DRAFT

inomatic®

AMTEK System
250/350/750/800
AMDOOR 700/AMFLOOR 700

infoNet Software Manual

Version V5

Applicable for

AMTEK Systems with Pro-Line electronics
AMPRO 700 (TX/Mono) Hardware Version 7.4, Firmware AMP 3.0

Contents

1. PREPARATIONS

To start the infoNet Software first copy the file “InfoNet V5.exe” to your computer.

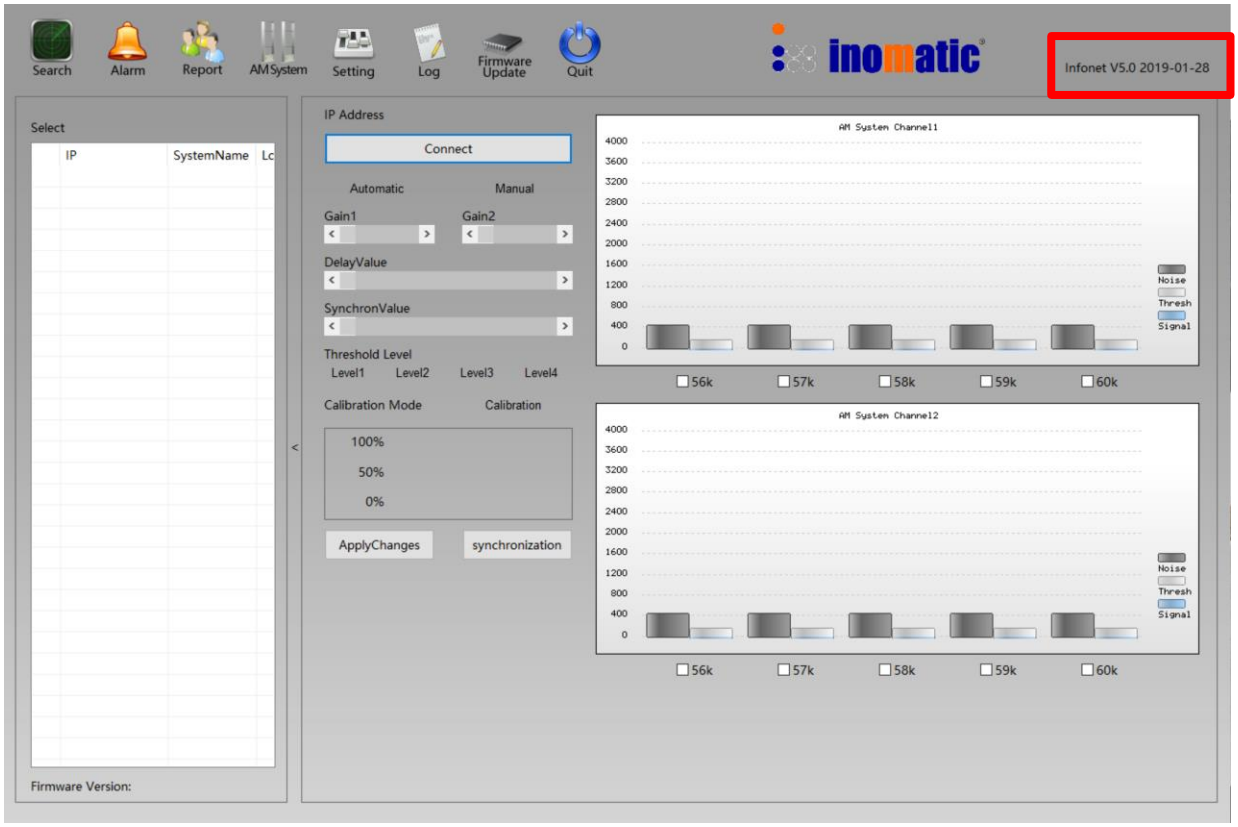
Before you can establish a connection to the board, make sure to have completed the following 2 steps in the given order:

1) Connect the Computer LAN Port and the Processor board (V7.4) LAN port with a standard LAN cable.

2) Switch on the power to the processor board.

Run the program by double-clicking on the file.

After having started the infoNet Software, you should see a window as shown below. In the right upper corner the Version of the infoNet is displayed.



Please note that InfoNet V5 can only work with AMPRO 700 V7.4 onwards

2. CONNECTION TO THE SYSTEM

➔ **Click on "Search" → the IP address of the board will be displayed. If there is no IP address displayed refer to Chapter 12 (TCIP settings of computer)**

➔ **Select the IP address and click on "Connect"**

After the connection has been established, the original settings of the AM Processor (TX/Mono) board will automatically be loaded and the relevant signals will be displayed.

In case you want to disconnect, press the **Disconnect** button

3. INFONET FUNCTIONS

Search: to search for LAN or Serial ports

Alarm: In case you have multiple antennas this function helps to detect the connected System. By clicking on this button the connected system will beep..

Report: Daily Visitor/ Alarm and system status report of the connected system

AM System: To tune AM system

Settings: To set Parameters of AM system

System Log file (display parameter change and Alarms)

Firmware Download: To download new firmware

Quit: To exit **infoNet**

4. PARAMETERS TUNING AND SIGNAL DISPLAY

The left side of the Graphic User Interface (GUI) is the parameter tuning part where you can change all available tuning parameters of the system.

Parameters of the system can be changed by choosing the new value with the scrollbars and buttons and by clicking on ” **ApplyChanges”** afterwards.

On the right side of the GUI you can see the Threshold/ signal and noise for different frequency channels (TX/RX antenna (Channel 1 and 2) or Mono antenna (upper & lower loop)

Note

For the system to apply any new settings, you have to press ‘ApplyChanges’ each time after changing the parameters!

Please note that:

Clicking on the arrow ⬅ will enlarge the signal display area.

Right double click in the top function area ⬅ will shrink the whole window.

4.1 Tuning Parameter

a.) Threshold Level (Level 1 to Level 4, for Manual and Automatic mode)

The algorithm applies a floating threshold principle. Depending on the noise of the relevant channel, the threshold will change.

Level 1 → lowest floating threshold
Level 4 → highest floating threshold
Level 2 → **default setting**

The threshold level is applicable for Manuals and Automatic mode.

b.) Gain (0 to 255, only for Manual mode)

The Gain-level ranges from 0 to 255.
With medium noise level (<1,200) the gain should be around 150 to 200.
Gain 1 is for Channel 1 and Gain 2 is for Cannel 2.
A high gain does not necessarily increase the system performance as a higher gain will also result in a higher noise level.
In Automatic Noise mode this parameter will not be shown as the system adjust the gain and other parameters according to the noise level.
Typical setting of gain: 175

c.) Delay Value (0 – 20)

This allows the setting of the delay between the end of the TX pulse and the opening of the Listening window LS1 (normal range 0-10).
Typical setting of Delay value: 0

d.) Synchron Value (0 – 200)

The parameter describes the delay of the TX pulse starting point in relation to the zero crossing of the mains power supply. The standard setting is “0” delay, which means the TX antenna will start sending the TX pulse at the zero crossing of the mains power supply. Only when other AM systems are nearby this value has to be changed and adjusted. The parameter can be changed inside the Synchronization Window as well.
Typical setting of Synchron value: 0

4.2 Operation Modes

a.) Automatic mode

In this mode, the system monitors the noise environment and adjusts the system parameters accordingly. The Gain cannot be adjusted manually as the gain and other parameters are optimized by the firmware depending on the environmental noise level.

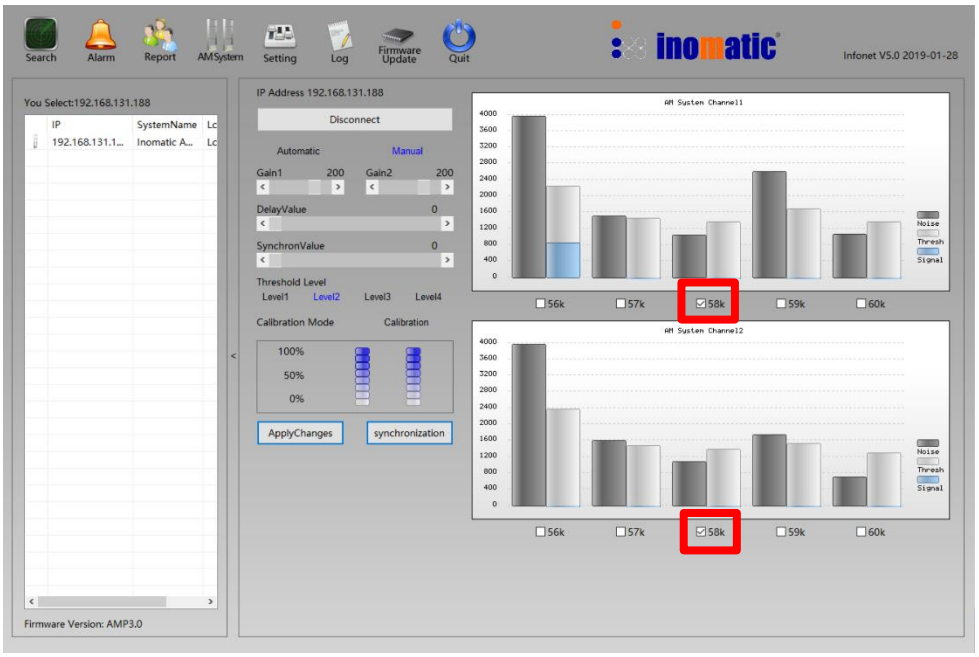
Going back to normal mode (un-tick the box) the gain is set to the default value of 150 and need to be adjusted manually according to the signal and noise level displayed.

