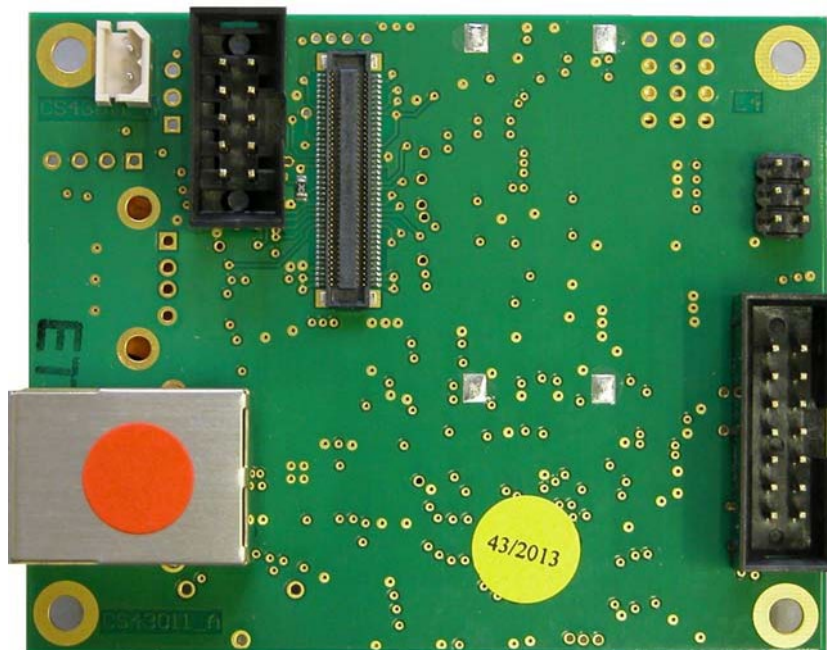




REMOTE CONTROL BOARD FOR MARTI GTX / GRX SERIES





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For a quick and rational reading we have used symbols that highlight situations of maximum attention, practical advice or simple information.

☐☐☐ Notes like these, reported with the open hand , highlight a description of the utmost importance regarding technical interventions, dangerous conditions, safety warnings, advice prudential and/or information of the utmost importance. Failure to comply with them could cause serious problems and/or damage and/or personal injury.

Notes like these, marked with the reminder leaflet, are important practical tips that we suggest you follow to get the best performance from the device.

Every effort has been made in the drafting of this manual to provide complete, accurate and up-to-date information, but the information contained in this document does not represent any commitment by part of the society.

BROADCAST ELECTRONICS, in the commitment to constantly improve the quality of its products, reserves the right to change their characteristics without notice. For any updates please visit <http://bdcast.com/support> or contact your representative.

The manufacturer assumes No responsibility for the consequences of any errors caused by factors over which he has No control.

The equipment and options described may be different, depending on the versions.

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1. Introduction

This optional interface card allows remote control road the Internet or LAN of the transmitters and systems (of any type) produced by Broadcast Electronics, specifically those of the MARTI GTX / GRX series.

In order to allow control of the apparatus in which this card is mounted, it is necessary to arrange on the transmitter an IP address compatible with your LAN network and make it visible or remapping it through the network router on a fixed public address visible on the Internet for remote control from any external location.

The card can also be equipped with a modem for GSM data connection (under development and not yet available).

The board is programmed with a single firmware for all types of equipment and, inside the equipment, interfaces directly with the control board (CPU). With this it maintains a continuous data communication on the operating parameters.

2. General Description

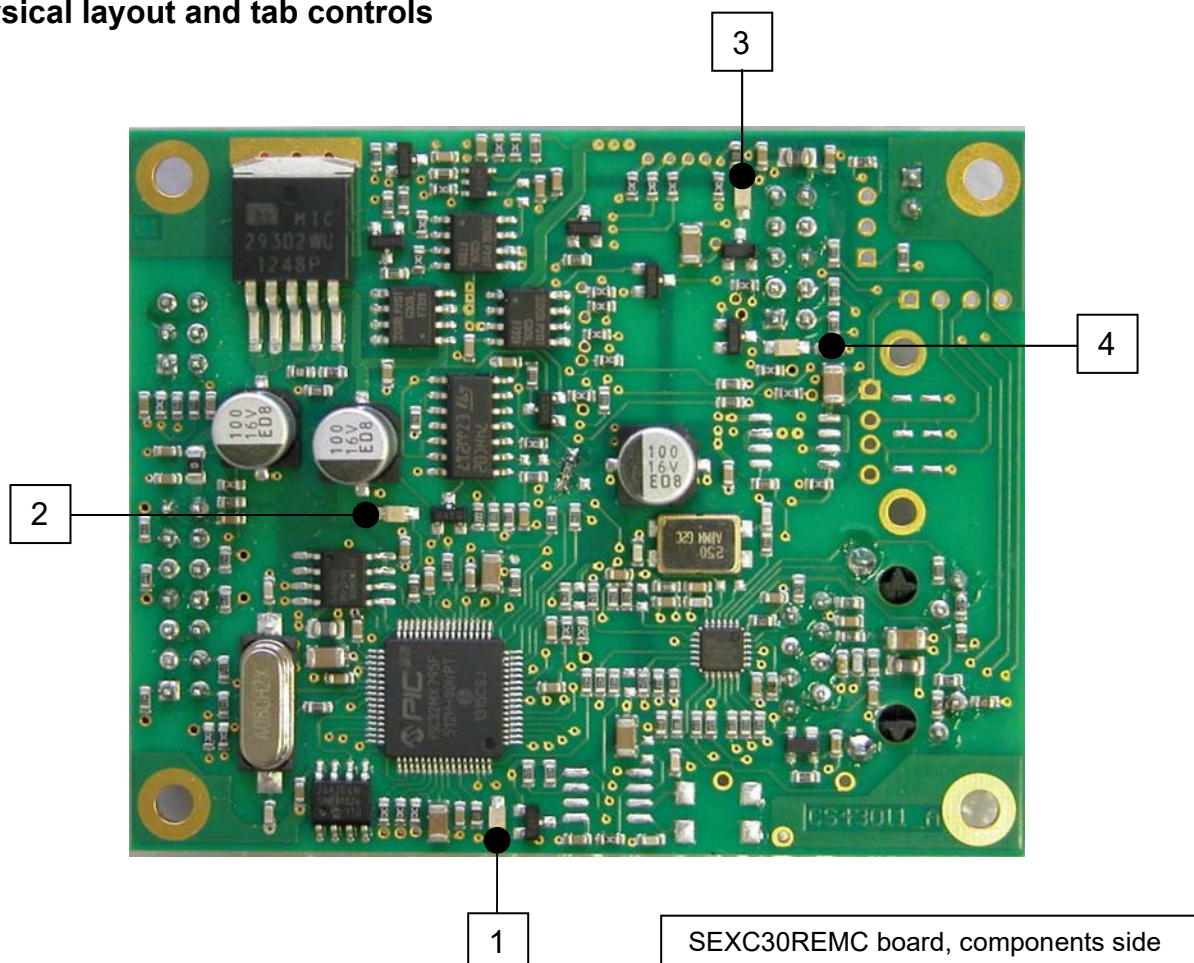
2.1 Specific of control

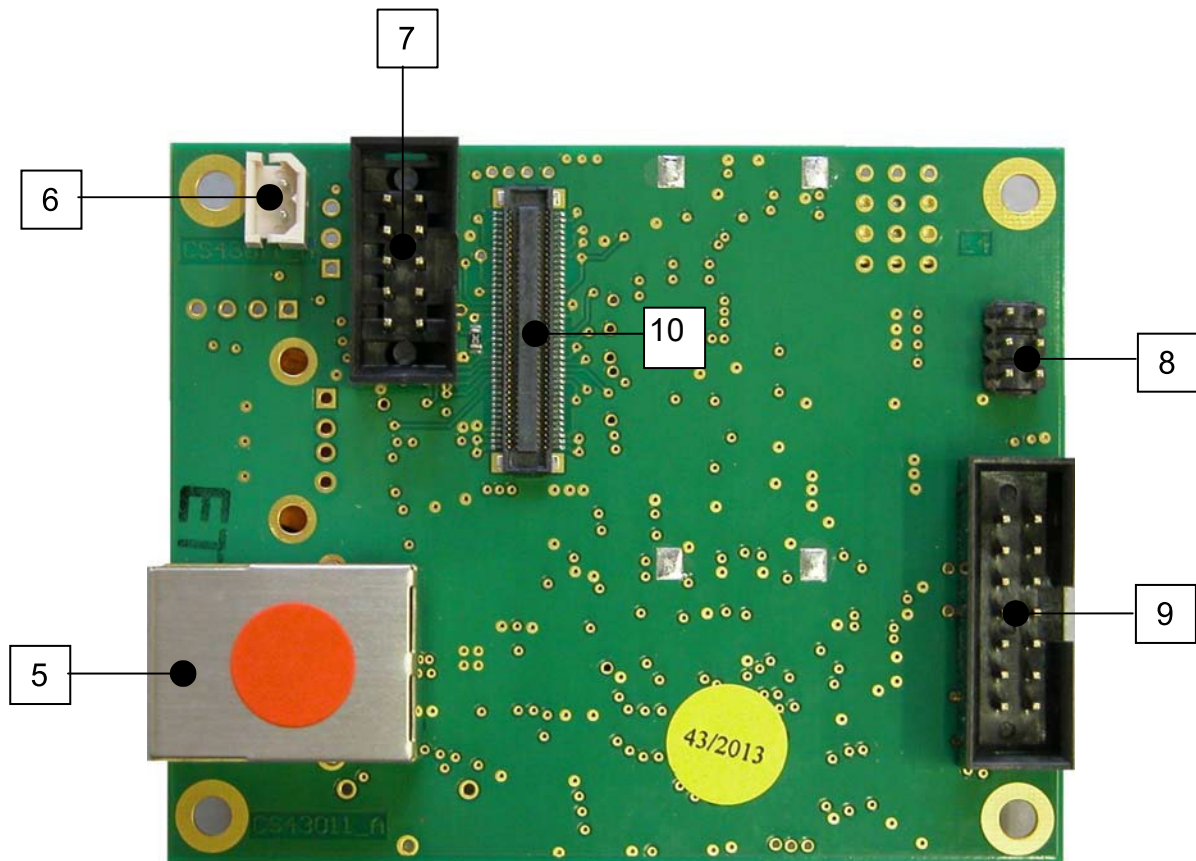
WEB browser interface (connection and control of the transmitter through a web page road a PC, tablet or smartphone with Android, iOS, Windows phone 7/ Windows mobile operating systems, Symbian, etc.)

