erco&gener

L'esprit Modem

GenIP 20i / GenIP 30i   June 2012

GenIP : Intelligent gateway dedicated to most critical industrial applications

erco & gener

GenIP 20i
GenIP 30i

- Monitor your alarms (Voice, SMS, Email, TCP frame)
- Manage securely your serial & Ethernet devices
- Consult Log files (up to 10 different files)
- Add logical and analog (current or voltage) sensors
- Drive remote logical or analog (current or voltage) outputs

✓ **GSM / GPRS / EDGE / 3G** Industrial Gateway
  Ethernet / RS232 / RS485 / USB
✓ DIN Rail aluminium case
✓ 2x digital Inputs
✓ 2x Analog (Current / Voltage / Digital) Inputs
✓ 2x digital Outputs
✓ 2x Analog (Current / Voltage / Digital) Outputs
✓ Modbus RTU / Modbus TCP converter
✓ Alarm Management (SMS / Email / GSM / GPRS)
✓ Modbus (Master / Slave) protocol
✓ Datalogger (Log files internal memory
                or external USB key)
✓ Optional Voice Alarm Message (MP3 file)
✓ Option Tele-information Client (TIC) input

New features

- GnuDIP Client (to associate Dynamic IP addresses to a DNS name)
- SCP (= Secure Copy Protocol) >>> possibility to transfer files between UNIX machines via SSH secured protocol. It's quick and secured on a single TCP port (22) (by default).
- IKE (Automatic management of passwords on VPN IP Sec mode)
- Custom message optimization for use of the GenIP 20i / GenIP 30i in gateway mode Ethernet > SMS / Email
- Transmission of MP3 file located on a local FTP server.
- Tele-information Client (TIC) option to read electric meters (Hours, price, consumption of electric energy)
- Management of 3G connectivity
  (HSDPA : DL 3.6 Mbps, UL 384 kbps)
  for High speed applications >>> new product GenIP 30i

Packaging

- ✓ 1 package with quick start instructions
- ✓ 1 **Gen IP 20i** or 1 **GenIP 30i**
- ✓ 1 RS232 cable : Sub-D 9 M / Sub-D 9 F
- ✓ 1 straight Ethernet cable
- ✓ 1 hinged Quad-Band antenna to screw
- ✓ 1 Push-IN connector : RS485 – I/Os
- ✓ 1 screw connector :power supply
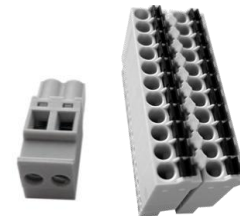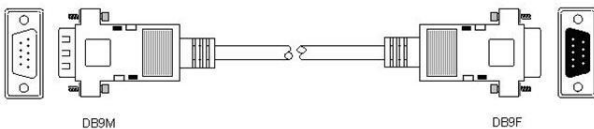
GenIP 20i
GenIP 30i

Mechanical characteristics

DIN Rail mounting clip

IP31 aluminium casing

Back view

Side view

✓ **Dimensions: 104 mm * 55 mm * 105 mm**

✓ **Weight: 430 gr**

✓ **Approvals : R&TTE, CE**

✓ **Warranty: 5 years**

✓ **Optional coating**

GenIP 20i   **GenIP 30i**

✓ Environment: Linux

✓ ARM 9 platform (400 MHz)

✓ Web server: Apache

✓ IP stack: Linux

✓ Automatic detection of Ethernet (10/100 Mps)
   straight or crossed cable (MDI/MDI-X)

✓ Web interface configuration (LAN / GPRS)
   Multi-language (FR / UK)

✓ IP Routing

✓ SMTP / POP3

✓ HTTPS / HTTP Server

✓ FTP Client

✓ RAS Client / Server

✓ DHCP Client / Server

✓ TCP Client / Server

✓ UDP Client

✓ DynDNS / GnuDIP (to associate Dynamic IP addresses to a DNS name)

✓ Ping ICMP management

✓ Secured IP tunnel: VPN SSL (Point-to-point)

VPN IPSec (Up to 5 tunnels)

✓ Integrated and automatic firewall
✓ Port Forwarding / Port Triggering

Alarm Management

ALARMS

• on change of status of logic / analog Inputs
• on analysis of frame:
        - Serial link (Data / Modbus)
        - Ethernet (TCP / SMTP)
        - GSM / GPRS
• on transition RS232 signal (DTR)
• on communication failure (LAN or WAN)
• on modem power failure
• on log file size
• on Time out