It is normal that the noise bar (dark grey) is higher than the threshold.

Typical signal display for AM Mono system in Normal noise mode.

Typical signal display for TX/RX system in Automatic noise mode.

b.) Manual mode



In the manual mode the gain for Channe1 and Channel 2 can bet set to optimize the performance of the antenna and/or to avoid false alarms.
For a **Mono antenna** Channel 1 is related to the upper loops and Channel 2 to the lower loop. In normal circumstances the gain for both channels should be the same.
For a **TX RX system**, Channel 1 relates to Receiver antenna1 and Channel 2 to Receiver antenna 2. The gain for both channels might not be the same.
Also note that in the Sync mode the receiving signal is from Receiver antenna 1 (Channel 1). If no antenna is connected to Channel1, the sync window will show no receiving signal.
The Threshold level can be set in such a way that performance and low incidence of false alarms can be achieved. The default setting is Level 2.
In Automatic and Manual mode the **active frequency band** can be selected by ticking the relevant frequency channel(s). Usually selecting the 58KHz frequency is sufficient to get good performance and avoid triggering alarms by other frequencies.

Gain too high

c.) Calibration mode

The Calibration Mode allows the calibration of the system to optimize the performance.

Mono board

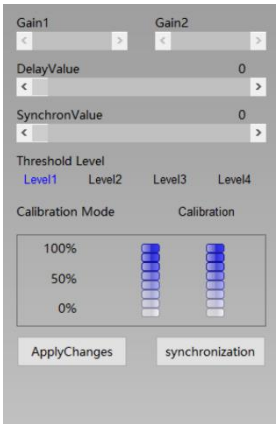
For the **Mono board** Channel 1 represents the upper loop of the antenna and Channel 2 represents the lower loop of the antenna.
The Threshold 1 and Gain 1 are for the upper loop, Threshold 2 and Gain 2 are for lower loop of the antenna. Under normal conditions Gain1 & Gain2 and Threshold 1 & Threshold 2 should have the same settings.

The absolute level signal and noise bar should be more or less the same.
For all Mono antennas the calibration is fixed and cannot be changed

TX/RX board

If two RX antennas are connected to the TX board, the absolute noise/signal level of Channel 1 (receiver antenna 1) and Channel 2 (receiver antenna 2) may not be same but can be compensated by setting the gain and threshold for Channel 1 and 2 differently.

4.3 TX Power display



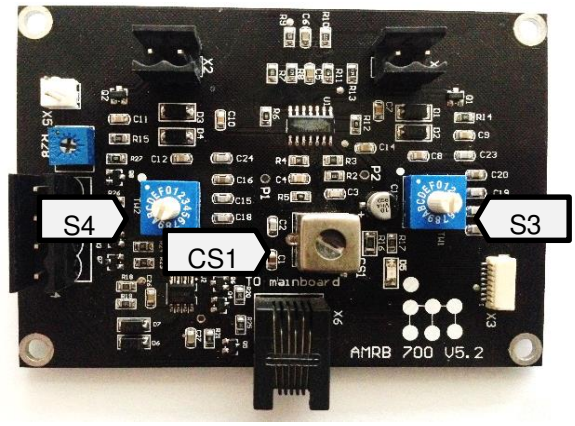
The TX power output is represented by two bars. Bar 1 is for the upper loop of the antenna and Bar 2 is for the lower loop of the antenna.

In normal condition these two bars should go up to 100%. If not, the matching for the respective loop has to be changed by changing the matching capacitors values (see operation manual).

4.4 RX (V5.2) antenna tuning (TX/RX system)

All our antennas are pre-tuned in the factory and RX antenna matching WILL NOT HAVE TO BE ADJUSTED in almost any case. When installing the system near metallic frames or metallic doors, resonance value may be affected.

The RX board matching for the upper and lower loop can be adjusted via two rotary switches S3 and S4 and the inductor CS1.
The ultimate goal of the tuning is to keep the noise bar (dark grey) and the signal bar (blue) as low and stable as possible yet achieving good performance.



a.) Select the default value of the switches according to the table
(for example AMTEK 350 is S3-4 and S4-4)

b.) Look at the signal bar in the system window. The signal line should be low. It is normal that the noise bar is higher than the threshold (light grey)

b1.) If the signal bare is not low, check the synchronization→ the blue signal line in the “synchron window” should be low in the listening windows LS1 and LS2.
If not, shift the LS1 and LS2 window to a better position. Return to the AM system window.

b2.) If the blue signal bar is still high, change the settings of S3 and S4 and observe the blue and dark grey bar. The blue signal bar Line should be lower than 800 and the noise bar (dark grey) less than 3,000 (the lower the better).

Normally the S3 and S4 should be set at the default value but due to component tolerances, the best setting could be +/-1 of the default setting → for AMTEK 350 it could be 3, 4, or 5. It is also possible that S3 and S4 have different setting.

c.) Test the performance with a good AM label. If the performance is not good, then tune the inductor CS1 anti-clockwise and test performance again until you reach a satisfactory performance.

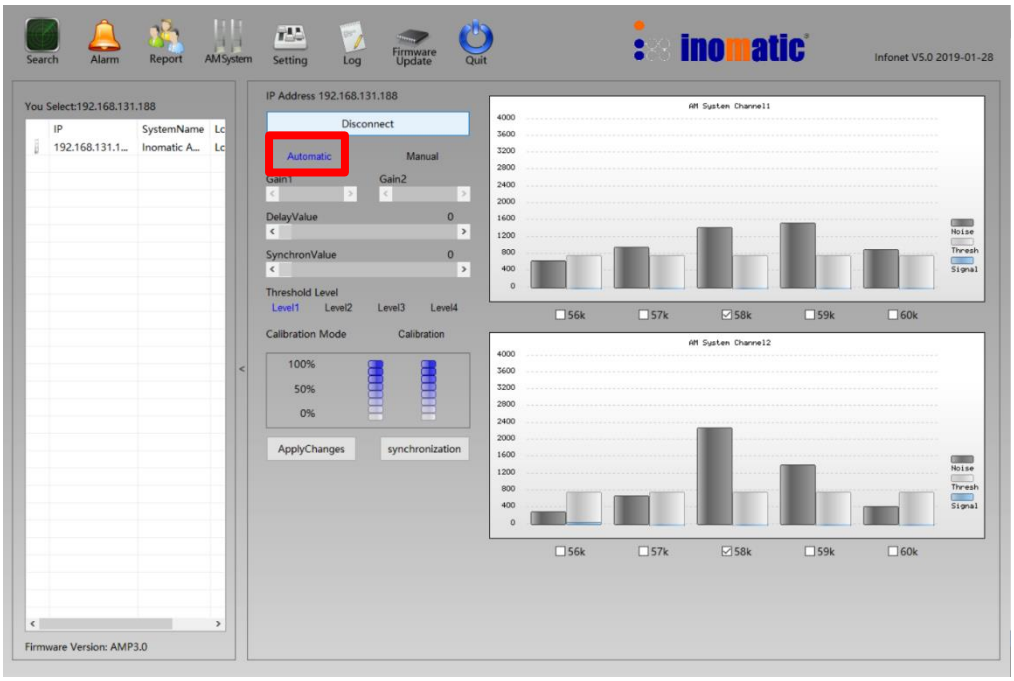
d.) If the blue signal bar is close to 0 tune the inductor CS1 clockwise and test the performance. Continue this step until you reach a satisfactory performance.
It is important that the blue line is relatively flat but still have good performance.

TX antenna with 1 RX antenna connected

In a high noise environment it might be favorable to purposely detune the RX antenna to reduce the noise or at least get the noise stable.
As the electronics applies a “floating threshold” the performance is influenced by the noise. Higher noise → less performance.
The incident of false alarms depends more on the signal volatility. With higher signal volatility the Threshold level need to be increased to reduce possible false alarms.

