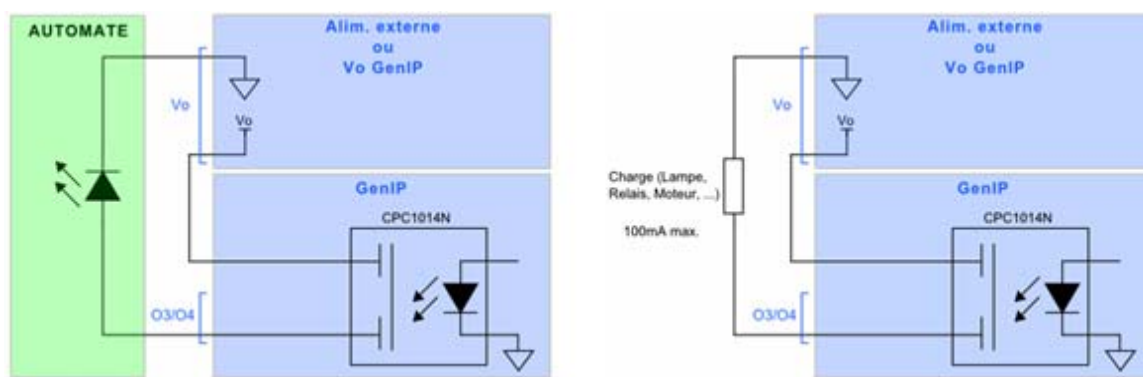Electric scheme of the 2 digital outputs

Dct_427_02
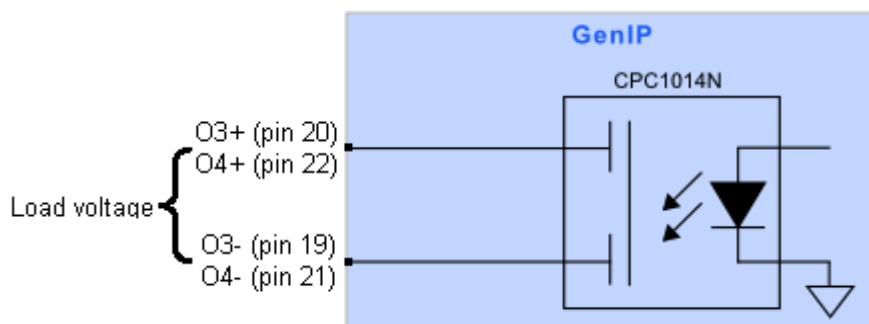
Logical state

Logic level considered by the GenIP

Output state

Close   Open
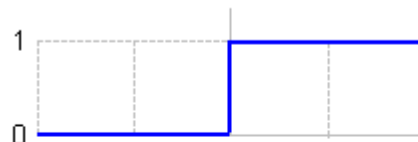
Example of assembly

⚠ No protection is ensured. The user must respect the values of the table above.

Dct_427_02

7.2.5   Analog Input (I1, I2)

The GenIP provides 2 analog inputs.

Via software, these inputs can be independently programmed in voltage mode (0-25V) or current mode (0-25mA).

By default: Voltage Mode 0-25V.

It is strongly advised:
- During the programming of the inputs mode (voltage or current), to disconnect the sensors,
- Before connecting a sensor, to check if the input mode (voltage or current) corresponds to the kind of sensor,

Indeed, connecting a sensor not compatible with the functioning mode of the input (voltage or current) is destructive.
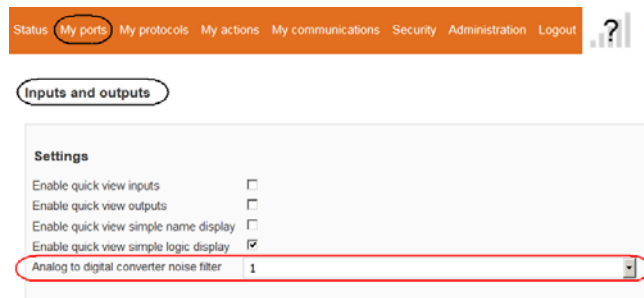
7.2.5.1   Analog Inputs in Voltage (0-25V)