ACTIONS

• SMS
• Email: SMTP & POP
   (through Ethernet or GPRS)
• GSM DATA frame
• GPRS frame (TCP / UDP / FTP)
• Voice Option (send MP3 file)

ACKNOWLEDGEMENTS

• SMS
• Email
• DATA frame
• GPRS frame (TCP)

Datalogger

- **request of the devices**
- **Storage of received datas**
- **Concatenation of datas and transmission via cellular Networks (GPRS / 3G)**

Modbus Slave

Modbus Master

ModBus RTU RS232 / Rs485

ModBus TCP Ethernet

Request

Storage of reveived datas

Transmission

INTERNET

Sweb server
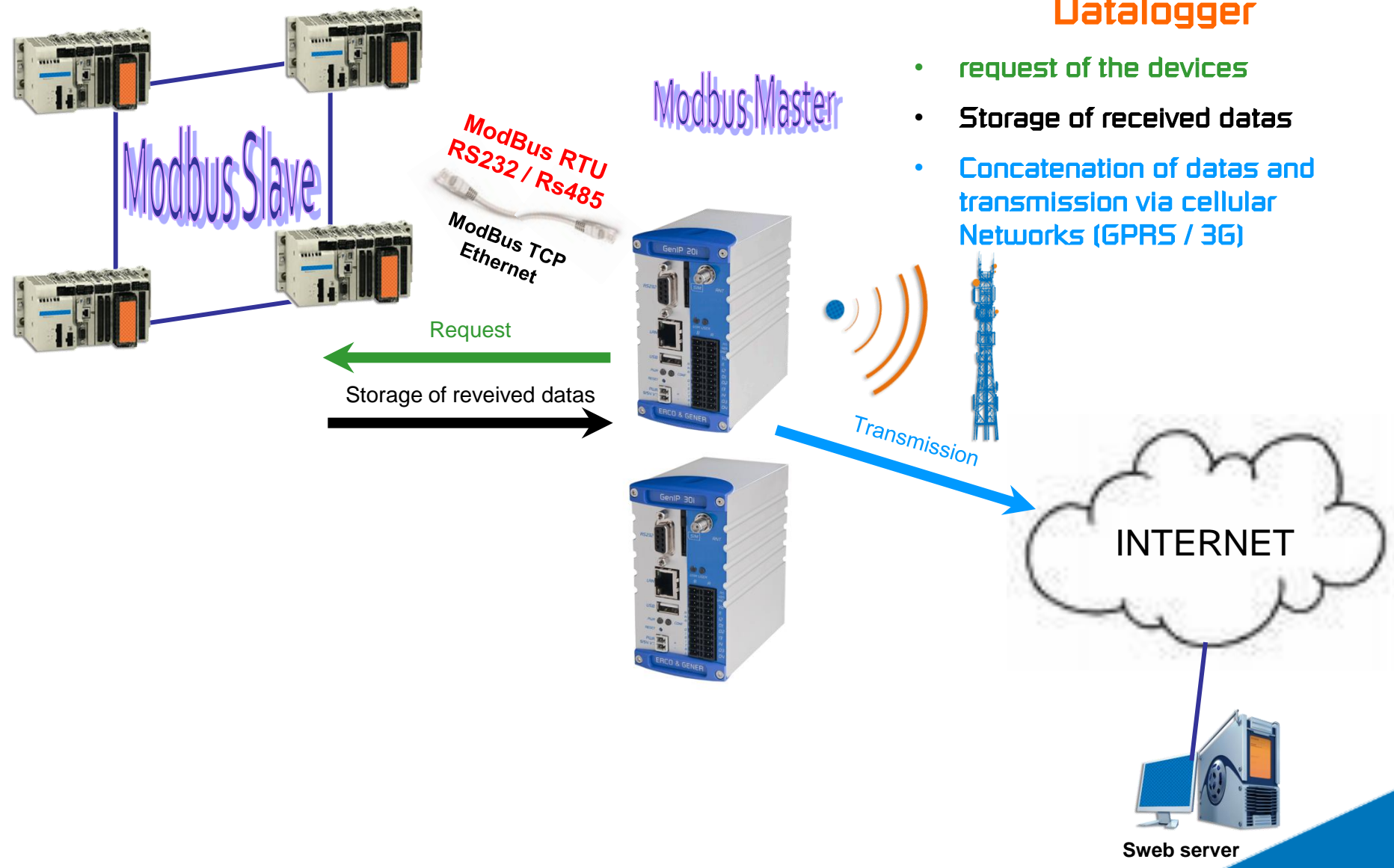
- **2 digital Inputs**
- **2 digital Output**
- **2 analog Inputs (Current, Voltage, Digital configurable by software)**
- **2 analog Outputs (Current, Voltage, Digital configurable by software)**