SNMP interface (connection and control of the transmitter road standard SNMP software) GSM

interface (connection and control of the transmitter road SMS and / or data)

2.2 Physical layout and tab controls





SEXC30REMC Board, Connector Side

The board has the following dimensions: 65x70 mm and has 4 fixing holes with M3 screws. The connection points are as follows:

- [1] **LAN:** Flashing green LED indicator, identifies that the board is powered and working. The LED flashes more frequently during the software update phase .
- [2] **DATA:** Flashing green LED indicator, identifies normal communication with the CPU of the apparatus.
- [3] **LED luminoso GSM:** verde ,x GSM.
- [4] **LED luminoso GSM:** verde ,x GSM.
- [5] **LAN port:** RJ45 female connector connection to the ethernet network. It can be directly on the back panel of the device or can be connected to it via ETHERNET cable and RJ45 socket from the panel.
- [6] **BATTERY SOCKET:** used to connect the lithium-ion battery code. BATLI37850 (only used if GSM modem is present)
- [7] **RS485 DATA TRANSFER :** 10-pin connector for connection to the SEXC30RS485 card (optional)
- [8] **PROGRAMMING PIN** (factory reserved): uCU firmware loading connector
- [9] 14-pin connector : for board connection with central controller (SEXC30CPU, SRFB10KCPU, etc.)
- [10] 80-pin connector for modem connection: MODEM GSM TELIT GE864-QUH V2/GPS QUAD. BAND.

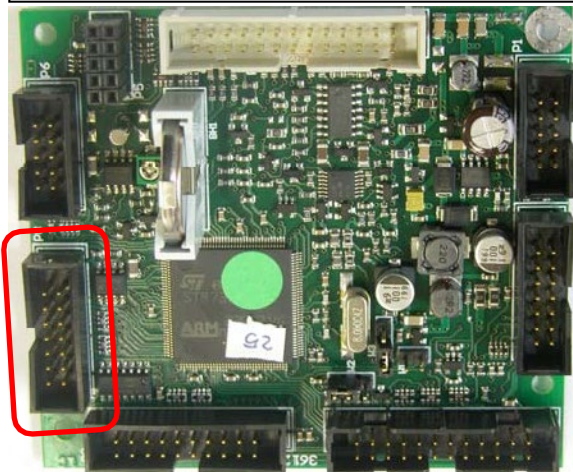
3. Basic operations

3.1 Ethernet interface card installation and preliminary settings

- the board must be correctly fixed inside the apparatus or control logic of the system
- the card must be connected to the CPU of the device and the RJ45 port must be connected to the LAN network or to a modem/router through an Ethernet cable and any adapter cable between the card itself and the back panel of the transmitter.
- start the transmitter and verify the correctness of the set parameters such as frequency, power, transmission mode and LF sensitivity.

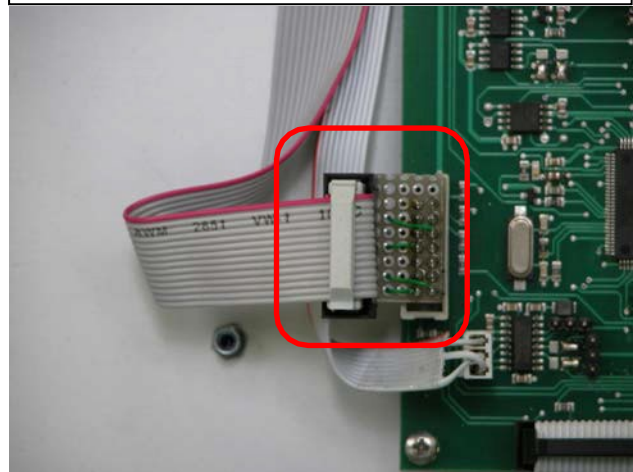
◆ For the settings Of carry out directly on transmitter consult the his manual of use.

SEXC30CPU card present on all the devices of the GT series.



Connect the 14-pin connector of the SEXC30REMC to the P8 connector of the SEXC30CPU board (highlighted red)

SRFB10KCPU board and interface, present on all logics: COV23, COV24, ASRFB10KCON.



Connect the 14-pin connector of the SEXC30REMC to the interface board connector (highlighted in red).

3.2 Configuration Ethernet on transmitter

To allow the card to communicate outside its LAN (Local Area Network) through the web server or SNMP control, it is necessary that the IP address, Gateway and other parameters are correctly set first on the transmitter and then on the board. For the first operation refer to the user manual of the Transmitter. It is obviously crucial that the IP address programmed on the transmitter is unique and that there are no other devices on the LAN with the same number. The programming of the Gateway, the "Subnet Mask" and any DNS is done only on the card and is possible only later from the internal LAN via web-server or SNMP.

ETHERNET & LAN
SETUP

SETUP
IP: 192.168.001.247

IP: 192.168.001.247
Mask: 255.255.255.000

Gway: 192.168.001.250
ID: admin

3.3 Modem/router configuration

As for the external IP address, this is determined by the Ethernet access network operator and **must be static** and not dynamic. The modem/router between the LAN and the Internet must consequently be properly programmed to provide a correct redirection between the internal and external IP and between the ports standard of the services used, e.g. port 80 for the web server and UDP port 161 for SNMP and those that can be used from the outside.

These parameters are not at all easy to program as they depend on many variables: Broadcast Electronics is not able to directly support the customer in this activity that will necessarily have to be managed directly by the same or by an experienced network administrator who oversees these functions on site.

By properly programming the modem / router it is possible to communicate both with the single apparatus or, in the case of a system, with all the devices that compose it, including the reserve. In fact, through an external switch (a simple and inexpensive LAN accessory easily available) it is possible to connect all the devices in the network by properly remapping the different ports on the modem/router.

Not all low-cost modems used for DSL/ADSL networks, to access the Internet, can be programmed as required, especially those provided by default by telecommunications companies.

4 Remote control via WEB-Internet Server

If it is not necessary to automatically control a large network, remote control via Internet web-server is especially suitable for manual querying/control. In this case the control program on the remote terminal is represented by the Internet browser (Explorer, Safari, Chrome, Firefox and others) available on any PC and on most smartphones recently generation. Not all these last devices are able to correctly decode the web page, but at least 80% of them are able to provide a almost and simple interface to human size to control the device remotely.

Once the device has been correctly configured on your own network and on a static address visible on Internet, to perform remote control it is not necessary to install any other dedicated software on the Remote device beyond the internet browser mounted as standard.

4.2 Access initial

To access the web-server page of the equipment, you must type its IP address into an Internet browser as shown in the following figure:





After entering the IP number and pressing the search button, if the connection is active, the following internet page will appear, on which you will need to enter the correct parameters to log in ("login").

The factory parameters for the first connection are:

User: **admin**
Password: **123456**



Then click on the "Login" button to log in

These parameters are subsequently customizable by the user.

Gtx15/4 - 400.000- 470.000MHz

Firmware Ver 2.00

User

Password

Login

Web Ver 2.9.3 - Broadcast Electronics

4.3 Status page

The first screen that will appear will be the Status screen in which the main parameters are visible: the name, the model and the current status of the apparatus. Both in this and in the following screens except those related to the setup it is not possible to change any parameters.