Table: Characteristics of the analog inputs in voltage @ 25 °C

Characteristics	Symbols	Conditions	Min.	Typ.	Max.	Unit
Voltage	V_{IN}		0		30	V
Conversion range	I_L		0		25	V
Resolution		10 bits		48.9		mV/bit
Precision		range 0.15 to 25 V	-7.6		2.8	%
Polarization current	I_P		0		515	µA
Capacity	C_{IN}	f = 1KHz			1.2	nF
Sample rate	T_{ECH}		100			ms

You can change the resolution through the Web page.
By default we are at 1 corresponding 48.9 mV and if you put 0 the resolution will be 24.4 mV
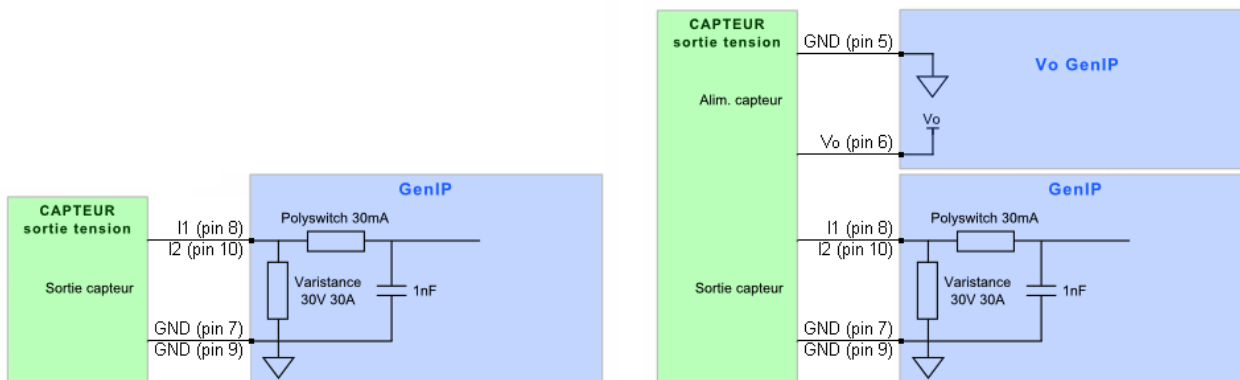

Electrical scheme of analog inputs in voltage
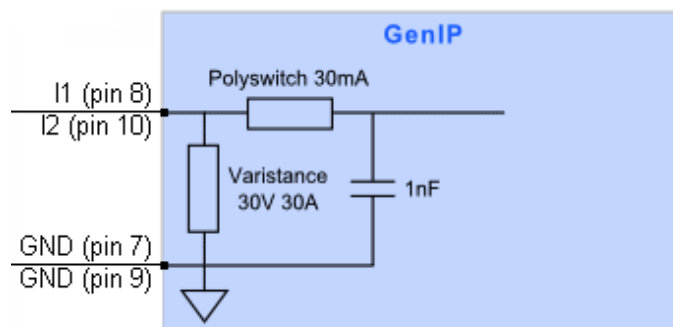
Example of assembly

Descriptions and non-contractual illustrations in this document are given as an indication only.
ERCOGENER reserves the right to make any modifications.

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The GenIP provides in output, an analog voltage V_O (programmable by software of 5V, 10V, 19V or 24V) which may be used to supply power to the sensor.
It can provide a current of 50 mA max.

It is strongly advised :
- During the programming of the inputs mode (voltage or current), to disconnect the sensors,
- Before connecting a sensor, to check if the input mode (voltage or current) corresponds to the kind of sensor,

Indeed, connecting a sensor not compatible with the functioning mode of the input (voltage or current) is destructive.

Descriptions and non-contractual illustrations in this document are given as an indication only.
ERCOGENER reserves the right to make any modifications.