- **Counting registers for all inputs**
- **Actions on simple or double change of status for digital inputs**
- **Actions on low and high level for analog inputs**
- **Drive digital (open / close / PWM) and analog outputs**
- **Combinational equation of inputs**
- **Monitoring of the status of I/O (Web interface or by SMS)**
- **Datalogging (1 Moctets internal, 100 Mo USB Key)**
  - **Digital / Analog Inputs / Outputs**
  - **Dynamic messages**
  - **Alarms**

Variables & Macro Commands

• Possibility to use dynamic variables to store frames, words, variables etc...

• Transmission of customized messages upon actions, Timeout, **change of status logic / analog I/Os ...**

• Possibility to launch remote actions with Macro Commands

    Send Macro Commands by SMS, Email, TCP frame via GPRS

    Secured access with login and password / email address / phone number / IP address

    <u>Examples</u> :   GPRS CONNECT (automatic GPRS connection)

                    GPRS DISCONNECT (Stop GPRS connection)

                    Do action « Action name »

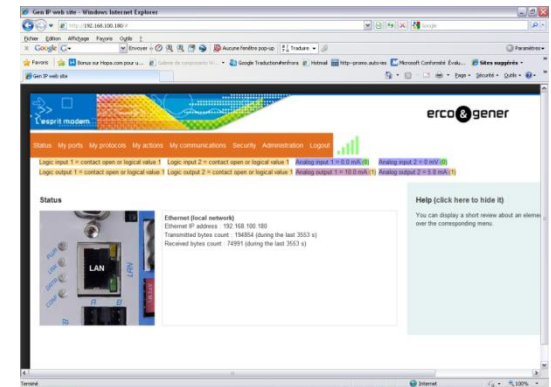   (like an automatic connection between 2 GenIP 20i)

                    GET GPRS IP, GET LAN IP, FTP GET, FTP PUT,

                    SEND SMS xxxx, SEND EMAIL xxxx ...

- **Serial link (RS232 / RS485) between 2 GenIP (Ethernet / GPRS)**
- **Monitoring of the wireless link : connection, level**
- **Monitoring volume of transmitted datas (GPRS, SMS) since the power ON of the GenIP 20i**
- **Macro Commands / Scripts builders**
- **Import / export of Script files**
- **Import / export of GenIP 20i configuration**
- **Scheduler**
- **Modbus Slave**
    - **Drive logic and analog Outputs of GenIP 20i**
    - **Ask for logic and analog Inputs of GenIP 20i**
    - **Send SMS by GenIP 20i**
- **Modbus Master**
    - **Management of Modbus Slave devices with Datalogging in Memory or USB Key, or by TCP / FTP**
- **Serial (RS232 / RS485) datas bufferisation with Datalogging in Memory or USB Key, or by TCP / FTP**
- **Modem simulator (AT commands + RS232 signals)**

✓ **<u>Industrial Automation (Serial and Ethernet Modbus PLC)</u>**

Manufacturing factory, Water Station, Consumable products distributors, Washing Stations ...