Status Info Log Setup Logout

Site Name BE GTX SERIES

Machine Model Gtx15/4 - 400.000- 470.000MHz

Alarm NO ALARM

Status On Air

Frequency 435.000 MHz

Direct Power 6.9 W

Reflected Power .0 W



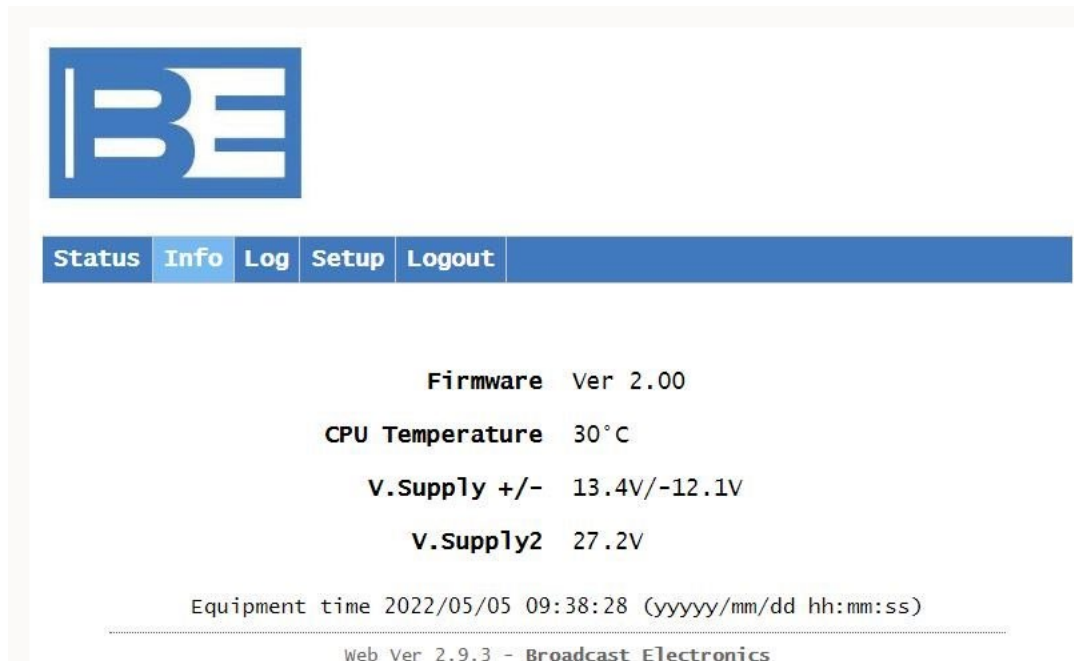
Equipment time 2022/05/06 15:40:32 (yyyy/mm/dd hh:mm:ss)

Web Ver 2.9.3 - Broadcast Electronics



4.4 System Information

The next panel "Info" shows some information about the voltages, internal temperatures and clock of the system:



The screenshot displays the 'Info' panel of the SEXC30REMC web interface. At the top left is the BE logo. Below it is a navigation bar with tabs: Status, Info (selected), Log, Setup, and Logout. The main content area shows the following system information:

- Firmware** Ver 2.00
- CPU Temperature** 30°C
- V.Supply +/-** 13.4V/-12.1V
- V.Supply2** 27.2V

At the bottom, it shows the equipment time: 2022/05/05 09:38:28 (yyyy/mm/dd hh:mm:ss). A footer line indicates 'Web Ver 2.9.3 - Broadcast Electronics'.



4.5 Alarm Log

The last of the information frameworks is that relating to the diary of alarms and events, "Alarm Log".

On this, in addition to the alarms are reported some system events such as switching on and off, changing setup parameters. The presence of the latter data, however, also depends on the version of the firmware installed on the transmitter and may not be available initially.

You may download a copy of this log to your local PC in csv format.



Download Log

[Clear Log](#)

```
1- 12:12:12 05-05-22 E:Min Dir.PW 3.900000
2- 12:11:51 05-05-22 E:PW Set 69
3- 12:11:51 05-05-22 E:Min Dir.PW 2.900000
4- 10:46:58 05-05-22 E:Min Dir.PW 10.70000
5- 10:46:34 05-05-22 E:PW Set 200
6- 10:45:51 05-05-22 E:Min Dir.PW 2.800000
7- 10:45:39 05-05-22 E:PW Set 50
8- 10:24:27 05-05-22 E:Min Dir.PW 7.100000
9- 10:24:10 05-05-22 E:PW Set 131
10- 10:21:19 05-05-22 E:PW Set 50
11- 10:21:14 05-05-22 E:Power On
12-
13-
14-
```

4.6 Setup

If the access authorization allows it (access with read/write right) it is possible to control and possibly modify the setup parameters of the Transmitter. In this case, pay close attention to what you do and avoid granting this right to occasional users or users without adequate competence. You enter the setup submenus by clicking on the relevant "Setup" button

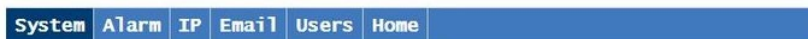
The modification of operating parameters such as power, frequency and modulation can have significant consequences both for the apparatus and the systems and from a legal / regulatory point of view. BROADCAST ELECTRONICS declines any kind of direct or indirect responsibility in this regard.

4.7 System

First of the setup panels is the one related to the RF parameters:

From here you can vary the site or identification of the apparatus and the main transmission parameters including, frequency, power, modulation sensitivity, transmission mode (mono, stereo, multiplex) and pre-phase. You can also change the status from "on antenna" (On air) to "Stand-by" and vice versa.

You **must only** change **one parameter at a time**, then click on the "Save Config" button. The system takes a few seconds to transmit the information but above all to update the status screen.



Site Name:	<input type="text" value="BE GTX SERIES"/>	(49 char max)
Status:	<input type="button" value="On Air"/>	
Frequency:	<input type="text" value="435.000 MHz"/>	
RF Power:	<input type="text" value="5.0 W"/>	
MPX Nom.Level:	<input type="text" value="+6.0dBm"/>	
Aux Nom.level:	<input type="text" value="+0.0dBm"/>	
Limiter level:	<input type="text" value="+7.1 dB"/>	
Limiter Status:	<input type="button" value="Off"/>	
Preemphasis:	<input type="text" value="0us"/>	
Mode:	<input type="button" value="MPX"/>	
<input type="button" value="Save Config"/>		
<div>Sync with PC Time 2022/05/05 09:36:53 (yyyy/mm/dd hh:mm:ss)</div>		



4.8 Alarm Setup

From this framework it is possible to verify and set the main parameters and alarm thresholds.

Setting a delay of 181 seconds for the Mpx Low alarm actually disables this alarm.

System	Alarm	IP	Email	Users	Home
<div><div>Alarm</div><div>NO ALARM</div></div> <div>Max Refl.PW: <input type="text" value="1.4 W"/></div> <div>Min Dir. PW: <input type="text" value="2.8 W"/></div> <div>Over Modulation: <input type="text" value="Off"/></div> <div>Under Modulation: <input type="text" value="Off"/></div> <div>Under Modulation Level: <input type="text" value="-15.9dB"/></div> <div>Under Modulation Time: <input type="text" value="90 s"/></div> <div>Lock delay: <input type="text" value="60"/></div> <div>Save Config</div>					

4.9 Setup IP

On this panel it is possible to verify the local IP address set on the machine and reachable on the internal LAN. This address is generally not the one visible outside on the Internet since it is normally translated by the network modem/router and is not editable for security reasons (you would immediately lose access to the machine).

All other parameters can be set as required on your network

System	Alarm	IP	Email	Users	Home
<div>IP Address: <input type="text" value="192.168.1.247"/></div> <div>Gateway: <input type="text" value="192.168.1.250"/></div> <div>Subnet Mask: <input type="text" value="255.255.255.0"/></div> <div>Primary DNS: <input type="text" value="192.168.1.10"/></div> <div>Secondary DNS: <input type="text" value="0.0.0.0"/></div> <div>Save Config</div> <div>Ping Test</div>					

The configuration of the Gateway, Subnet Mask and DNS is only possible from this framework of the web server or via SNMP control. It is advisable to configure it with direct connection on the internal LAN.

Reckless remote modification of LAN access configuration parameters can have negative consequences on communication with the router/modem and on remote access, resulting in immediate loss of connection: avoid changing these parameters remotely. The parameters can still be changed and/or restored via direct access to the local LAN or directly to the transmitter's network socket.

The IP address is configured only by acting locally on the transmitter (see user manual)



4.10 Setup e-mail server

This is one of the most powerful functions of the web-server, through which it is possible to send alarm or information messages following alarms or relevant system events (changes in state and/or setup).

The device can send e-mail messages to up to 5 different and suitably configurable e-mail addresses.

The email server relies on a working mailbox that must be configured externally for use. The access parameters must be carried out on this framework.

The example on the side shows the typical configuration for a free mailbox configurable on the popular "Gmail" service. At the end of the configuration you can send a test e-mail by clicking on the "Send Test email" button.

You can limit the number of daily messages (10 in the example) and the minimum interval between one message and another (15 seconds) to a reasonable number. By acting on the "Reset Email Counter" button, the current daily account of messages already sent is reset.

Note that although the example on the right does not show any password for accessing the mail server, the latter has been set and is absolutely necessary for access. The framework of the web-server, however, does not report it in any case in clear for reasons of confidentiality.