Dct_427_02

7.2.5.2 Analog Inputs in current (0-25mA)

Table: Characteristics of analog inputs in current @ 25 °C

| Characteristics	Symbols	Conditions	Min.	Typ.	Max.	Unit
Voltage	V_{IN}				8.6	V
Current	I_{IN}		0		28	mA
Conversion range	I_L		0.46		25	mA
Resolution		8 bits		163		µA/bit
Precision		Range 0.46 to 25 mA	-8.8		0.3	%
Capacity	C_{IN}	f = 1KHz			1.2	nF
Sample rate	T_{ECH}		100			ms

You can change the resolution through the Web page.
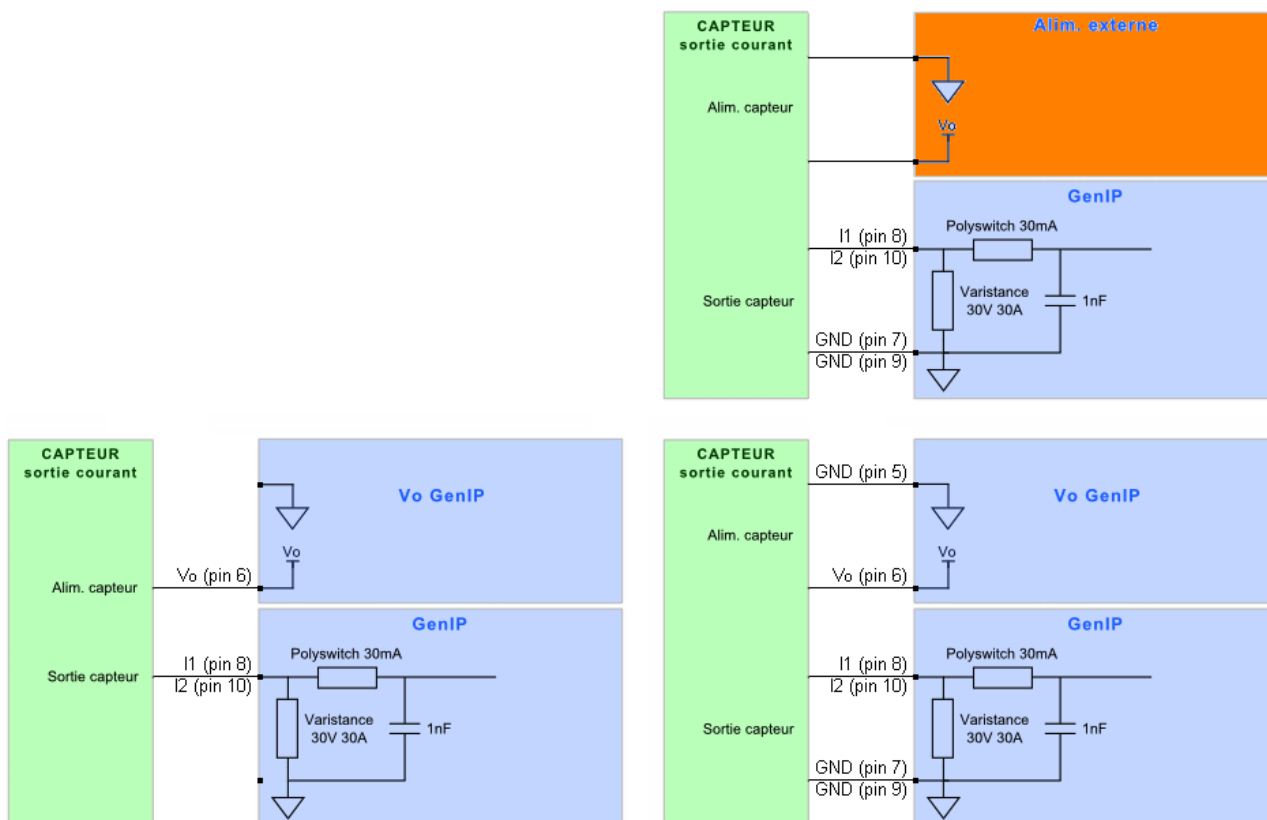By default we are at 1 corresponding 163 µA and if you put 0 the resolution will be 81.355 µA