✓ **<u>Building management</u>**

Lighting, Heater, Access Control,

Security of isolated site (videosurveillance, door opening, detection of presence)

✓ **<u>Energy meters</u> (Idle mode >>> very low consumption)**

Cyclic Storage of datas and impulses meter

✓ **<u>Irrigation in the agriculture</u>**

Message of Status with possibility to drive motors like you want by SMS, Email, Internet

Level datas via RS232
Videosurveillance via Ethernet

RS232

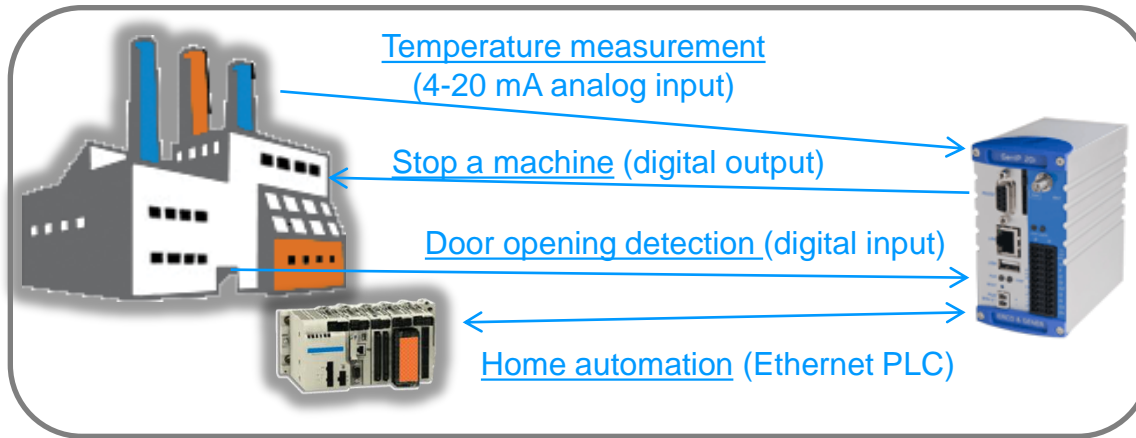Ethernet

Internet
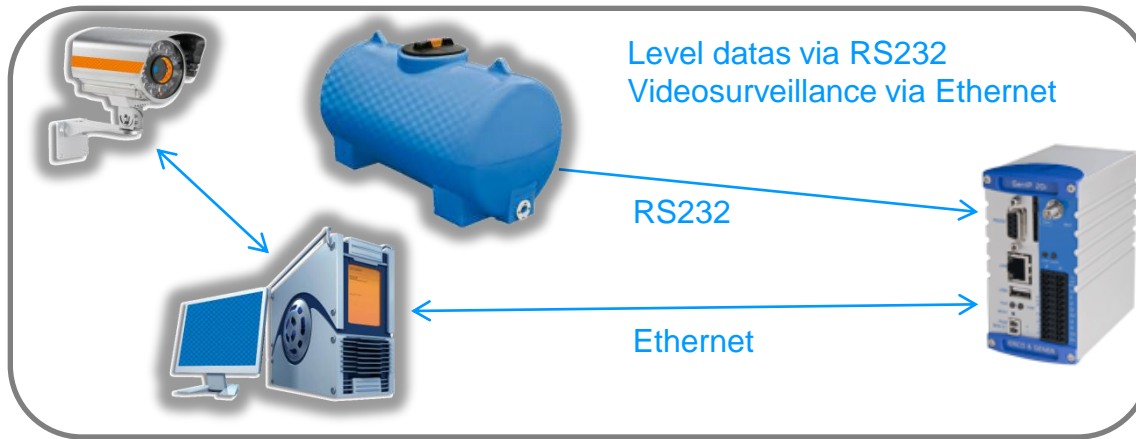
Supervisor

SMS alert

✓ **Monitoring of levels of fuel tanks**

- ❑ **Domain of application**: Fuel Industry / Distribution
- ❑ **Customer**: Confidential (France)
- ❑ **Application**: Monitoring of levels of fuel tanks+ video surveillance
- ❑ **Used product**: **GenIP 20i**
- ❑ **Why to choose ERCO & GENER**:
  - ▪ DIN-Rail industrial gateway in a rudge box
  - ▪ DynDNS feature to solve GPRS IP address
  - ▪ Remote Update GenIP 20i firmware by GPRS to benefit from last features
  - ▪ Complete remote management of the GenIP 20i by SMS, Web
  - ▪ I/O for access control (opening door, alarm siren)
  - ▪ Alarm management by SMS, Email, TCP
  - ▪ Long experience of **ERCO & GENER** in M2M markets since 1981

Temperature measurement
(4-20 mA analog input)

Stop a machine (digital output)

Door opening detection (digital input)

Home automation (Ethernet PLC)