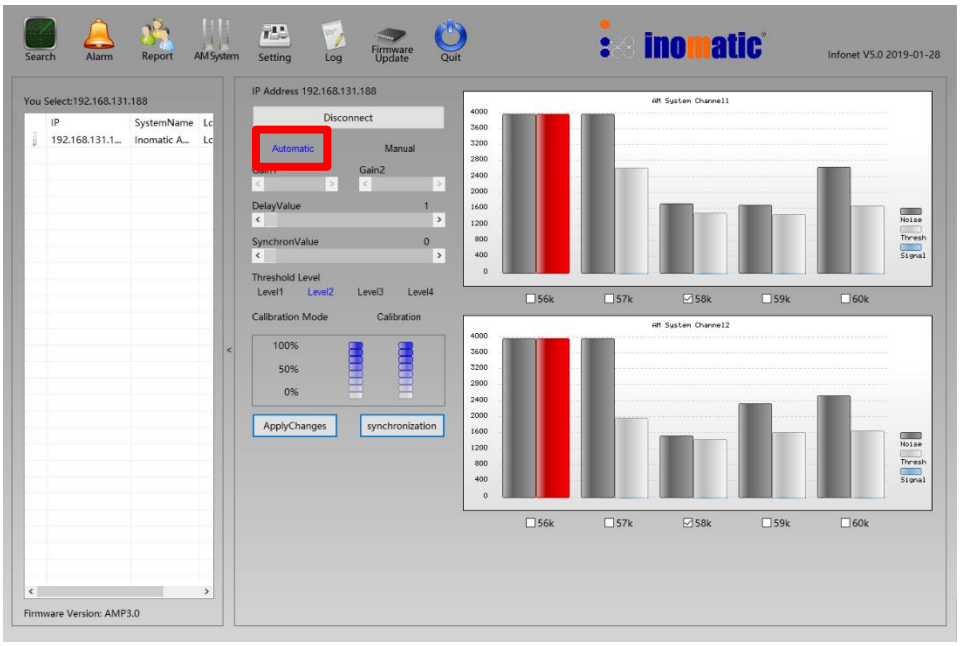
4.5 Mono RX Receiver Circuit

The Mono electronics shares the same matching for the TX and the RX function. Therefore no RX matching or tuning is required, only TX matching.



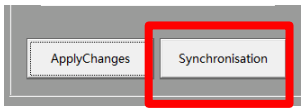
Channel 1 shows the signal and noise of the upper loop. Channel 2 represents the lower loop.

If the system is in automatic noise mode, the algorithm will automatically optimize the parameter → no setting of gain is possible.



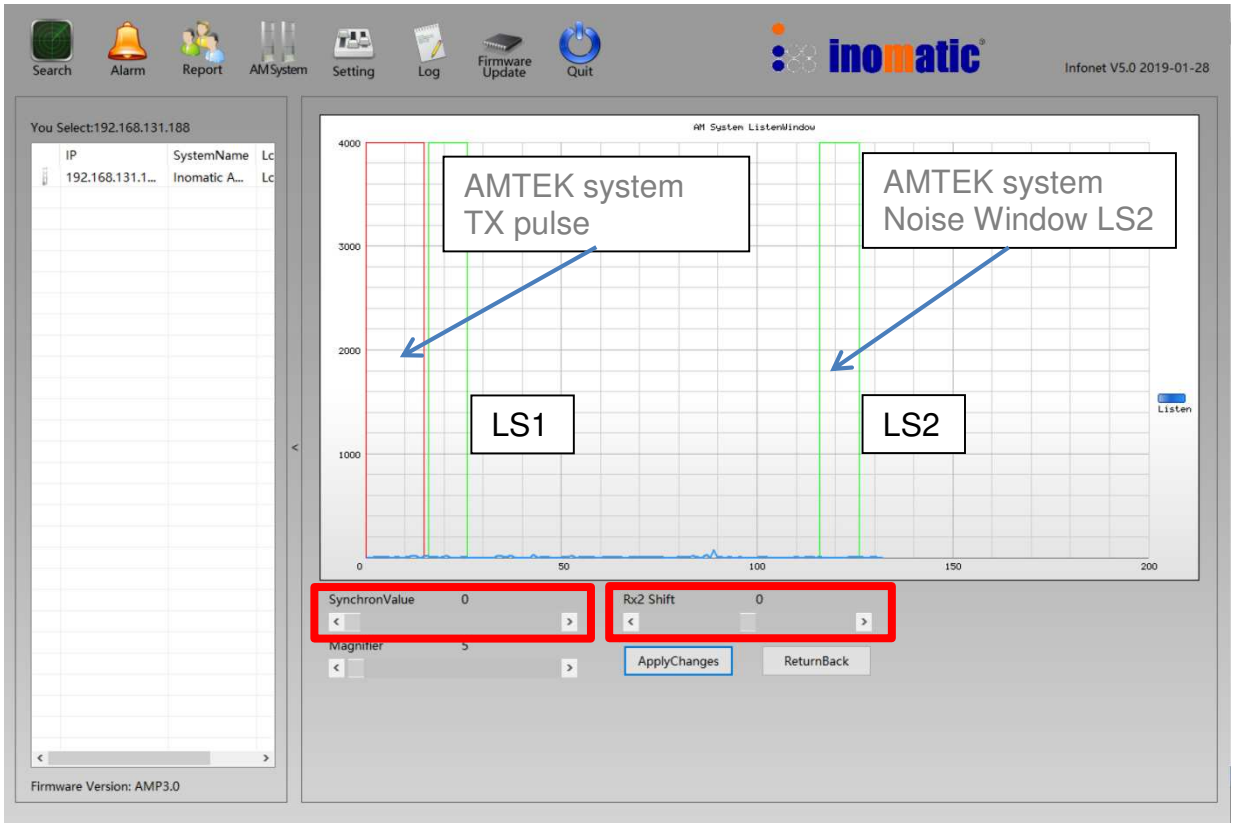
The antenna will not alarm as only the 58KHz frequency channel is enabled

5. SYNCHRONIZATION WINDOW



Please note that in the Synchron mode the TX pulse is switched-off (LED bars TX1 and TX2 will not light up.

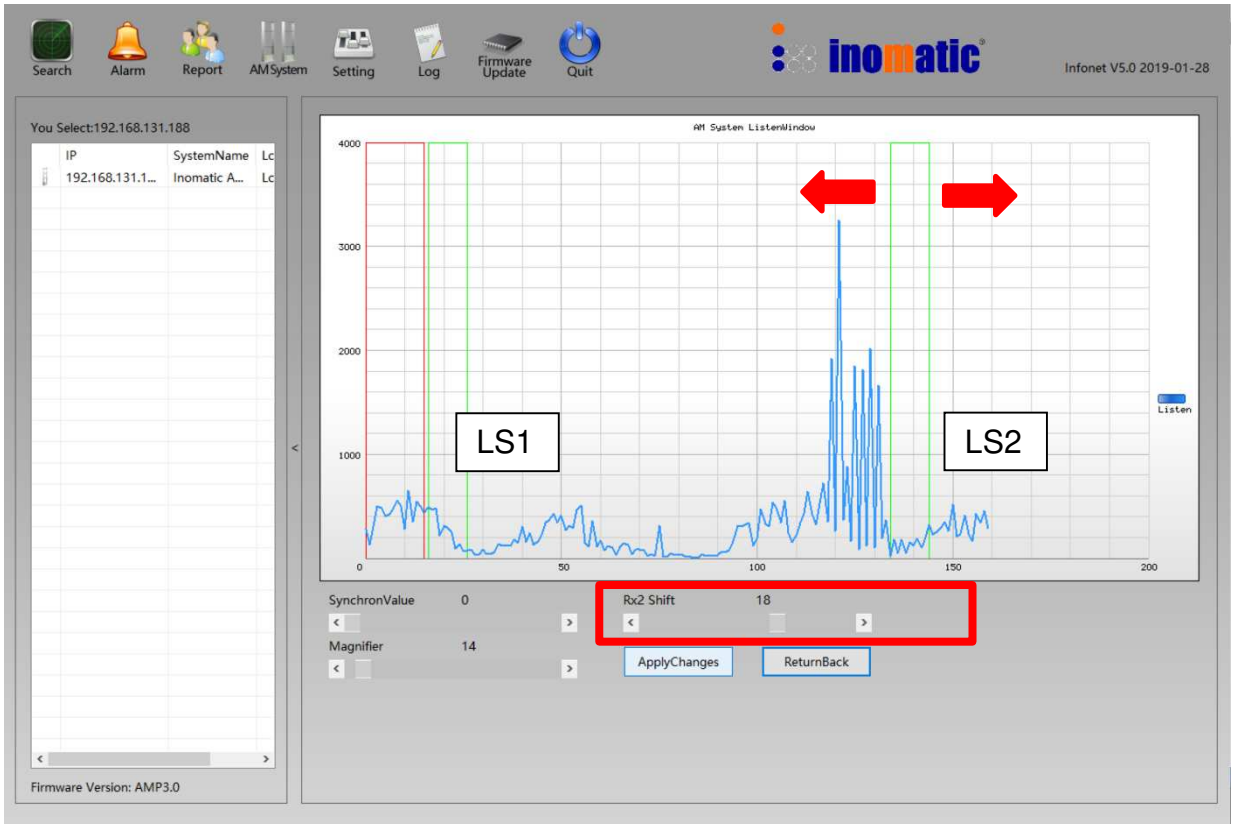
Clicking on the **Synchronization** button will launch the synchronization window. The synchronization window will display TX pulses from nearby AM systems and allows the pulse-shifting of the connected AMTEK system so that the TX pulse does not interfere with other systems.