System	Alarm	IP	Email	Users	Home
<div>Email Server Parameters</div> <div>Email Server: <input type="text"/></div> <div>Server Port: <input type="text" value="0"/> <input type="checkbox"/> Use SSL</div> <div>User Email: <input type="text"/></div> <div>User login: <input type="text"/></div> <div>User Password: <input type="text"/> (1-11 char)</div> <div>Max Email/Day: <input type="text" value="10"/> (0-99) (0 Sent)</div> <div>Email Delay: <input type="text" value="15"/> (0-999s)</div> <div>Email 1 Address: <input type="text"/></div> <div><input type="checkbox"/> Temperature <input type="checkbox"/> Lock <input type="checkbox"/> RF Level <input type="checkbox"/> Mistuning <input type="checkbox"/> Modulation</div> <div>Email 2 Address: <input type="text"/></div> <div><input type="checkbox"/> Temperature <input type="checkbox"/> Lock <input type="checkbox"/> RF Level <input type="checkbox"/> Mistuning <input type="checkbox"/> Modulation</div> <div>Email 3 Address: <input type="text"/></div> <div><input type="checkbox"/> Temperature <input type="checkbox"/> Lock <input type="checkbox"/> RF Level <input type="checkbox"/> Mistuning <input type="checkbox"/> Modulation</div> <div>Email 4 Address: <input type="text"/></div> <div><input type="checkbox"/> Temperature <input type="checkbox"/> Lock <input type="checkbox"/> RF Level <input type="checkbox"/> Mistuning <input type="checkbox"/> Modulation</div> <div>Email 5 Address: <input type="text"/></div> <div><input type="checkbox"/> Temperature <input type="checkbox"/> Lock <input type="checkbox"/> RF Level <input type="checkbox"/> Mistuning <input type="checkbox"/> Modulation</div> <div><input type="button" value="Save Config"/></div>					

⚠ **The email server supports passwords no longer than 11 characters in length: longer passwords will not work!.**

4.11 User Setup

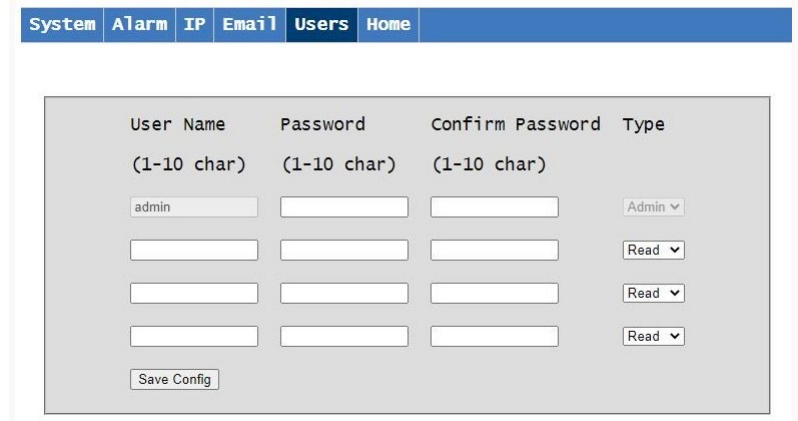
From this framework it is possible to configure up to 4 different users provided or not with simple access rights ("Read") or the possibility of changing parameters ("Read/Write").

There is also a type of additional right, reserved only for administrators, the one called "Admin". This right is essential to access this framework and define or modify a list of users: a common user with write rights cannot access it or define other users or even change your password.

By default the card is supplied with only the user "Admin" with the standard password (see § 4.1): the latter is freely editable subsequently at the care and risk of the Administrator.

All passwords are secret and are not displayed, even by the Administrators and must be confirmed on the second "Confirm Password" field at the time of definition.

Beware of upper/lower case characters for both the User and Password fields

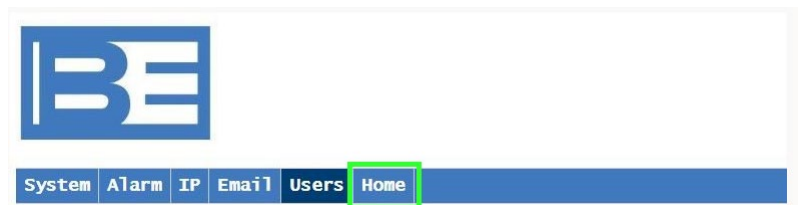


User Name (1-10 char)	Password (1-10 char)	Confirm Password (1-10 char)	Type
admin			Admin ▾
			Read ▾
			Read ▾
			Read ▾

Save Config

4.12 To go out

To exit the setup functionality you need to click the "Home button: this will take us back to the display section of the operating parameters.



Similarly, to exit the web-server you can click on the similar "Logout" button that will take us back to the initial login framework (see 4.1). Alternatively, you can simply close the browser window .



5 Remote control via the Internet with SNMP

Alternatively to manual remote control via the Internet via web-server, control via SNMP protocol is additionally available. The latter is especially useful in case of automated control through a control center that uses special "SCADA" management programs: these are available in generic "open-source" formats that can be used on control systems with S.O. Linux or Windows or as customized commercial programs of often high cost.

This Manuale can not give support to this type of "client" application that presupposes a thorough knowledge of industrial automated control systems but simply wants to illustrate them the essential principles, list the requirements and allow a simple possible verification of operation by SNMP control. No program or support is provided directly by BROADCAST ELECTRONICS beyond this simple guide and the customized "MIB" file for BROADCAST ELECTRONICS transmitters, indispensable for dedicated control.

In addition and as an alternative to the dedicated management programs are available on WEB some programs called "MIB-browser" that allow you to explore, query and interact with commands and the parameters available through SNMP. Many of these are paid commercial programs costing from a few tens up to a few hundred € for continuous professional use. Several of these can be evaluated with some limitation for a short period of time or for professional use by explicit or implicit license, others are completely free of charge. An example of these programs are those available from iReasoning (iReasoning MIB Browser, www.ireasoning.com), MG-SOFT (www.mg-soft.com) or JMibBrowser (www.dwipal.com) among many others. No express or implied license, support or warranty is given by BROADCAST ELECTRONICS for their use and operation. In this regard, please refer exclusively to their online documentation.

This guide does not claim to treat the SNMP protocol in an exhaustive way but simply to give some general information and allow some kind of simple testing.

The initial configuration on the transmitter of the web/SNMP interface card is absolutely identical to what is explained in the previous paragraphs and these can be referred to (see §3 and §4.9)

5.2 Necessary for verification control via SNMP

5.2.1 Program "SNMP browser". There are several of these programs available on the web both free and paid, such as those of MG-SOFT (www.mg-soft.com), iReasoning (www.ireasoning.com), JMibBrowser (www.dwipal.com) and others. Many of these software are available for personal, non-commercial use or for a limited period of time in demo mode with no other particular limitations as far as here described. It is the customer's responsibility to obtain an appropriate license for both evaluation and regular use when necessary. BROADCAST ELECTRONICS does not include any software of this type in its SNMP package unless specifically ordered and consequently mentioned in the invoice. The mode of operation of these software is largely similar and adequate to our purpose but the details of operation can also differ greatly from a type to another.

What we used for the tests and that we describe in this Manual is the "Personal Edition" version of iReasoning v9.6 that runs on PC / Notebook with Windows Operating System (XP, Vista, 7, 8), free for use exclusively personal and private. It cannot be used for commercial or professional use.

BROADCAST ELECTRONICS explicitly disclaims any responsibility for obtaining a license of regular use for this or for any software used by the customer or in the operation of software other than that described here.

5.2.2 PC with browser program loaded and connected to the network to carry out remote counter-check testing via SNMP. The operating system must be at least Windows 2000 or XP up to Windows 8.1 for the latest version.

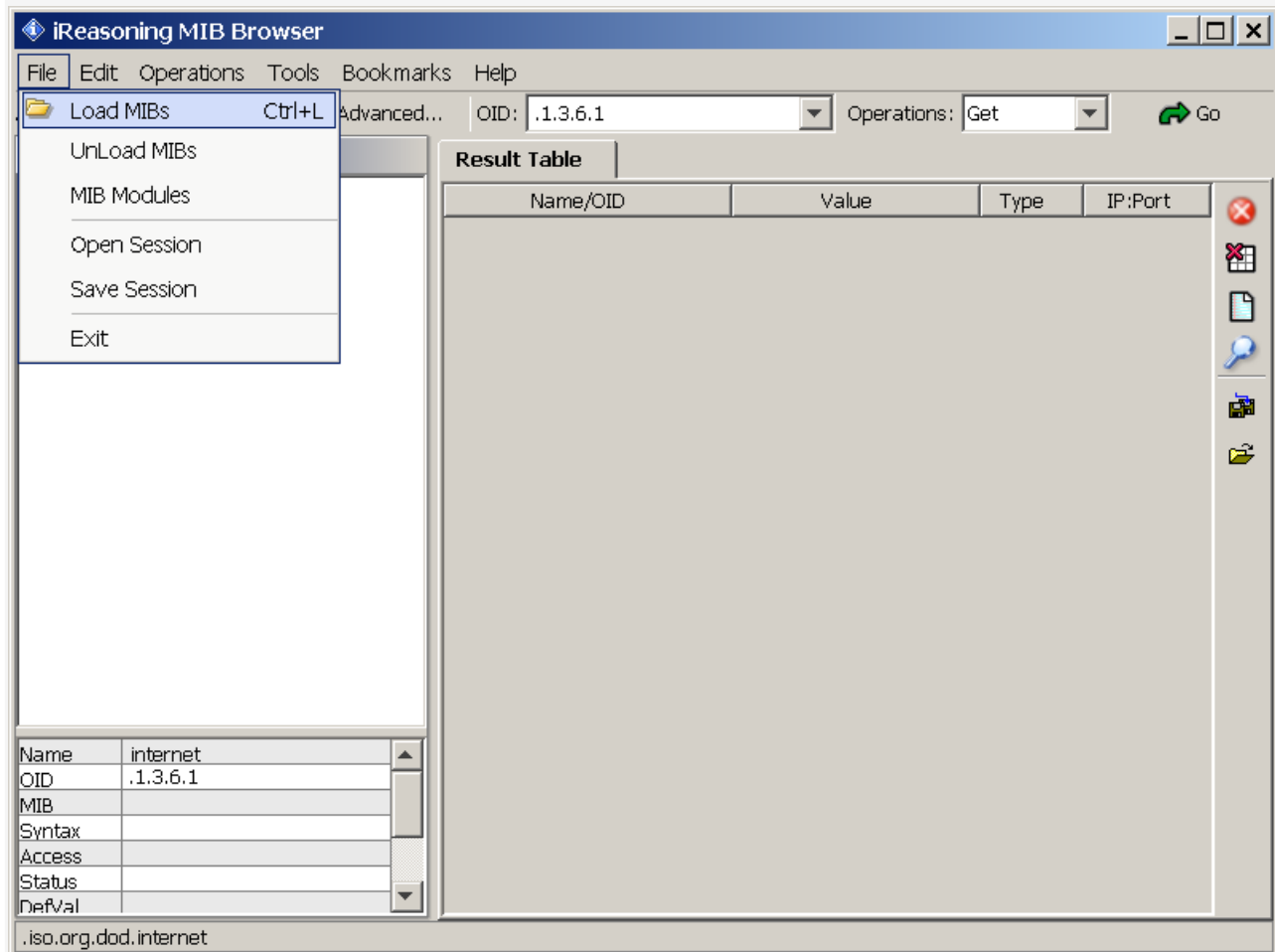
5.2.3 Ethernet cable for connection to the LAN network and test environment for the machine under test (fictitious load, any generators and test accessories)

5.2.4 MIB agent related to the machine to be checked. At the moment, for GTX/GRX machines, this MIB file to be compiled is the "Sielco_MibV212.mib" and is related to the agent "SIELCOagent.smidb" which in practice is the same file compiled within the suite of the browser

5.3 Installing the Browser and MIB Agent

The installation of the iReasoning MIB_browser is completely immediate by launching the relative setup file downloaded from the manufacturer's website. All listed systems must have an Administrator license. Here we will not go further because it is assumed that those who want to evaluate this type of software are reasonably PC experts. After the installation is complete, you must install the custom MIB file as described below.