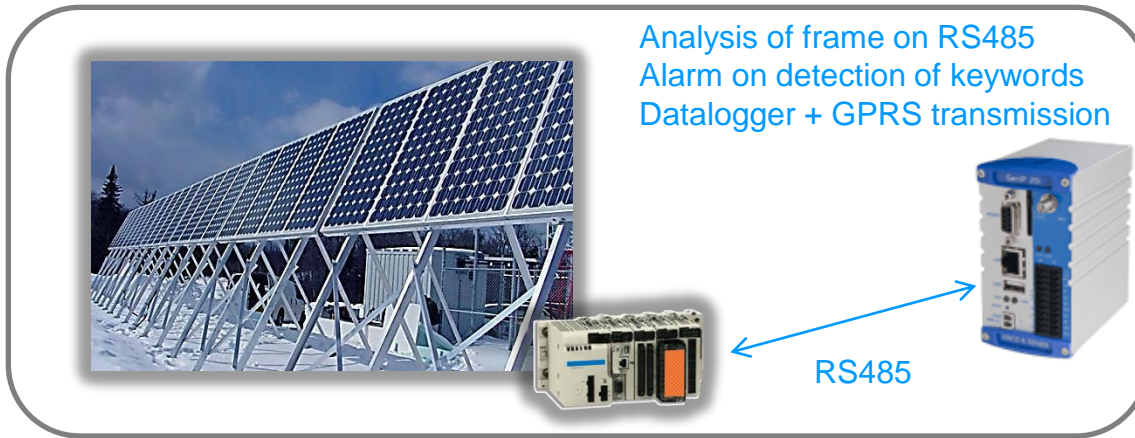Internet

Supervisor

SMS alert

✓ **Building HVAC monitoring**

- ❑ **Domain of application**: Industry / **HVAC** (**H**eating, **V**entilation, **A**ir-**C**onditioning)
- ❑ **Customer**: Confidential
- ❑ **Application** : Boiler Temperature monitoring + access control + home automation
- ❑ **Used product**: **GenIP 20i**
- ❑ **Why to choose ERCO & GENER**:
  - ▪ Management of a 4-20mA analog input to measure temperature in a boiler room
  - ▪ Management of a digital input to detect a door opening
  - ▪ Management of a digital output to stop a machine
  - ▪ Alarm management by SMS and by Email
  - ▪ Communication with a Ethernet PLC (Modbus TCP) to manage Home automation
  - ▪ DynDNS Client feature (to have a static GPRS Network IP address)
  - ▪ Remote Update GenIP 20i firmware by GPRS to benefit from last features
  - ▪ Complete remote management of the GenIP 20i by SMS, Web

Analysis of frame on RS485
Alarm on detection of keywords
Datalogger + GPRS transmission

RS485

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GenIP 20i
Success Story

Internet

Supervisor

✓ **AMR / AMI – Photovoltaic panels**

- ❑ **Domain of application**: Industry / Metering
- ❑ **Customer**: Confidential
- ❑ **Application**: concentrator and alarm transmitter for photovoltaic panels meters
- ❑ **Used product**: **GenIP 20i**
- ❑ **Why to choose ERCO & GENER**:
    - ▪ Collection of consumption information from n counters via RS485 Modbus request
    - ▪ Datalogging of consumption information inside the GenIP 20i
    - ▪ Transmission of comsumption information by GPRS
    - ▪ Transmisson of alarms on detection of keywords on RS485 link
    - ▪ Complete remote management of the GenIP 20i by SMS, Web

Applications

GenIP 20i

GenIP 30i
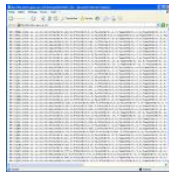
**Monitoring via GPRS
of an industrial ethernet device**
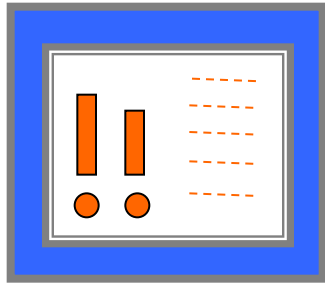
Touch-sensitive screen

INTERNET

ADSL

Remote video surveillance

Acces control

IP camera (Ethernet)