The default value of the AMTEK TX pulse is at the zero crossing of the mains power supply (0). If two or more systems are at the same main-power phase, synchronization is not necessary as all TX pulses start at the zero-crossing of the respective phase.

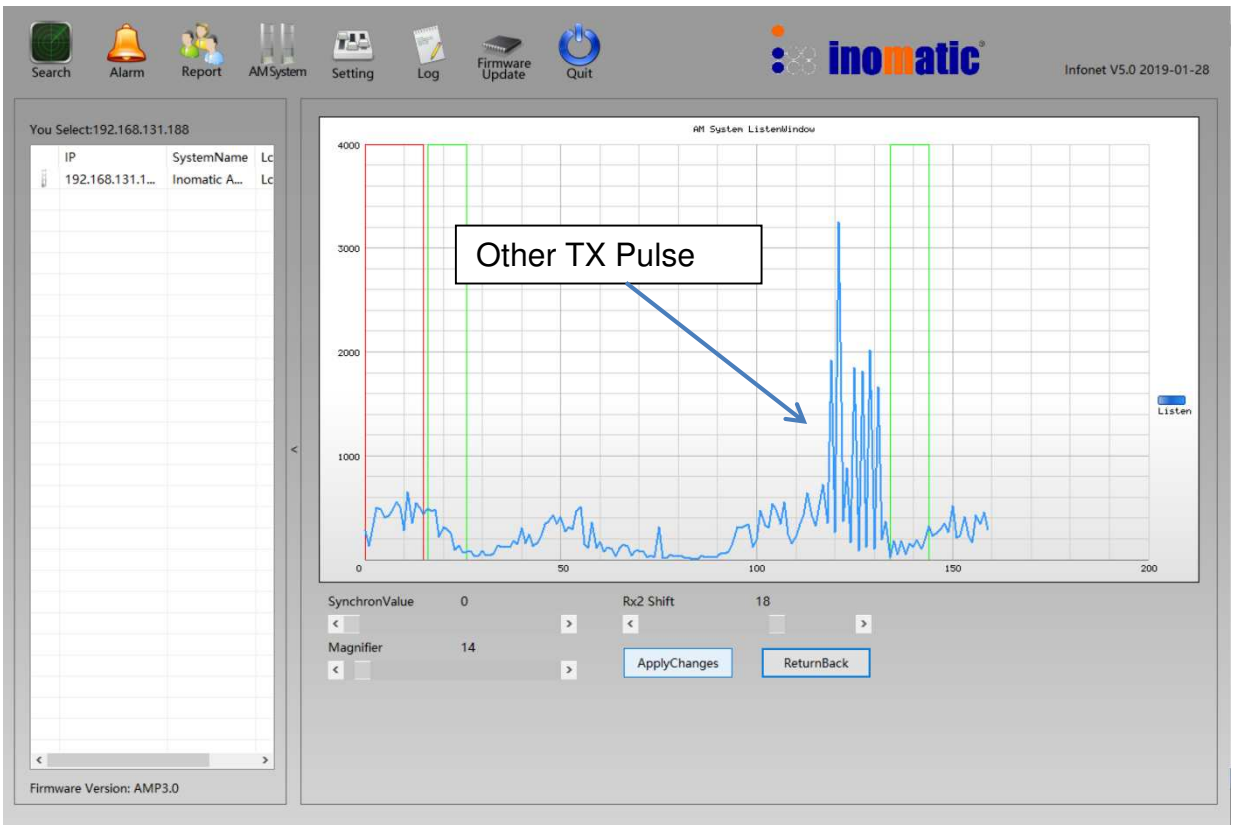
The red bar inside the graph shows the TX pulse and the green bars show the Listening Windows position of the AMTEK system which is connected to the computer within one period of the mains power (20ms @ 50Hz). The position can be changed by the slide bar in the lower part of the window from 0 to 160. To apply the Changes click on the ApplyChanges button.

The latest firmware AMP 3.0 in combination with infonet V5 allows the shifting of the LS2 (Rx2) to ensure that the LS2 is also in a low noise area.



InfoNet V5 has also a **Magnifier function** to enlarge the received signal/noise display To better position the LS1 and LS2. Selelct magnification and click on “ApplyChanges”.

It is advisable to set LS2 in an area where the noise level is about the same as the LS1 noise level.
If the LS2 has lower noise than the LS1 then the signal will be more volotile and higher which can trigger false alarms.
If the LS2 has higher noise than the LS1 the noise bars (tuning window) will be higher which will result in a higher threshold but unlikely to trigger any false alarms.



The “synchron window” will show all 58kHz signal/noise (blue line) received by the AMTEK Receiver antenna. TX pulses of other EAS Systems mostly appear as a non-changing high signal level over some milliseconds as can be seen in the above picture.

The AMTEK TX pulse (red bar) and Listening windows LS1&LS2 (green bar) should be shifted to a position where:

A.) There is no other system TX pulse or to be aligned with other TX pulse

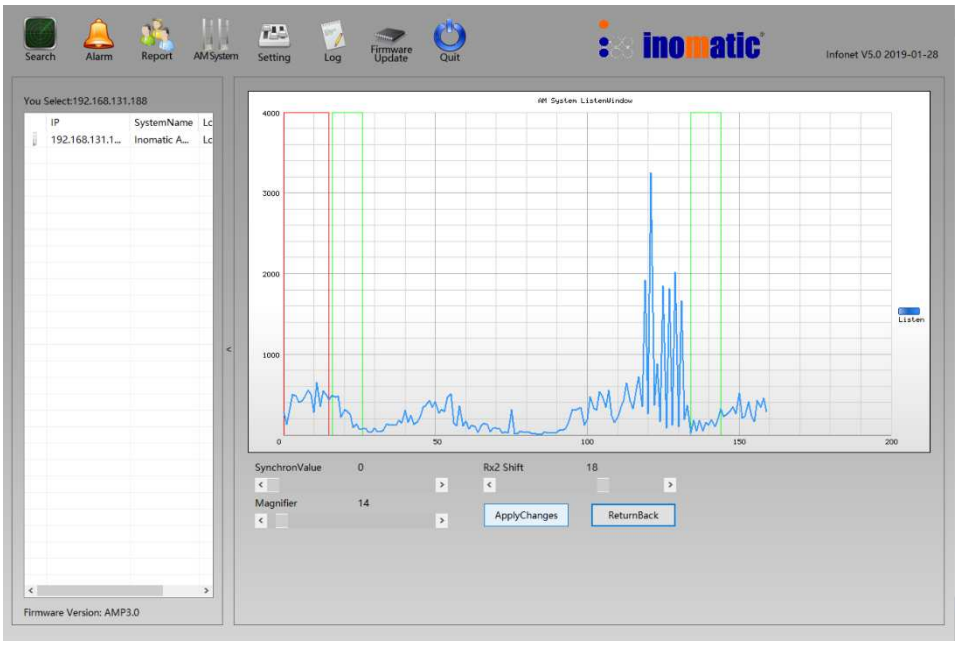
B.) The signal level (blue line) in the Listening window LS1 is low

C.) The AMTEK Noise window LS2 is in an area with low noise (blue line)