It is a 10-bit converter.
Only the first 8 bits are useful for conversion.
Bits 9 and 10 are not used because they correspond to over max current.
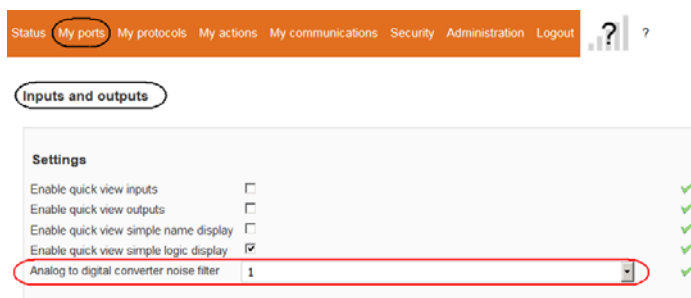
Electrical scheme of analog inputs in current
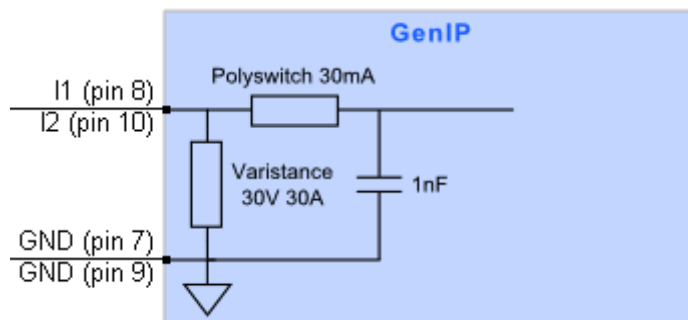
Example of assembly

The GenIP provides in output, an analog voltage V_O (programmable by software of 5V, 10V, 19V or 24V) which may be used to power supply to the sensor.
It can provide a current of 50 mA max.
Do not applied up to 8.6 voltage on I1 I2

It is strongly advised :
- During the programming of the inputs mode (voltage or current), to disconnect the sensors,
- Before connecting a sensor, to check if the input mode (voltage or current) corresponds with the kind of sensor,

Indeed, connecting a sensor not compatible with the functioning mode of the input (voltage or current) is destructive.
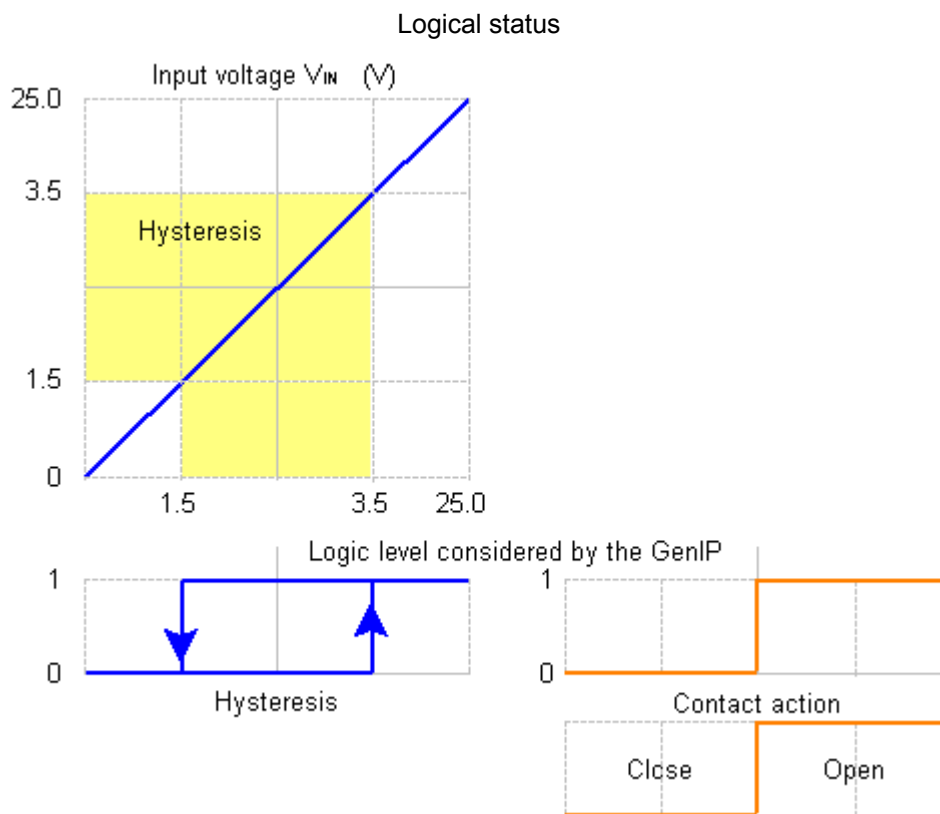
7.2.5.3 Analog input in logical mode with contact

This mode works only in tension.