INTERNET

ADSL

Modbus TCP

Modbus RTU

GenIP 20i
ERCO & GENER

RS485
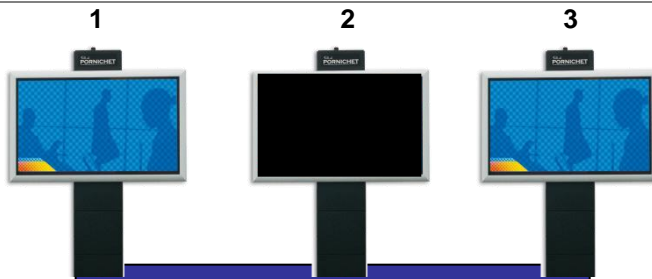
Ethernet

RS232
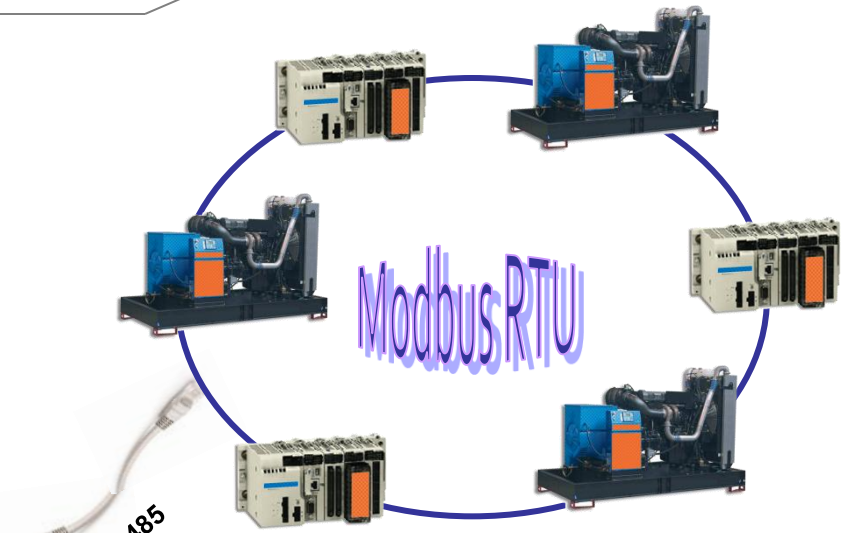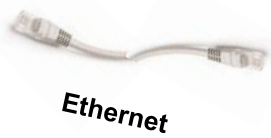
Modbus RTU

Interconnection of
PLC (Programmable Logic controller)

Mixing of serial / Ethernet equipments

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L'esprit modem >>

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1   2   3
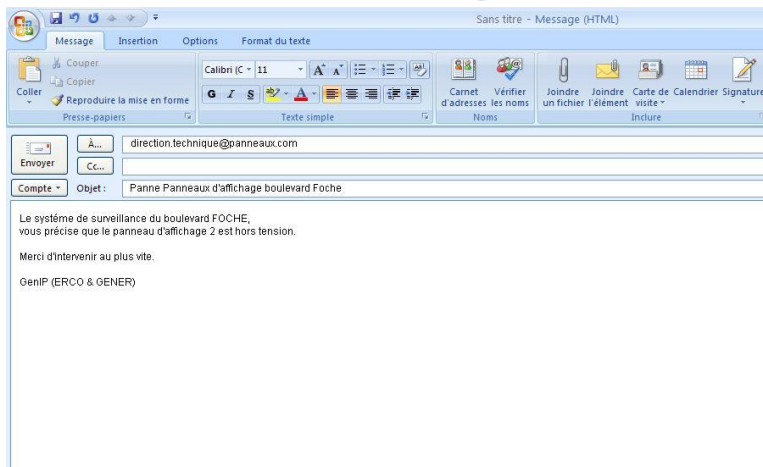
Ethernet network

Ethernet

On breakdown detection:

- Send SMS to maintenance
- Send Email to the technical department

SMS of GENIP 20i :
ALARM :
Screen 2
Power off

À... direction.technique@panneaux.com
Cc...
Objet : Panne Panneaux d'affichage boulevard Foche

Le systéme de surveillance du boulevard FOCHE,
vous précise que le panneau d'affichage 2 est hors tension.

Merci d'intervenir au plus vite.