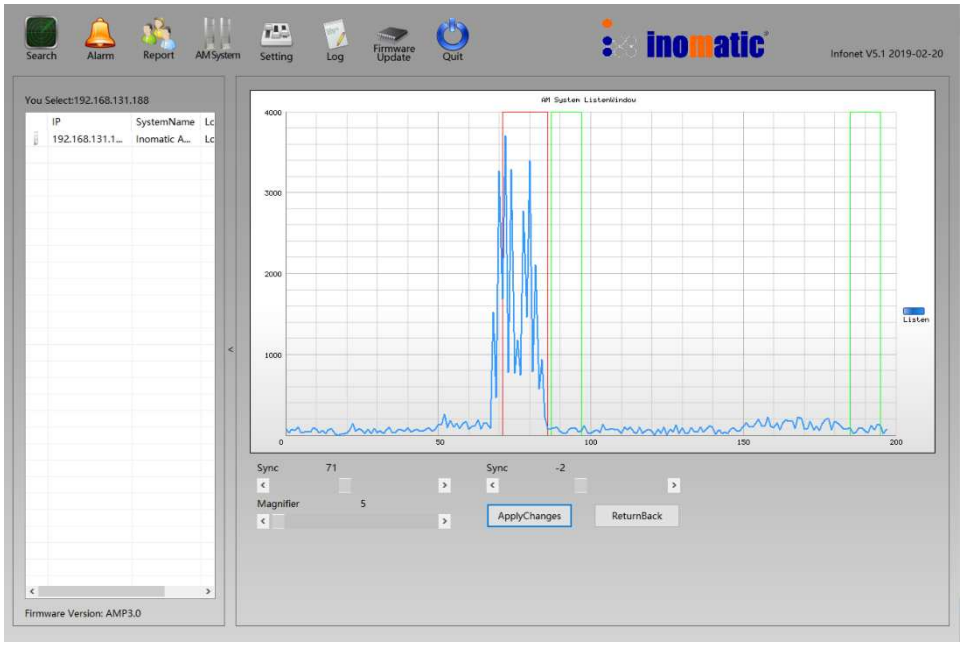
If after shifting the TX pulse, the LS2 is still located in a high signal/noise area shift the LS2 to a lower signal/noise area by using the Rx2 function.

Synchronization examples:

The other system TX pulse does not fall into either AMTEK listening windows ((LS1 or LS2) AMTEK. The blue line (noise) is low in either listening window.



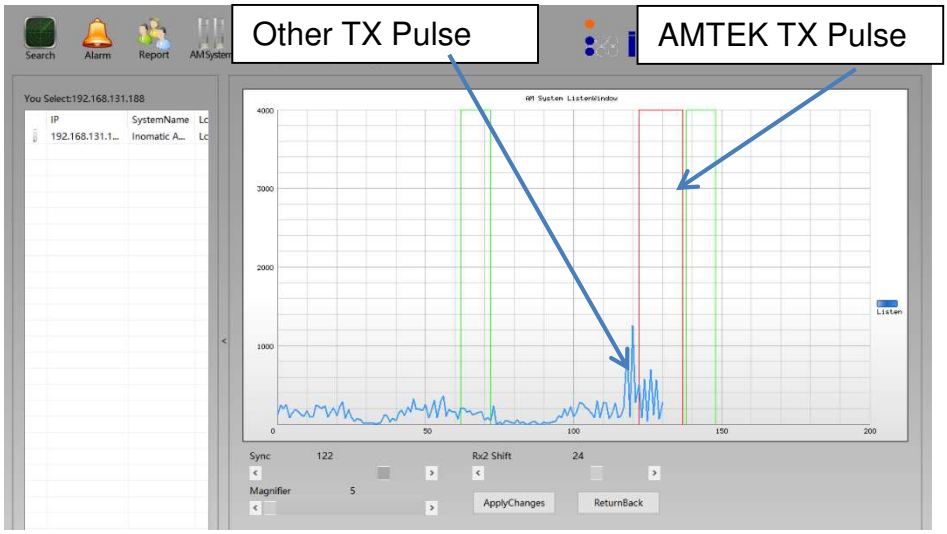
The other system pulse falling edge does align with the AMTEK TX pulse and will not interfere with LS1 → both systems will not influence each other.



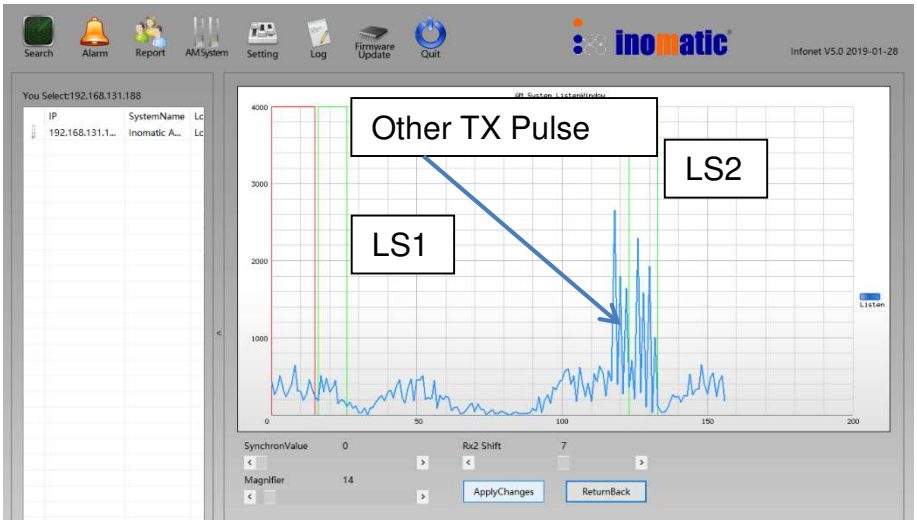
Please note the following situations:

a.) Connected system (AMTEK) influences other system:

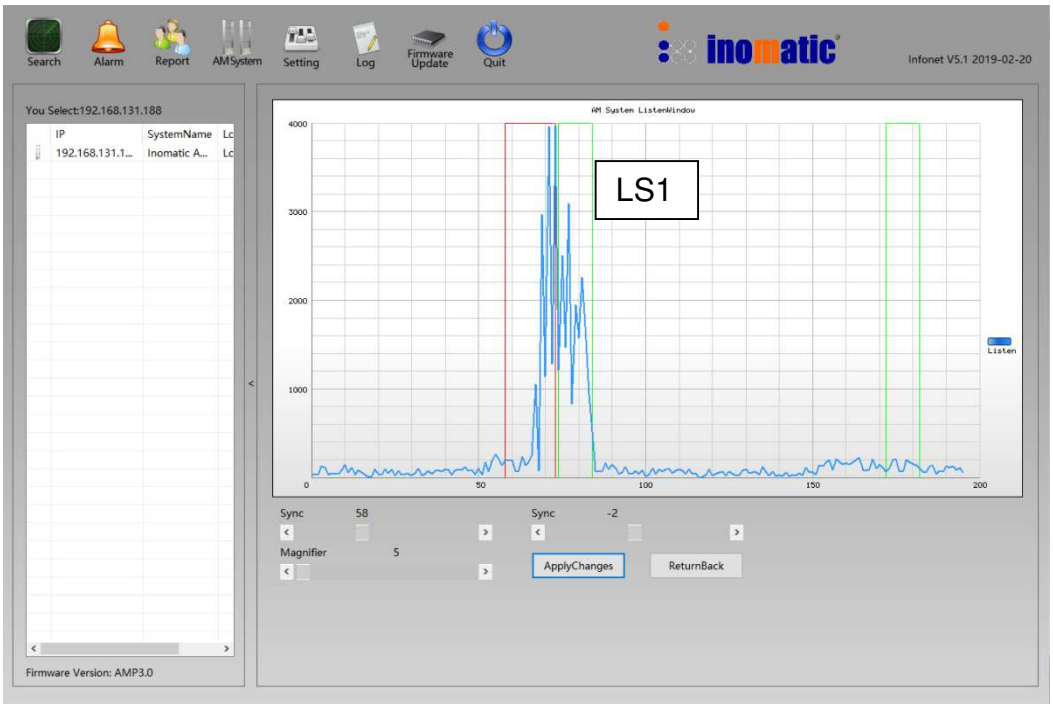
If the connected system's (AMTEK) TX pulse (red bar) is placed during the end of another system's pulse (blue bar) or shortly afterwards, the other system may be influenced by the AMTEK system's TX pulse and may alarm.
Solution→ move away the AMTEK TX pulse or align the AMTEK TX pulse with the other system TX pulse. If the other TX pulse is 1.6ms, select also 1.6ms for the AMTEK TX pulse.



b.) Other system influences the connected system (AMTEK):