The GenIP sees the analog input:

- 1 when the voltage is ≥ 3.5 volts
- 0 when the voltage is ≤ 1.5 volts

To see the limits of use in § 7.2.5.1 Analogue voltage (0-25V).

Logical status

7.2.6 Analog Outputs (O1, O2)

The GenIP provides 2 analog outputs.

Via software, these outputs can be independently programmed in voltage mode (0-24V) or current mode (0-25mA).

By default: Voltage mode 0-24V.

⚠️

It is strongly advised :
- During the programming of the outputs mode (voltage or current), to disconnect the equipments linked to the outputs,
- Before connecting an equipment, to check if the output mode (voltage or current) corresponds with the kind of equipment,
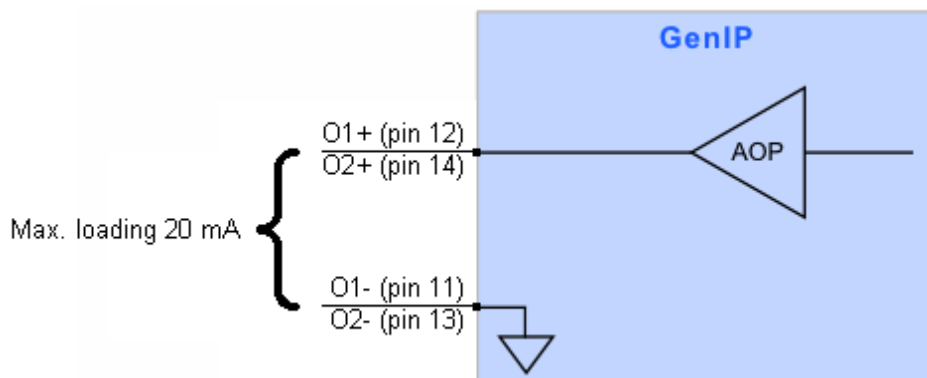
Indeed, connecting an equipment non compatible not compatible with the functioning mode of the output (voltage or current) is destructive.

7.2.6.1 Analog Outputs in voltage (0-24V)

Table: Characteristics of the analog outputs in voltage @ 25 °C

Characteristics	Symbols	Conditions	Min.	Typ.	Max.	Unit
Current	I_{OUT}				1	mA
Resolution		10 bits		24.1		mV/bit
Output range	V_{OUT}	$V_O = 5$ V			4.93	V
		$V_O = 10$ V	0.048		9.92	
		$V_O = 19$ V			18.88	
		$V_O = 24$ V			23.83	
Precision		$V_O = 5$ V	-5.7		-1.4	%
		$V_O = 10$ V	-5.4		-0.8	
		$V_O = 19$ V	-5.0		-0.7	
		$V_O = 24$ V	-4.9		-0.7	
Sample rate	T_{ECH}		100			ms

Electrical scheme of analog outputs in tension

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The GenIP provides in output, an analog voltage V_O (programmable by software of 5V, 10V, 19V or 24V) which may be used to supply power to the sensor.
It can provide a current of 50 mA max.

It is strongly advised :
- During the programming of the inputs mode (voltage or current), to disconnect the sensors,
- Before connecting a sensor, to check if the input mode (voltage or current) corresponds with the kind of sensor,

Indeed, connecting a sensor not compatible with the functioning mode of the input (voltage or current) is destructive.