Launch the program and open the "File" menu; from here click on the command "Load MIBs"

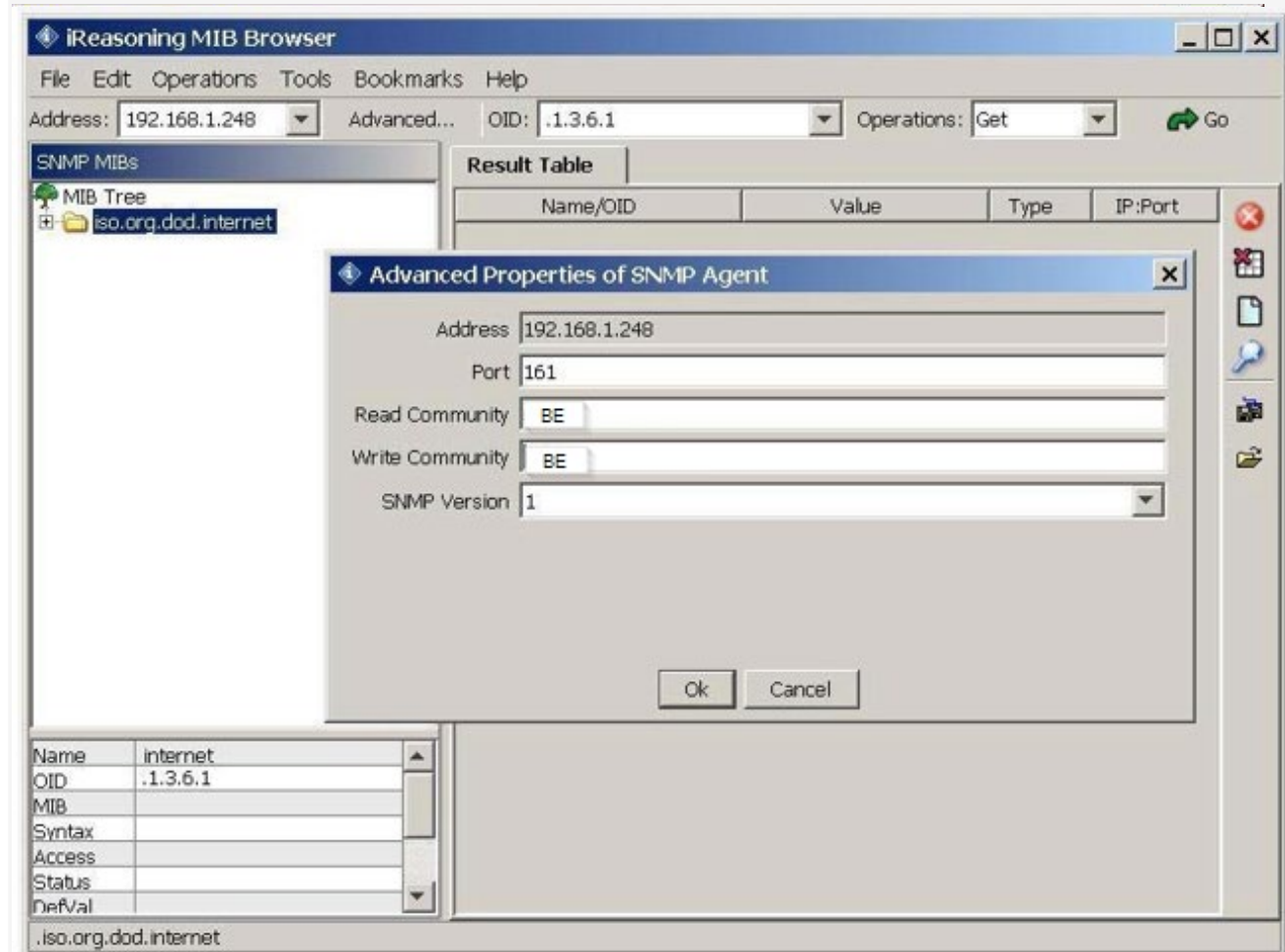


A default window will open on a subdirectory of the program, usually at "C:\Program Files\ireasoning\mibbrowser\mibs".. On this directory you will need to copy in advance and from here upload the file "BE_MibV102.mib". This file could actually be uploaded from any other location but it is generally advisable to copy it to the default location for convenience:

Select the requested file and click on the "Open" button

5.4 Configuring Control Parameters

Enter in the "Address" field the IP address of the machine to be checked: in the example below it is "192.168.1.248". Then click on the nearby field "Advanced..." and enter the word "BE" (all Upper Case) on the "Read Community" and "Write Community" fields: these values are specific to the BE MIB.



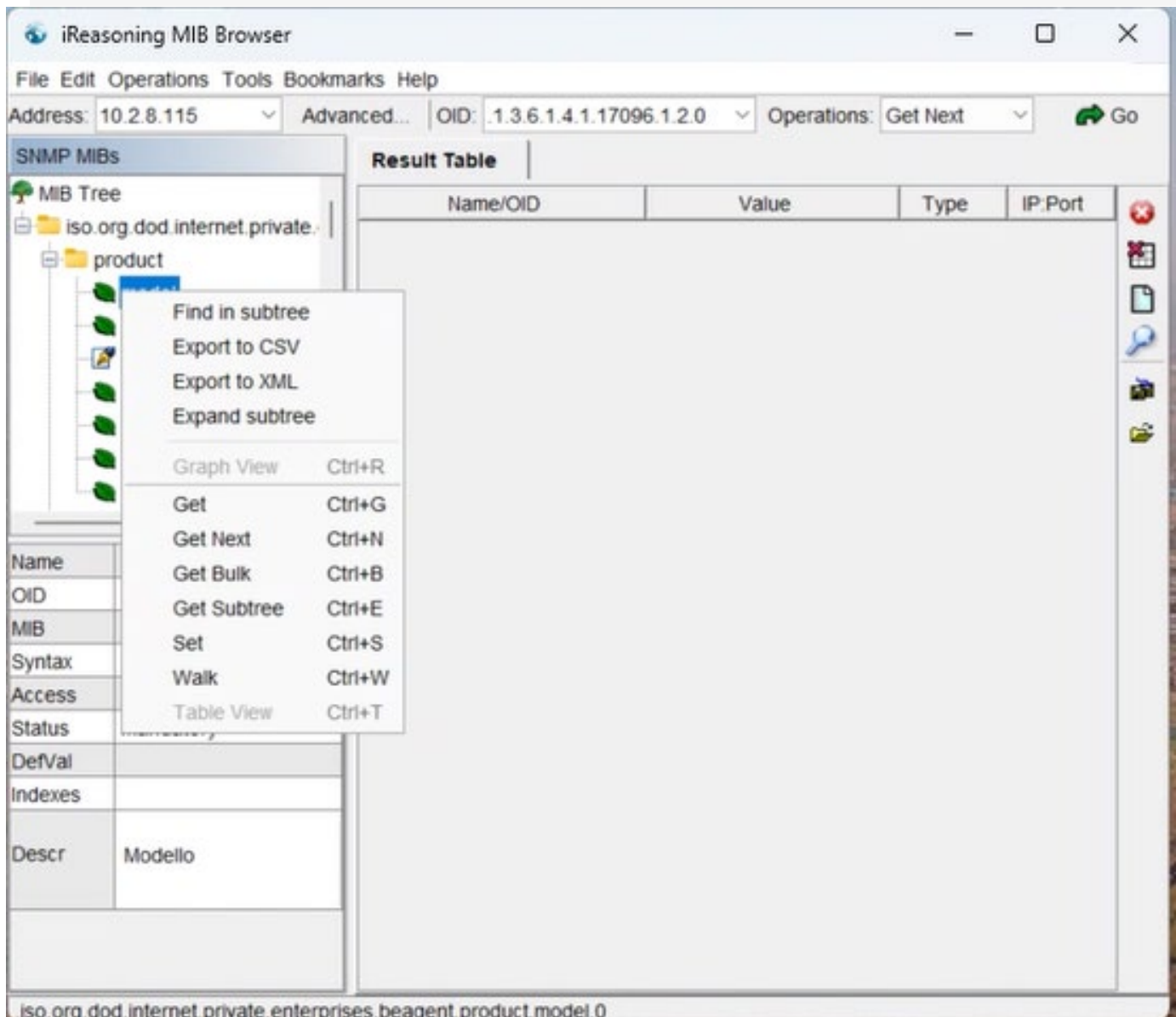
NOTE: Unless you change the IP address later, this is the standard entry point of the program after the MIB file has been imported and the browser configured.