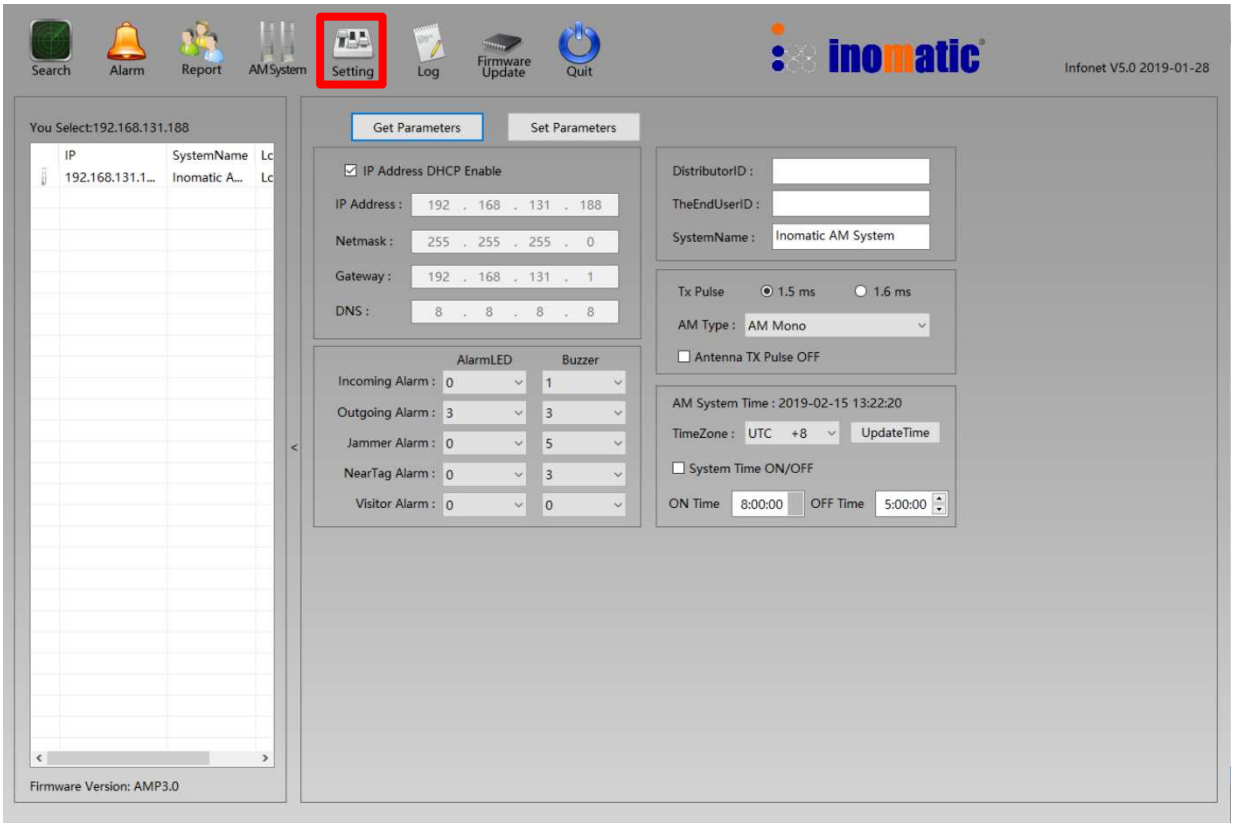


In this case the TX pulse of another system falls into the AMTEK system listening window LS2 and will cause a high noise level and possible false alarms.
The TX pulse of another system should not be near The LS1 or LS2.
Solution → Move AMTEK TX pulse so that LS2 is out of the other system pulse or shift LS2 out of the high noise area using "RX2 shift"



In this case the LS1 falls into the TX pulse of another system. The signal will be high and will possibly trigger false alarm.

6. SYSTEM PARAMETER



If the system is properly connected the system parameter can be retrieved by clicking on "**Get Parameters**". The relevant parameter can be changed. Selecting "0" means this function is "OFF". To confirm the new parameter click on "Set parameter"

6.1 TX Pulse

infoNet allows the setting of the TX Pulse width. Our standard pulse width is 1.5ms but some of our competitors are using 1.6ms. To facilitate easier synchronization with 1.6ms systems set the system pulse width to 1.6ms.

infoNet can **switch-off the TX pulse** by clicking on the relevant square. This could be useful to determine potential noise sources.

6.2 Selection Mono/TX antenna

The processor board V7.4 can be operated as Mono or TX board.
The selection can be facilitated via **infoNet**

6.2 System time

The Pro-Line electronics is equipped with a real time clock.
By clicking on “UpdateTime” the real time clock will be synchronized with the connected computer time.

By clicking on “System Time On/OFF” the system will automatically switch ON and OFF at the preset times (ON Time , OFF Time)

6.3 Selection of Alarm sequence

Incoming Alarm: this function requires the system to be equipped with the optional Visitor counter. Depending on the setting an incoming alarm will be indicated (LED and Buzzer).

Outgoing Alarm: Depending on the setting an outgoing alarm will be indicated (LED and Buzzer). If the system has no optional Visitor counter, the outgoing setting will apply for all types of alarm.

Jammer alarm: Depending on the setting a jammer alarm will be indicated (LED and Buzzer)

Near Tag alarm: Depending on the setting a near tag alarm will be indicated (LED and Buzzer)

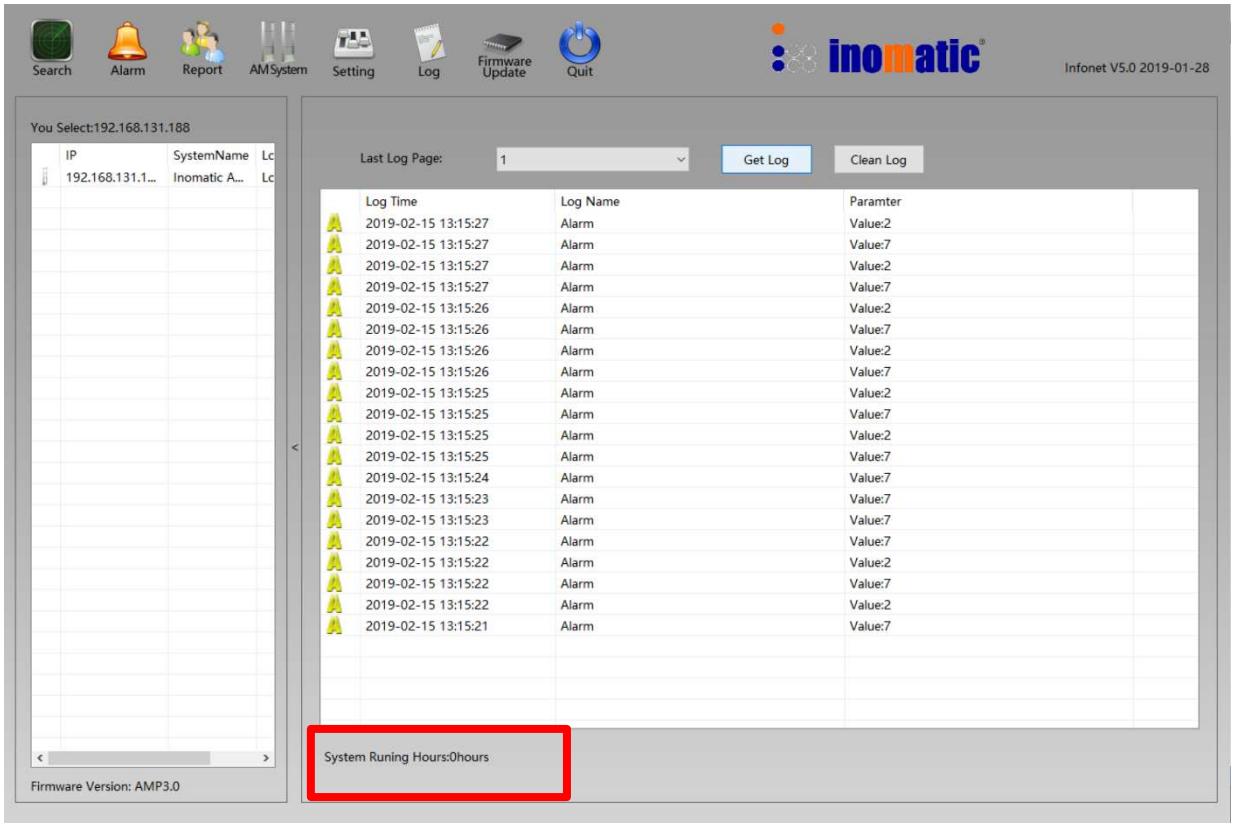
Visitor alarm: Depending on the setting, a person passing through the aisle will be detected and can be indicated by the LED and Buzzer.