GenIP (ERCO & GENER)

L'esprit modem

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Conversion:

Modbus TCP <-> Modbus RTU

Slave

Slave

Slave

Modbus RTU

Master

Modbus RTU

RS232 / RS485

GenIP 20i

Modbus TCP

Ethernet

Modbus TCP

Modbus TCP

Modbus TCP supervisor
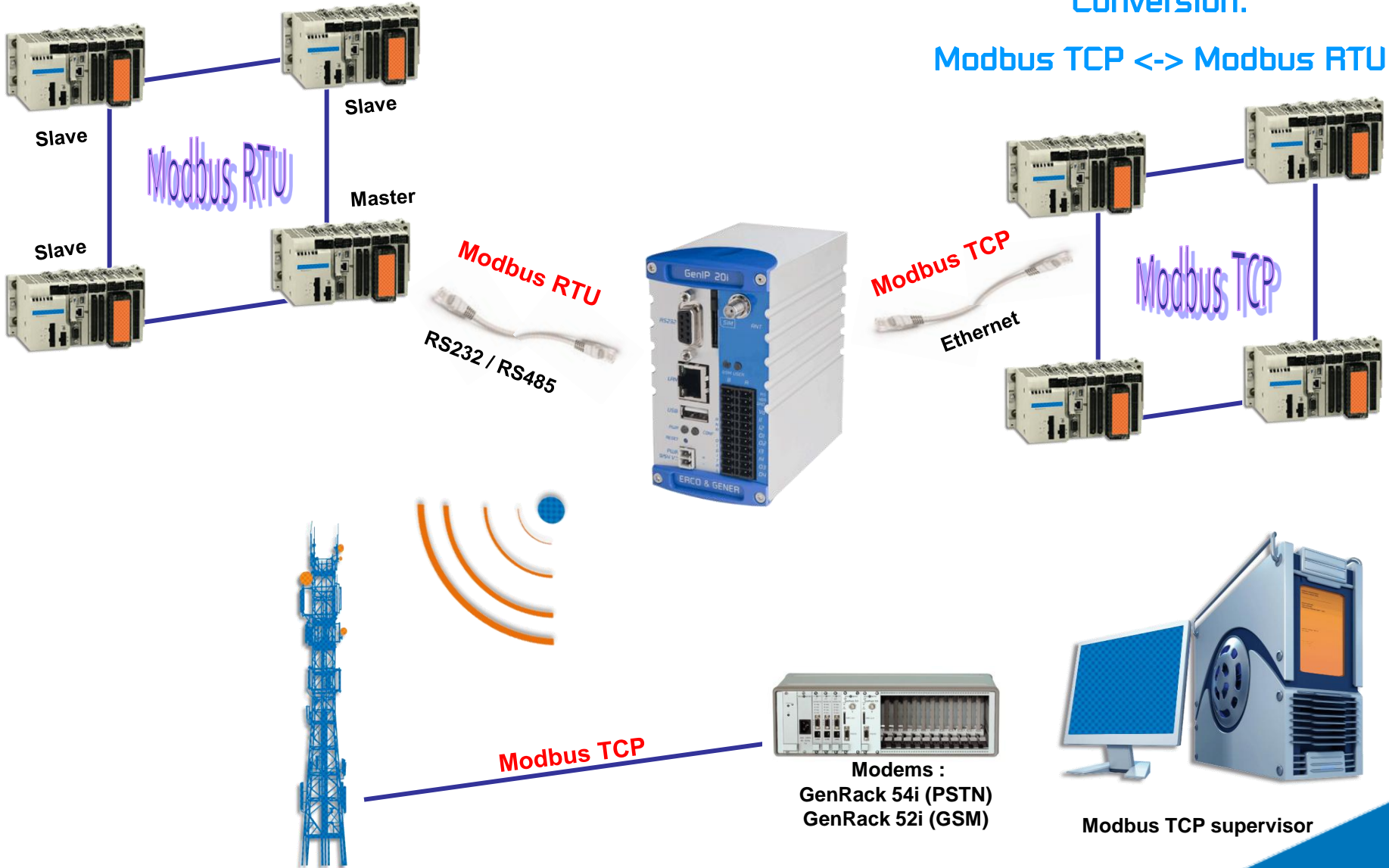
Modems :
GenRack 54i (PSTN)
GenRack 52i (GSM)