After these preliminary operations it is possible to descend into the path of the command tree contained in the MIB by clicking subsequently on the branches "iso.org.dod.internet", "private", "enterprises", "sielcoagent": from here you can find your own commands for SIELCO transmitters organized in the categories "product, setup, control, alarm, ethernet". Each category includes several control commands: some are read-only, others write-only, and many are both read-only and write-only. Each control is preceded by a "leaflet" indicating that it is a terminal control command and not a category.

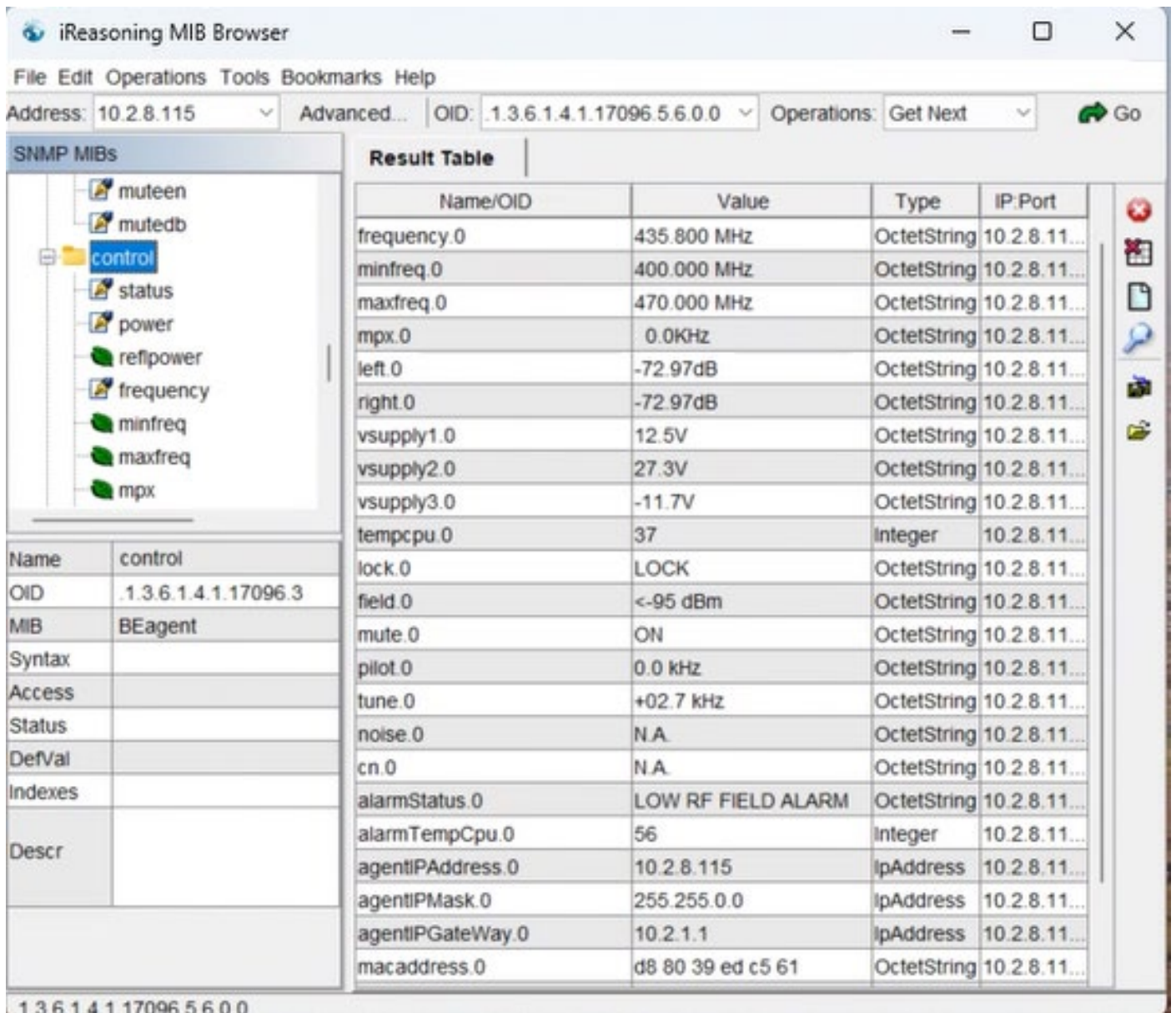
By selecting the desired control with the left mouse button, you can proceed to read it with the "Get" command or to write it with the "Set" command. These commands can be selected on the "Operations" pane and launched by clicking on "Go" or they can also be called back by acting on the right mouse button that opens a context menu on the control selected. There are also other commands such as Get/Set Next (read/write the next) or Get Bulk that reads the value reported by each control of the same category in a single query. The value to be read or written is encoded as a type of variable within the MIB and can be conveniently literary (OctetString) or numeric with various arithmetic, usually decimal. If I enter differently from as stated or with an incorrect value, the browser will indicate error.

5.5 Querying machine parameters

The next example is the query of the "model" control contained in the "product" category: the result is visible "Value" field of the **"Result table"** window (EXC30GT). The picture opened here with the various commands including the "Get Next" one highlighted is related to the context menu that opens by acting on the right mouse button.



Most operational controls are contained in the "control" category. The following figure illustrates the case of a query with the "Get" command on the "status" control and two subsequent ones with the "Get Next" command: the result is visible in the "Result" window **table**. On the status line it is equal to "0", that is, "OFF":



The screenshot shows the iReasoning MIB Browser interface. On the left, the 'SNMP MIBs' tree is expanded to show the 'control' MIB. Below the tree, a table displays the MIB details:

Name	control
OID	.1.3.6.1.4.1.17096.3
MIB	BEagent
Syntax	
Access	
Status	
DefVal	
Indexes	
Descr	

On the right, the 'Result Table' displays the results of the 'Get Next' operation. The table has four columns: Name/OID, Value, Type, and IP.Port. The results are as follows:

Name/OID	Value	Type	IP.Port
frequency.0	435.800 MHz	OctetString	10.2.8.11...
minfreq.0	400.000 MHz	OctetString	10.2.8.11...
maxfreq.0	470.000 MHz	OctetString	10.2.8.11...
mpx.0	0.0KHz	OctetString	10.2.8.11...
left.0	-72.97dB	OctetString	10.2.8.11...
right.0	-72.97dB	OctetString	10.2.8.11...
vsupply1.0	12.5V	OctetString	10.2.8.11...
vsupply2.0	27.3V	OctetString	10.2.8.11...
vsupply3.0	-11.7V	OctetString	10.2.8.11...
tempcpu.0	37	Integer	10.2.8.11...
lock.0	LOCK	OctetString	10.2.8.11...
field.0	<-95 dBm	OctetString	10.2.8.11...
mute.0	ON	OctetString	10.2.8.11...
pilot.0	0.0 kHz	OctetString	10.2.8.11...
tune.0	+02.7 kHz	OctetString	10.2.8.11...
noise.0	N.A.	OctetString	10.2.8.11...
cn.0	N.A.	OctetString	10.2.8.11...
alarmStatus.0	LOW RF FIELD ALARM	OctetString	10.2.8.11...
alarmTempCpu.0	56	Integer	10.2.8.11...
agentIPAddress.0	10.2.8.115	IpAddress	10.2.8.11...
agentIPMask.0	255.255.0.0	IpAddress	10.2.8.11...
agentIPGateWay.0	10.2.1.1	IpAddress	10.2.8.11...
macaddress.0	d8 80 39 ed c5 61	OctetString	10.2.8.11...