All new systems are equipped with a flashing power-LED in the top light which indicates the system is running.
For acrylic systems the blue color indicates that the system is running and the red LED indicates Alarm

6.4 Default system parameter

Parameter	Default value	Note
Mode	Automatic	
Threshold	Level 1	
Gain	NA	
Gain in Manual Mode		Set to 150 and check performance
DelayValue	0	
Synchron Value	0	Allows the shifting of the TX pulse
Alarm Sequence	3	
Jammer alarm	0	
Near Tag alarm	0	
Visitor alarm	0	
Mono/TX selection	Mono	
Antenna TX ON/OFF	ON	
AM System time		Same as computer time
ON/Off system	OFF	Depends on shop operation hours
Mono/TX pulse	1.5ms	

7. SYSTEM LOG



The Log window displays any parameter change to the system and alarms at the time they occurred.

Log Type, let you select the type of information you like to see:

a.) All
b.) Parameter Change
c.) Alarms

Clicking on “Get Log” will update the Log-information.

The log file can also be retrieved via remote service (**infoNet-Cloud**).

The Log file will also display the total number of operational time of the electronics.

8. REPORT

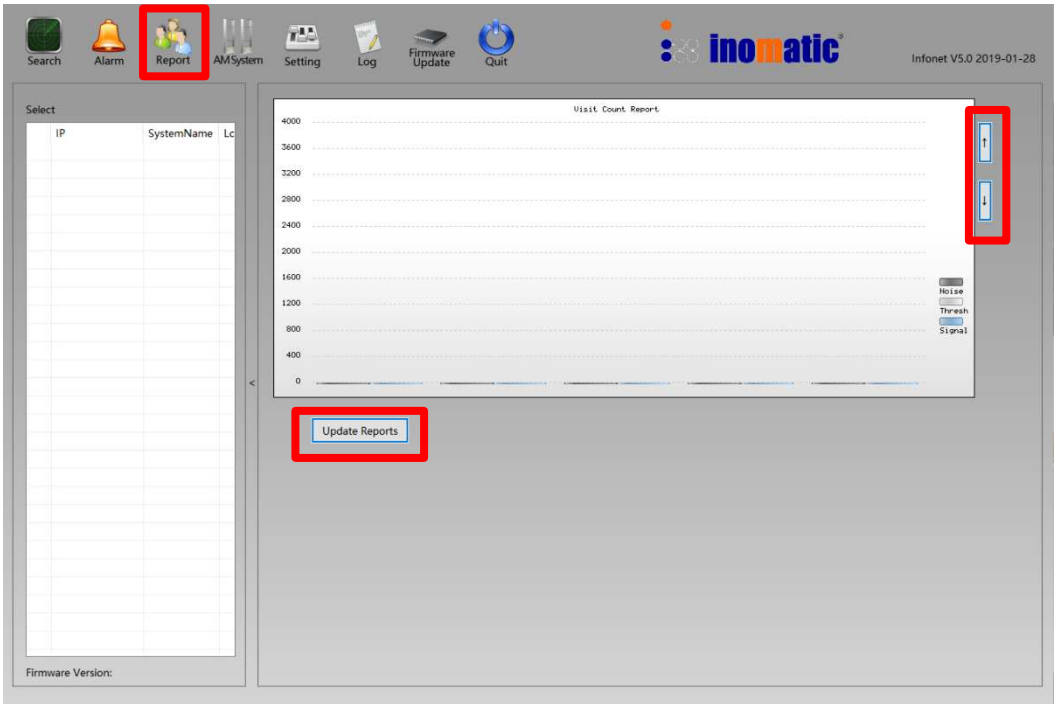
Visitor counter Report

a.) System is equipped with optional integrated visitor counter:

- Visitor chart will display the hourly number of incoming and outgoing visitors for the day shown on the chart.
- If IN/OUT alarm is enabled, different Light or sound sequence can be set for incoming and outgoing alarms in the setting window. For unidentified alarms the top light will continuously blink but no sound.
- If IN/OUT alarm is disabled, the Light or sound sequence will follow the settings for outgoing alarm regardless of incoming, outgoing or unidentified alarm. The alarm chart will still display incoming, outgoing and unidentified alarms.
- Click on “Change Visitor Direction” will change the direction of the counting. (IN direction change to OUT direction and vice versa)

b.) System is not equipped with optional integrated visitor counter:

- No visitor chart will be displayed



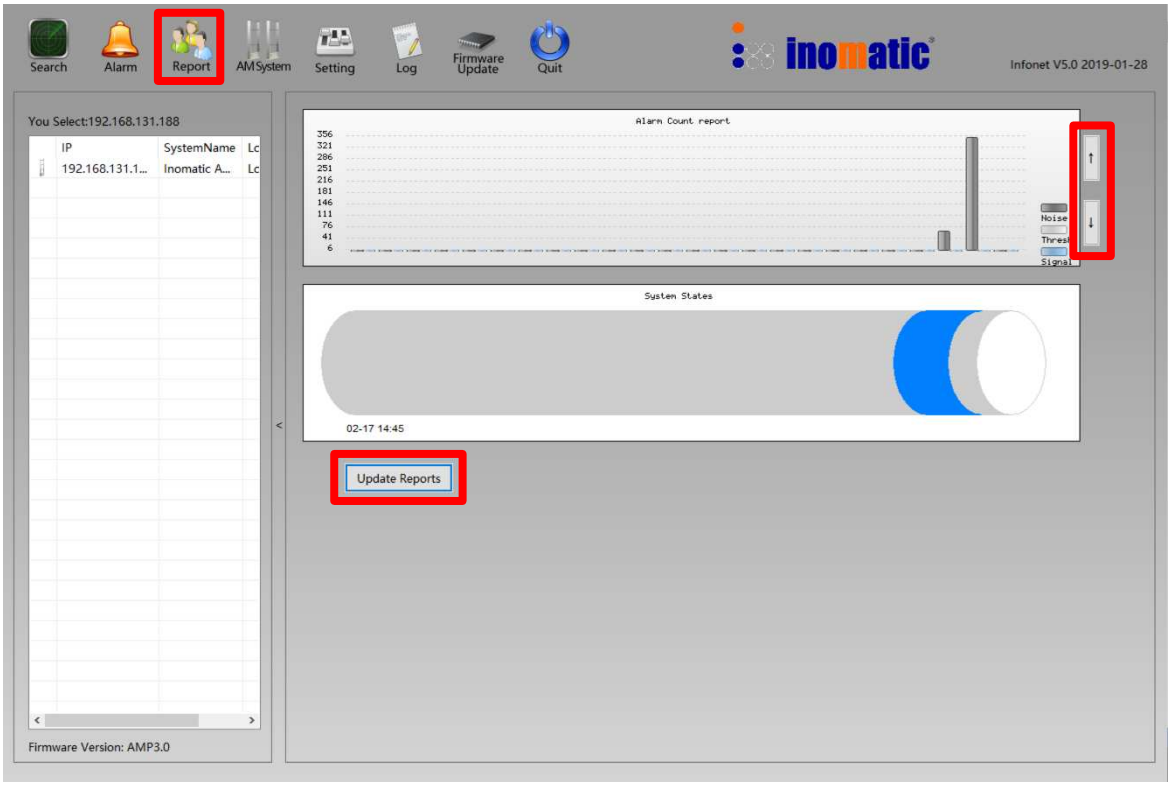
Select Alarm Counter & Status report

1.) Alarm counter Report

The Alarm counter report shows the number of alarms per hour for the current day only. If the system is connected to LAN and to **infoNet-Cloud**, daily, weekly, monthly and yearly alarm reports can be retrieved.

2.) System Status Report

The System Status report shows operational hours of the system for the current day only. If the system is connected to LAN and to **infoNet-Cloud**, daily, weekly, monthly and yearly System Status reports can be retrieved.