7.2.6.2 Analog Outputs in Current (0-25mA)

Table: Characteristics of analog outputs in current @ 25 °C

Characteristics	Symbols	Conditions	Min.	Typ.	Max.	Unit
Voltage	V_+		7.5	24	40	V
Resolution		10 bits		24.8		µA/bit
Output range	I_{OUT}		2.48		25.18	mA
Precision		Range 3 to 25 mA	-1.0		-0.6	%
Sample rate	T_{ECH}		100			ms

Electrical scheme of analog outputs in current

Dct_427_02
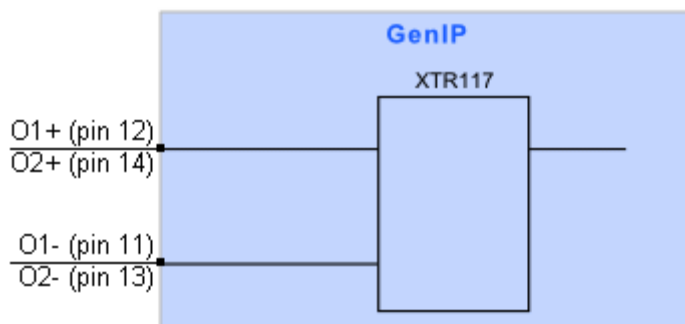
Example of assembly passive mode
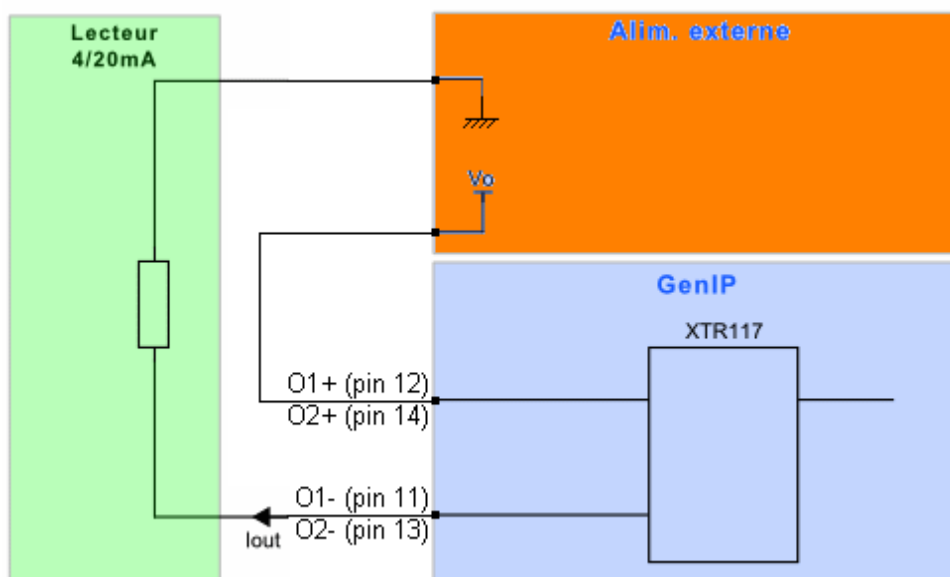
⚠ For a good functioning, the 0 Volts (GND) of the external supply and the GenIP must be different.

Example of assembly active mode

The level current and resistor are set through the web page.

To get a maximum range value you must set supply voltage out to 24 Volts.

⚠ No protection is ensured. The user must respect the values of the table above.

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7.2.7 External power supply V_O

Value by default: 5 V_{DC}
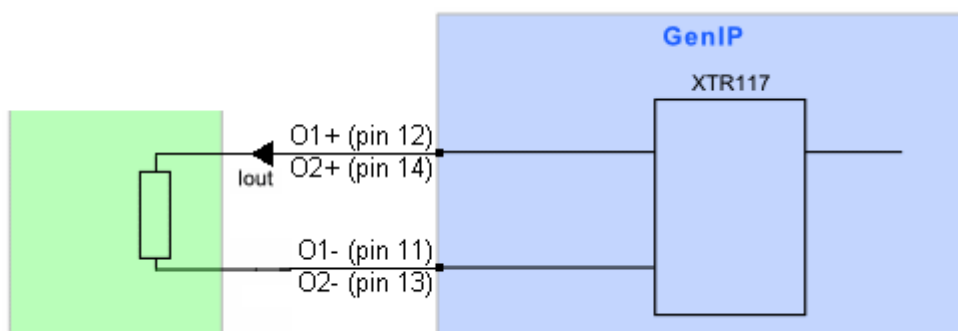
Table: Characteristics of the supply output @ 25 °C

Characteristics	Symbols	Conditions	Min.	Typ.	Max.	Unit
Output voltage	V_O			5		V
				10		
				19		
				24		
Current	I_O				50	mA
Undulation	V_{OND}	@ 5 V - 50 mA			± 24	mV
		@ 10 V - 50 mA			± 20	
		@ 19V - 50 mA			± 26	
		@ 24 V - 50 mA			±40	

⚠ This power supply cannot be used to supply power to an external reader in current loop. (See § 7.2.6.2 Analog Outputs in Current (0-25mA).