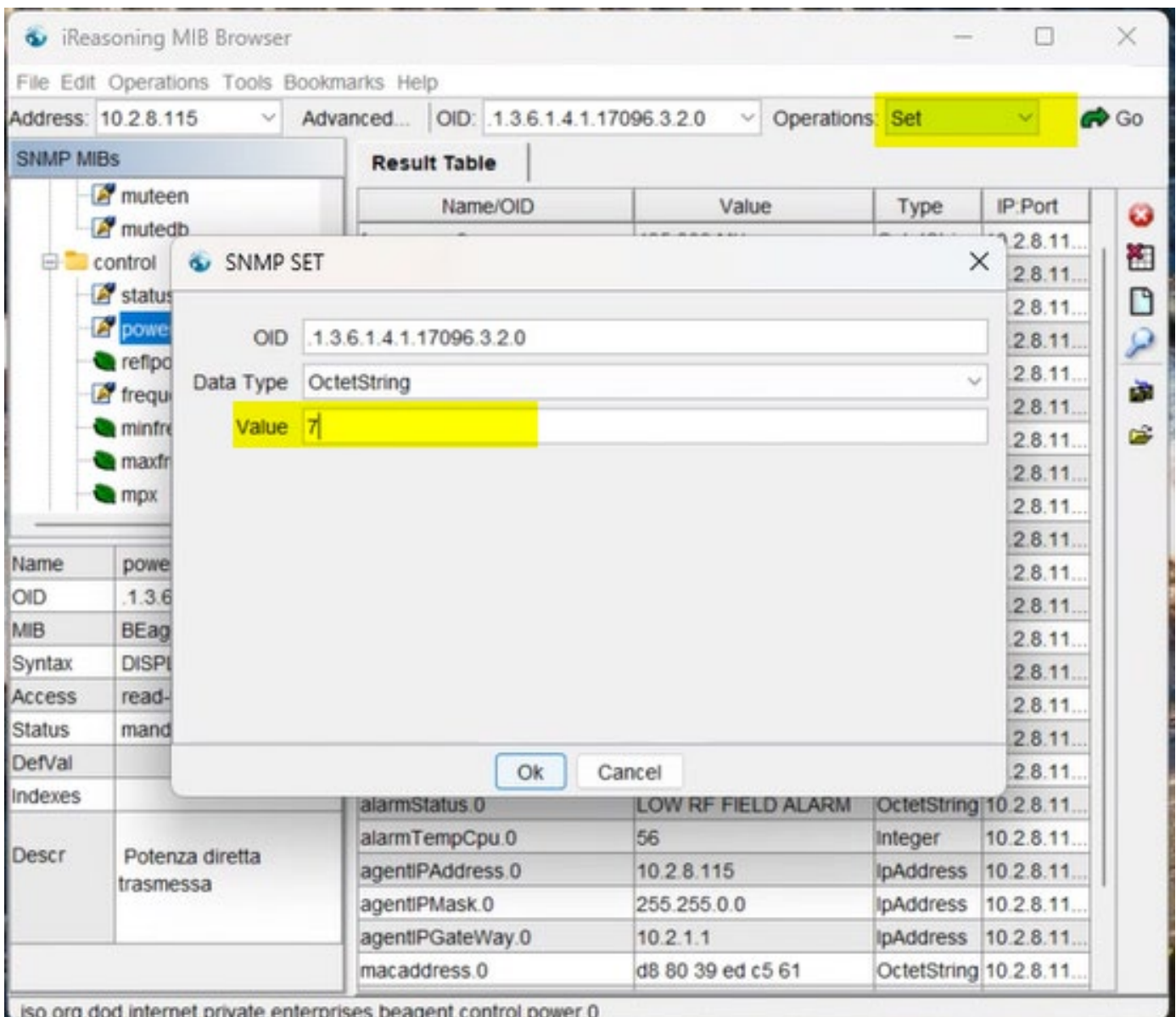
By examining the results window you can easily see all the parameters detected with a (often) reasonable ease of interpretation. It should always be remembered, however, that this protocol has not been designed for the use of manual control and is not always of interpretation or execution.

From the examination of the window shown on the example above it is easy to deduce that the machine was at the time in conditions of regular operation (ON) with direct power equal to 9.6W on the frequency of 99.00MHz. Modulation was present, indeed, at the time of the query, the machine was in overmodulation (+3.09dB on Mpx input / right channel, 98.5kHz mpx deviation)

5.6 Variation of machine setting parameters

Similar to the read command, the "Set" command allows control over its write command. All reading values are usually terminated by their respective units of measurement (MHz, W, V, °C, etc.). while the write values must be composed of the number in correct format and the hyniziale of the unit of measurement (e.g. M, W, etc.). However, this last formality is not necessary with the latest firmware versions e.g. just insert 26 instead 26W and the machine will interpret it correctly.

Selecting the control and acting on the "Set" command will consequently open a window that will illustrate the specific data of the control: in the following example the entry of the power "26W" as the nominal parameter of the "power" control. Note that only "26" was actually written and not "26W" in the line for the write parameter "Value". The next query with the "Get" command of the same control returns the real output power which is now equal to 25.2W:



The screenshot shows the iReasoning MIB Browser interface. The 'Operations' dropdown is set to 'Set'. The 'SNMP SET' dialog box is open, showing the following details:

- OID: .1.3.6.1.4.1.17096.3.2.0
- Data Type: OctetString
- Value: 7

The background shows a tree view of MIBs with 'control' expanded, and a table of MIB entries. The table includes columns for Name, OID, MIB, Syntax, Access, Status, DefVal, and Indexes. The 'power' entry is highlighted.

Name	OID	MIB	Syntax	Access	Status	DefVal	Indexes
power	.1.3.6.1.4.1.17096.3.2.0	BEAg	DISP	read-	mand		

The dialog box has 'Ok' and 'Cancel' buttons at the bottom.

With easy maneuvers and a few intuitive experiments you can access all the available controls, turn the machine on and off and vary its operating parameters.

5.7 Simultaneous control of multiple machines over WAN or public network with a single IP address

if you use the default control ports of the network usually port 80 for web-server control and port 161 for UDP service for snmp control you do not need to do any specific programming and port remapping in addition to the possible translation of the IP address of the machine on the LAN and on the external network. In this case, however, it is possible to control only one machine equipped with an Ethernet network interface.

If there are more than one machines to be checked, each with its own interface card, a unique IP address must be defined for each machine to be checked on the LAN network and the thing is not particularly difficult given the availability of a huge number of possible IPs: each card will use the standard control ports (80 and 161) for the two services in question, on locally different addresses. The thing is complicated, however, on the external network because mostly the static addresses are available only for a fee and in any case in limited numbers, often only 1. However, it is possible to simultaneously control multiple machines by remapping service ports beyond IP addresses. Professional modem routers are in fact able to do this, assigning to each remapped IP address a corresponding port 80 or 161 remapped in the same way on unused addresses: in this way it is possible to control dozens and in theory hundreds of machines on a single public IP address.

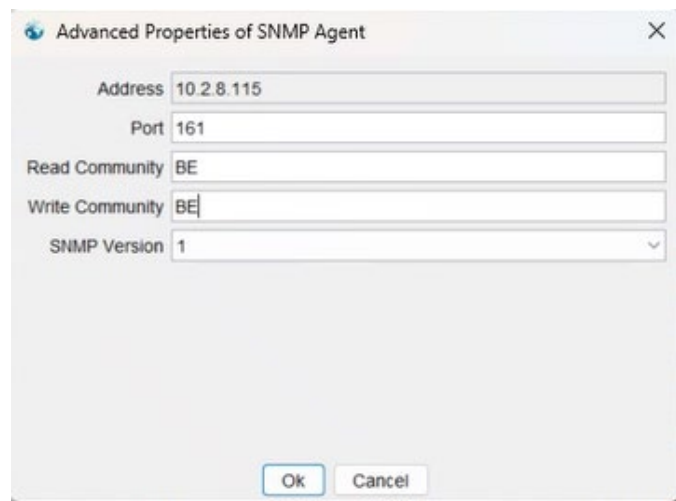
Below is an example of an N+1 control system with 3 individual transmitters and a spare one, each equipped with an Ethernet interface in addition to the main one of the N+ System Controller 1. In this case there are 5 devices that can be controlled on the same public address:

Apparatus	IP LAN	service	LAN port	Public IP	Service port
N+1 Controller	192.168.1.240	web	80	92.228.99.139	80
		UDP/SNMP	161		161
Tx #1	192.168.1.241	web	80	92.228.99.139	13001
		UDP/SNMP	161		12001
Tx #2	192.168.1.242	web	80	92.228.99.139	13002
		UDP/SNMP	161		12003
Tx #3	192.168.1.243	web	80	92.228.99.139	13003
		UDP/SNMP	161		12003
Tx riserva	192.168.1.244	web	80	92.228.99.139	13004
		UDP/SNMP	161		12004

The programming in this sense of the modem / router and the firewall of the LAN is generally not within everyone's reach and is reserved for network specialists who must also know the functionality and programming method of the local network devices. BROADCAST ELECTRONICS is not able to give any support in this regard given the great variety of devices available and local conditions.

On the contrary, remote querying is not particularly difficult: in fact, for access to the various machines with the services remapped on non-standard ports it is simply necessary to specify the port in question.

In the case of SNMP control via SNMP browser the port is specified in the advanced access framework. For Transmitter #1 whose UDP service is translated to port 12001 would be:



For control via web-server from the internet browser, the port is specified in the queue to the IP address by interposing 2 points (:): <http://95.228.99.139:12001>

6 Appendix. Description MIB file structure v.2.1.2 and its agent

The current agent supports GET and SET commands through UDP port 161 and implements trap sending using port 162.

AgentSielcoagent
Node1.3.6.1.4.1.17096

within the sielcoagent module there are the following nodes

Name	Knot
product	1.3.6.1.4.1.17096.1
setup	1.3.6.1.4.1.17096.2
control	1.3.6.1.4.1.17096.3
alarm	1.3.6.1.4.1.17096.4
ethernet	1.3.6.1.4.1.17096.5

Node product

Variablesmodel
OID product.2
TypeString 10 car.
Accessor
DescriptionContains the model name of the machine (e.g. EXC30GT)

Variabledescription
OID product.3
TypeString 50 car.
Accessor
DescriptionContains an extended description of the machine

Variablelocation
OID product.4
TypeString 50 car.
AccessoR/W
DescriptionContines the geographical location of the machine

Variablemanufacturer
OID product.6
TypeString 30 car.
Accessor
DescriptionContains the name of the machine manufacturer

Variableserial
OID product.7
TypeString 30 car.
Accessor
DescriptionContains the serial number of the machine

Variablefwver
OID product.9
TypeString 10 car.
Accessor
DescriptionContains the firmware version of the controller

VariablenameAgent
OID product.10
TypeString 10 car.
Accessor
DescriptionContains a description of the machine agent

VariableverAgent
OID product.11
TypeString 10 car.
Accessor
DescriptionIt contains the firmware version of the agent, in particular it consists of 3 digits (eg 2.0.2) where the first 2 are related to the ver SW and the third to the associated MIB file



Variabledata
product.12
TypeString 10 car.
Accessor
DescriptionContines the date of realization of the agent SW

Setup node

Inside the setup node there is the Traps node that allows you to activate the sending of traps to a specific IP address.