L'esprit modem

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Serial & Ethernet equipments accessible
via LAN or WAN

Ethernet

Ethernet

LAN

Ethernet

RS485

Firewall

GSM
GPRS

RS232

L'esprit modem >>
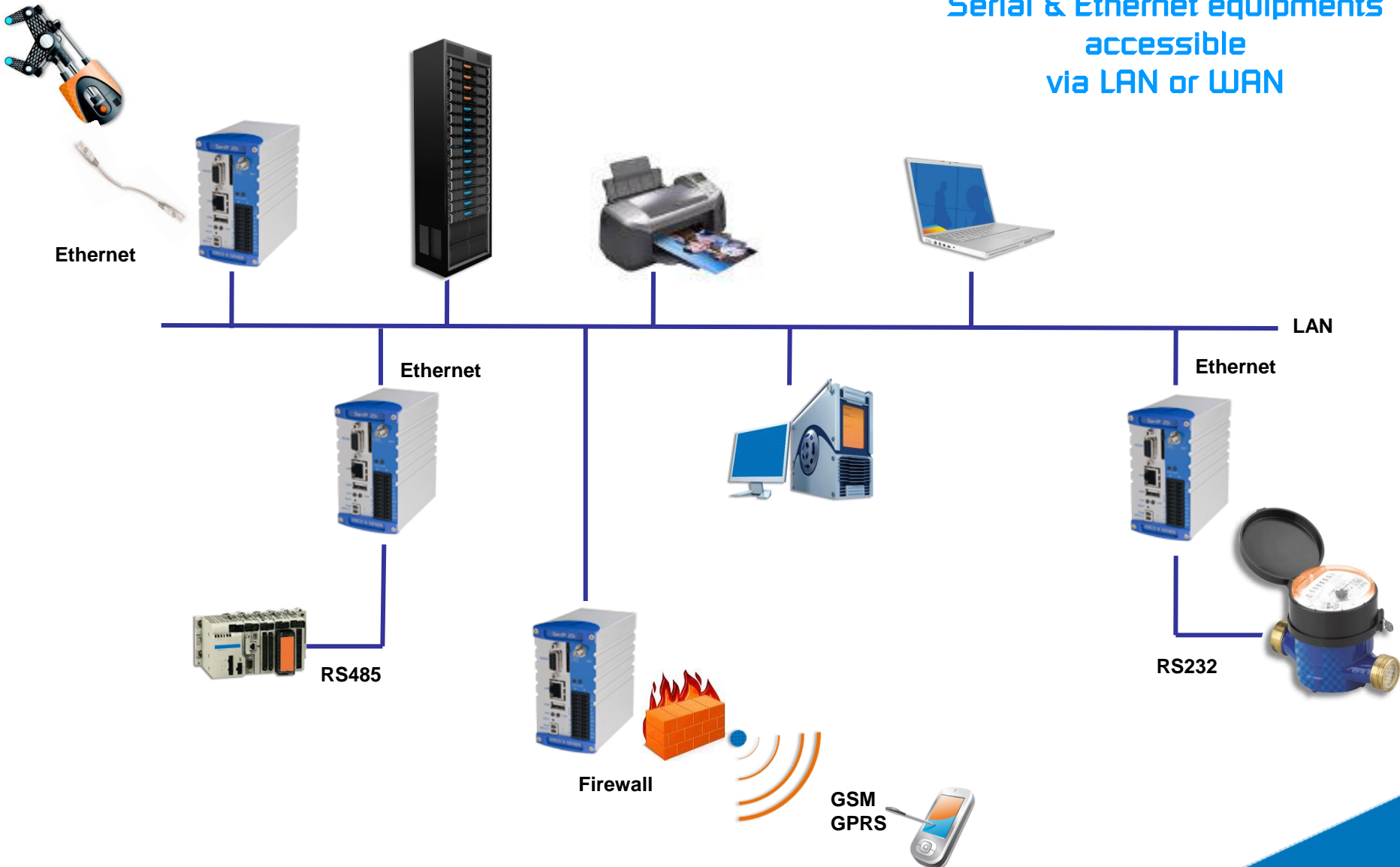
Remote equipment management

Ethernet / RS232 / RS485

GPRS to 3G

INTERNET

Monitoring PC

SMS server

Email server

FTP / UDP / TCP server