⚠ No protection is ensured. The user must respect the values of the table above.
The output is protected for short circuit accidents for a period <15 sec.
Beyond there is destruction of the output.

7.2.8 Output Input and External Power supply behavior

⚠ This remarks are available for version >= 513

7.2.8.1 Output behavior

After power off and power on the output the output state are set to the value set in interface Web and this after 5 seconds after power up.

Regarding external power output this one start to 5 voltages and after 5 seconds up to the value set in interface Web.

7.2.8.2 Input testing

After power off and power on the input are tested and if there is an action associated, then this action will be executed after the end of GenIP start up.

7.2.8.3 GenIP start up timing

The genIP is start up when all its applications are launched and when the GSM/GPRS/3G module is also ready. This time can be change regarding environment and action you wish executed.
This time cannot be less than 30 seconds.

7.2.9 USB Port

Table: Characteristics of the output +5V of the USB port @ 25 °C

Characteristics	Symbols	Conditions	Min.	Typ.	Max.	Unit
Output voltage	V_O	$I_O = 0$		5		V
		$I_O = 500$ mA		4.85		
Current	I_O				500	mA

The output +5V is protected by a re-armable fuse.
During a frank short-circuit on the power supply, the time of reaction of the fuse causes a reset of the GenIP 30i.

7.2.10 SIM Interface

Table: Characteristics of the SIM card supply tension

SIM card	3 V or 1.8 V

7.2.11 RF GSM/WAN characteristics

7.2.11.1 Frequency band

The RF functioning complies with the ETSI GSM Standards.

The RF performances for the receiver and the transmitter are described hereunder.

Table: Parameters of the RF receiver and transmitter @ 25 °C

Receiver	
Sensitivity in 900	- 108 dBm, GPRS Coding Scheme 1 (CS1)
Sensitivity in 1800	- 108 dBm, GPRS Coding Scheme 1 (CS1)
Sensibilité en 3G	- 108 dBm, Band I
Transmitter	
Maximum power (Power Class1 - 900)	32 dBm +/- 2 dB @ antenna connection
Maximum power (Power Class4 - 1800)	29 dBm +/- 2 dB @ antenna connection

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7.2.11.2 GSM external antenna

By default, the GenIP is supplied with an antenna (hinged SMA-M antenna).

Other kind of GSM external antennas may be connected to the GenIP via a SMA/M connector.

The external antenna must comply with the characteristics described in the table hereunder.

Table: Characteristics of the GSM external antenna

Frequency band	Quad-bands 900 / 1800 / 2100 MHz
Impedance	50 Ohms nominal
Gain	0 dBi (dB isotropic) in a minimum direction
VSWR (Rx max TX max)	1.5:1
Polarization	Linear

> See chapter 9, for the GSM antennas recommended by ERCOGENER.

7.3 Environmental characteristics

To ensure a correct functioning of the GenIP 30i, the limits listed in the table hereunder must be respected.

Table: Environmental characteristics

Operating temperature	-20 °C to +60 °C
Storage temperature	-40 °C to +85 °C
Humidity without condensation	5% < HR < 80%
Atmospheric pressure	normal

7.4 Standards/Conformities

The product complies with the following requirements:

- R&TTE 1999/5/EC Directive,
- Regulations of standard ETSI EN 301 489-7 (02),
- ROHS Compliant : Directive 2002/95/CE,
- 2002/96/CE DEEE (crossed out wheelie bin).

The following marking appears under the device.

C E

8 Security recommendations

8.1 General security

It is important to respect the specific regulations concerning the use of radio equipment, in particular with the possible risks of interference due to radio frequency (RF). Please respect carefully the following security advices.