NodeTraps
setup.1

VariabletrapEnabled
traps.1
TypeInteger
AccessoR/W
DescriptionBy enable (1) or disable (0) sending traps to their IP address

Variable
trapReceiverIPAddress
traps.2
IP Address
AccessoR/W
DescriptionMirror IP address traps

The trapEnabled and trapReceiverIPAddress variables are stored in a non-volatile manner so that the ignition can maintain the set values and send the ColdStart and LinkUp traps.

In addition to this table in the setup node there are variables to set the threshold parameters of the alarms in

particular: VariablelowPowerAll

setup.2
TypeInteger
AccessoR/W
DescriptionIndicates the threshold (in %) of low output power alarm. It is a numeric value and must be entered without the % sign

VariablelowPowerPre
setup.3
TypeInteger
AccessoR/W
DescriptionIndicates the threshold (in %) of low output power early warning. It is a numeric value and must be entered without the % sign

Variablevswr
setup.4
TypeString 10 car
AccessoR/W
DescriptionIndicates the high reflected power alarm threshold. It is a string and the value must be entered by adding the unit of measurement (W or KW) and using the dot as a decimal separator.

VariablelowMPX
setup.5
TypeString 10 car
AccessoR/W
Description Indicates the alarm threshold for low MPX. It is a string and the value must be entered by adding the unit of measurement (dB). The value must be entered without decimal parts and spaces specifying the sign (+ or -). Allowed values are from +6dB to - 29dB.

VariablelowMPXDelay
setup.6
TypeInteger
AccessoR/W
DescriptionIndicates the delay time before reporting low MPX, when this falls below threshold. The value is numeric and is expressed in seconds. The report can be disabled by entering -1 as the value (OFF)



Control node

OID	Variablestatus control.1 TypeInteger AccessoR/W DescriptionIndicates machine status (0=OFF, 1=ON)
OID	Variablepower control.2 TypeString 10 car AccessoR/W DescriptionIndicates the value of the output power. It is a string and the value must be entered by adding the unit of measurement (W or KW) and using the dot as a decimal separator.
OID	Variablereflpower control.3 TypeString 10 car. Accessor DescriptionIndicates the value of the measured reflected power
OID	Variablefrequency control.4 TypeString 10 car AccessoR/W DescriptionIndicates the current frequency of transmission. It is a string and the value must be entered by adding the unit of measurement (MHz) and using the dot as a decimal separator.
OID	Variablesmpx control.5 TypeString 10 car Accessor DescriptionIndicates the current MPX value in KHz
OID	Variableleft control.6 TypeString 10 car Accessor DescriptionIndicates the current level of the left channel in dB
OID	Variableright control.7 TypeString 10 car Accessor DescriptionIndicates the current level of the right channel in dB
OID	Variableaux control.8 TypeString 10 car Accessor DescriptionIndicates the AUX channel level
OID	Variablemode control.9 TypeInteger AccessoR/W DescriptionIndicates the current mode of operation. (1=MPX, 2=MONO, 3=STEREO, 4=MONOLR)
OID	Variablepreenphasis control.10 TypeInteger AccessoR/W DescriptionIndicates the pre-phase applied. (1=0us, 2=25us, 3=50us, 4=75us)
OID	Variablevsupply1 control.11 TypeString 10 car Accessor DescriptionIndicates voltage 1 expressed in V



OID	Variablevsupply2 control.12 TypeString 10 car Accessor DescriptionIndicates voltage 2 expressed in V
OID	Variablevsupply3 control.13 TypeString 10 car Accessor DescriptionIndicates the negative voltage expressed in V
OID	Variabletempcpu control.14 TypeInteger Accessor DescriptionIndicates the CPU board temperature in degrees centigrade
OID	Variabletemprf control.15 TypeInteger Accessor DescriptionIndicates the temperature of the outer probe expressed in degrees centigrade
OID	Variableattaux control.16 TypeString 10 car AccessoR/W DescriptionIndicates the sensitivity value for the AUX channel. It is a string and the value must be entered with the unit of measurement (dBm) and the values must be entered with the sign (+ or -) and in steps of half dB. Allowed values range from - 12dBm to +4dBm
OID	Variableattmpx control.17 TypeString 10 car AccessoR/W DescriptionIndicates the sensitivity value for the MPX channel. It is a string and the value must be entered with the unit of measurement (dBm) and the values must be entered with the sign (+ or -) and in steps of half dB. Allowed values range from - 3.5dBm to +12.5dBm
OID	Variablelimiter control.18 TypeString 10 car AccessoR/W DescriptionIndicates the value of the limiter. It is a string and the value must be entered with the unit of measurement (dB), the sign (+ or -) and 2 decimal places. The values in dB are tabulated so the value entered is rounded to the nearest tabular value.
OID	VariableequipmentType control.19 TypeInteger Accessor DescriptionIt is a unique identifier of the device. It is a value of 4 bytes structured as follows: Byte MSB 0 Byte 2 2 Branch=Analog FM Byte 3 0x13 Equipment=Sielco Byte LSB 0x24



Alarm node

OID	VariableAlarmCode alarm.1 TypeInteger Accessor DescriptionIndicates the code of the last alarm that occurred 0=No alarm 1=Overtemperature 2=High reflected power 3=High output power 4=Low output power 5=Low MPX 6=Unlock
OID	VariableAlarmStatus alarm.2 TypeInteger Accessor DescriptionIndicates the status of the alarm. 1=unknown 2=Alarm in progress 3=Alarm returned
OID	VariableAlarmAck alarm.3 TypeInteger AccessoR/W DescriptionIndicates whether the alarm was captured by the remote manager 1=not acquired 2=acquired Note: When a new alarm occurs , the agent places the value at 1 and it is the manager's responsibility to write the value 2 in this field to report the acquisition.
OID	Variabletimestart alarm.4 TypeString 10 car. Accessor DescriptionIndicates the alarm start time, in the format hh:mm:ss
OID	Variabledatestart alarm.5 TypeString 10 car. Accessor DescriptionIndicates the date of the start of the alarm, in the format dd-mm-yy
OID	Time-end variable alarm.6 TypeString 10 car. Accessor DescriptionIndicates the end time of the alarm, in the format hh:mm:ss
OID	Variabledateend alarm.7 TypeString 10 car. Accessor DescriptionIndicates the end date of the alarm, in the format dd-mm-yy
OID	Variablelock alarm.8 TypeString 10 car. Accessor DescriptionIndicates the status of the Lock pin (ON or OFF)
OID	Variableprealarm alarm.9 TypeInteger Accessor



Description Indicates the code of the last early warning occurred

0=No 0x81

alarm=Overtemperature

0x82= High output power

Inside the alarm node there is the logs node that allows the display of the last 10 events in chronological order of the LOG inside the machine

Node Logs |

OID alarm.10

VariableLogs1

OIDlogs.1

TypeString 40 characters

Accessor

Description Contains the first LOG event (last in chronological order)

VariableLogs2

OIDlogs.2

TypeString 40 characters

Accessor

Description Contains the second event of the LOG

OID

VariableLogs3

logs.3

TypeString 40 characters

Accessor

Description Contains the third LOG event

VariableLogs4

OIDlogs.4

TypeString 40 characters

Accessor

Description Contains the fourth log event

VariableLogs5

OIDlogs.5

TypeString 40 characters

Accessor

Description Contains the fifth event of the LOG

VariableLogs6

OIDlogs.6

TypeString 40 characters

Accessor

Description The sixth LOG event is contained

VariableLogs7

OIDlogs.7

TypeString 40 characters

Accessor

Description Contains the seventh LOG event

VariableLogs8

OIDlogs.8

TypeString 40 characters

Accessor

Description Contains the eighth LOG event

VariableLogs9

OIDlogs.9

TypeString 40 characters

Accessor

Description Contains the ninth

event of the LOG

VariableLogs10



OIDlogs.10

TypeString 40 characters

Accessor

DescriptionContains the tenth event of the LOG

Ethernet node

	VariableagentIPAddress
OID	ethernt.1
Tipo	IP Address
	AccessoR/W
	Description Agent IP address
	VariableagentIPMask
OID	ethernt.2
Tipo	IP Address
	AccessoR/W
	Description Agent Network Mask
	VariableAgentIPGateWay
OID	ethernt.3
Tipo	IP Address
	AccessoR/W
	Agent's descriptiongateway
	VARIABLEMACAddress
OID	ethernt.4
	TypeString 6 characters
	Accessor
	DescriptionMAC address of the agent

Writing Values

For each variable accessible in writing, the agent verifies that the value sent is consistent with the type of variable and that it is allowed by the machine model.

if the value is not accepted an error is returned on the set operation

Community

The communities for access to the agent are fixed both in read (GET) and in write (SET), set as: "sielco"

this value must be used by the manager in order to access the agent

Trap Management

The agent sends a message through Port 162 to the address specified in trapReceiverIPAddress in case of new alarm start, alarm end and machine status change (ON or OFF).

In the case of alarm in the message sent are inserted the variabili AlarmCode and AlarmStatus In the case of change of status in the message sent is inserted the variable status

If a valid IP address has been set in trapReceiverIPAddress and trapEnabled is placed at 1 the machine also sends the Traps of ColdStart and LinkUp.

ColdStart is sent when the machine is switched on. LinkUp is sent when the machine restores the ethernet connection