Turn off your GSM modem:

- On an aircraft, the use of GSM frequency can endanger the plane operations; disturbing the cellular network is illegal. The non-observance of this instruction can lead to the suspension or the exclusion of the cellular phone services, or even to a trial, or both,
- At a refueling station,
- In any area with a potential explosive atmosphere that could cause an explosion or a fire,
- In hospitals and other places where medical equipment may be used.

Restrictions of use of radio equipments in:

- Fuel warehouses,
- Chemical factories,
- Places where destruction operations are occurring,
- Other places where signs indicate that the use of cellular phones is prohibited or dangerous.
- Other places where you should normally turn off the engine of your vehicle.

There can be a danger associated with the use of your GSM modem close to insufficiently protected medical devices such as acoustic devices and pacemakers.

Consult the manufacturers of medical equipment to know if it is adequately protected.

Using your GSM device close to other electronic equipments may also cause interferences if the equipment is insufficiently protected.

Pay attention to the warnings and the recommendations of the manufacturers.

The device is designed to be used with "fixed" and "mobile" applications:

- Fixed" application: The GSM device is physically linked to a site and it is not possible to move it easily to another site.
- Mobile" application: The GSM device is designed to be used in various places (other than fixed) and is intended to be used in portable applications.

> ⚠ If GenIP is installed in an area where the temperature may exceed 52 ° C, access should be limited to maintenance only because the case temperature may exceed 70 ° C.

8.2 Care and maintenance

The suggestions hereunder will help you to preserve this product for many years.

Do not expose the modem to the extreme environments, to high temperature or high humidity.

Do not use or store the modem in dusty or dirty places, it could be damaged.

Do not try to disassemble the modem, at the risk of cancelation of the guarantee.

Do not expose the modem to water, rain or spilled beverage, it is not impermeable.

Avoid dropping, striking, or shaking the device violently. The lack of care can damage it.

Do not place the modem next to computer disks, credit or travel cards or other magnetic supports. The information contained on disks or cards can be affected by the device.

The use of other equipments or accessories not made or not authorized by ERCOGENER can cancel the guarantee of the modem.

8.3 Your responsibility

This device is under your responsibility. Treat it with care, it is not a toy. Keep it always in a secure place and out of the reach of children.

Try to remember your PIN and PUK codes. Familiarize yourself with the modem and use the security functions to lock it in case of non-authorized using or in case of theft.

Descriptions and non-contractual illustrations in this document are given as an indication only.
ERCOGENER reserves the right to make any modifications.

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9 Recommended accessories

The accessories recommended by ERCOGENER for the GenIP 30i, are shown on our website in the section Products/Accessories. For more information, contact our sales department.

10 Client support

ERCOGENER ensures the client support for all its products sold. You will then have access to:

The latest version of this document

The datasheet of the product

The latest versions of the OS user guides

Certificates

Application Notes

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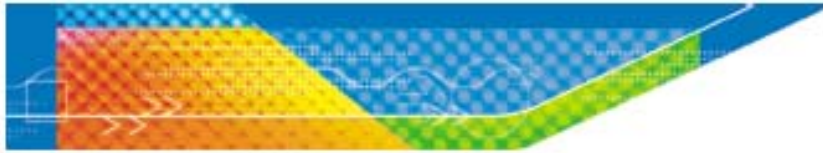
DECLARATION OF CONFORMITY

Manufacturer : ERCOGENER

Address :   Z.I de Saint Lambert des Levées
              B.P. 30163
              49412 SAUMUR CEDEX – France

Website :   http://www.ercogener.com

declares that the product :

Name :   GenIP 30i   Type :   Gateway

Complies with :

- R&TTE 1999/5/EC Directive,
- EN301489-7:V1.3.1
- EN301489-1:V1.8.1
- EN61000-6-2 : 2005
- EN 60950-1:2006 + A11:2009
- ROHS Compliant : Directive 2002/95/CE

$C\epsilon$

The corresponding markings appear under the appliance.

Saumur, October 24th, 2014

Eric GUÉNEUGUÈS
Quality Manager

EGU