Select Alarm Counter & Status report

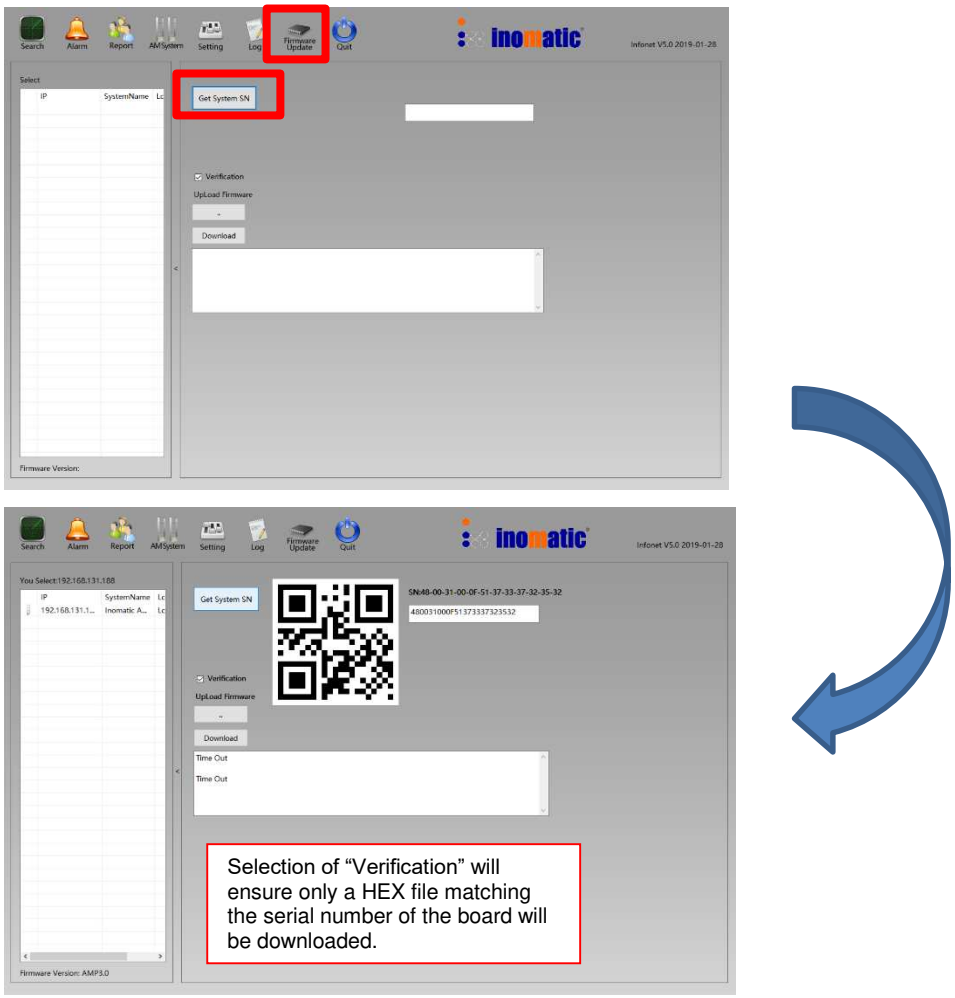
9. FIRMWARE DOWNLOAD

9.1 Get Serial number of the board

The firmware download function enables down-loading of a new firmware (HEX file) to the system (TX/Mono board) via the LAN port (V5, V7)

1. Run **infoNet** V5.exe → connect to the system and go to Firmware Download

   As all our firmware is encrypted, we have to know the serial number of the processor board. The number can be obtained by clicking on “Get System SN”.



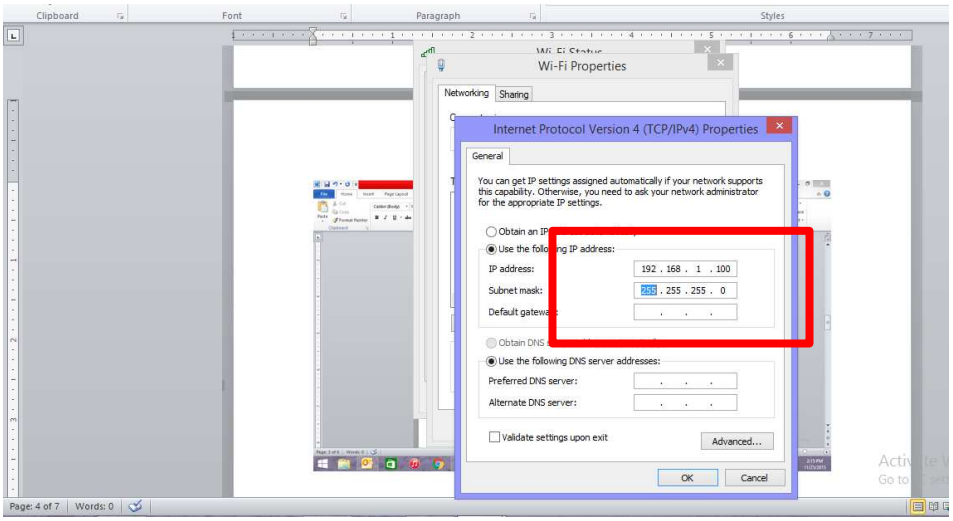
1.) Send the serial number and type of board (AM processor V7.4, etc.) to Inomatic (service@inomatic.com or skype service_inomatic).

2.) Our service department will send you the encrypted firmware HEX file which you need to down load to the board.

3.) Save the firmware on your computer desktop. The firmware will only run on the board with this particular serial number. It cannot be used for any other board.

9.2 Down-loading procedure

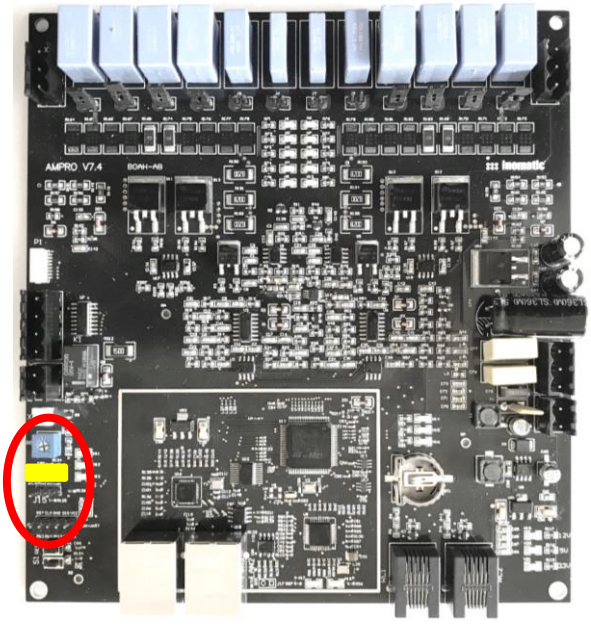
1.) To communicate with the board in the **“down load mode”**, the IP address setting of the computer has to be changed to: **192.168.1.100** using Microsoft Windows network setting (see also chapter 12 C.)



2.) The system board is connected to the computer via LAN cable and the system is powered-up.

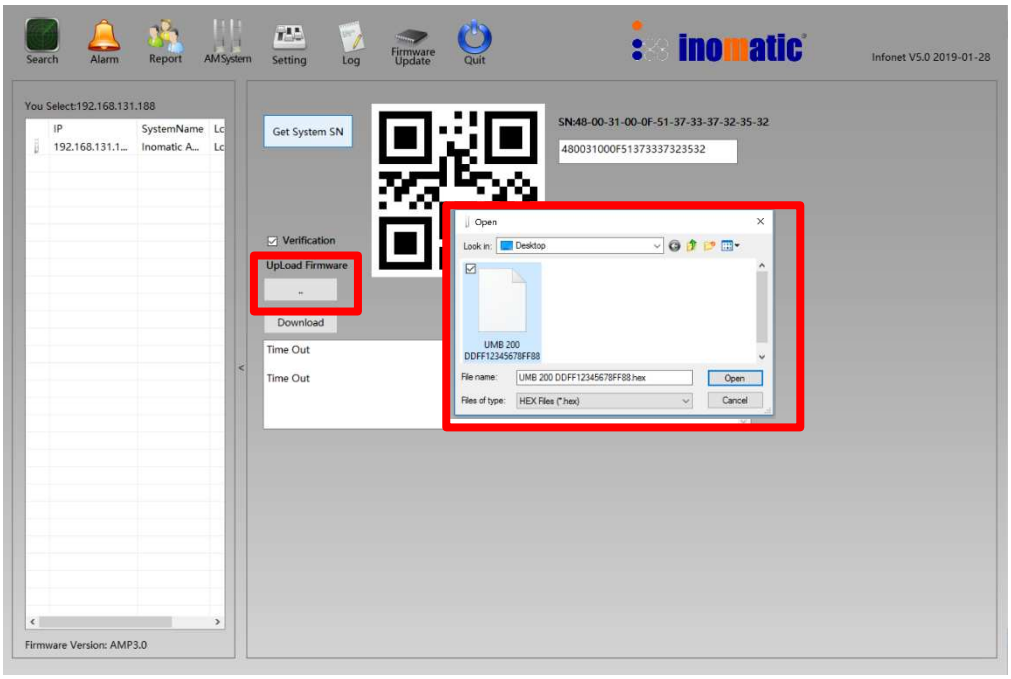
3.) Insert Jumper J14

V7 TX or Mono board



4.) Press the “RESET” button

5.) To down load the firmware click the button [..] to choose the “.hex” file location and to select the HEX file.



6.) Check whether the hex file name is the same as the serial number of the board. Then click the button “download”, [Download] If successful, a window will pop up with displaying “Download Firmware Successful!

7.) Remove Jumper 14

8.) Reset the system by pressing “RESET” button

9.) Check the indicator LEDs

H17: flashing, H18 ON Network data
H15: flashing with the frequency 1 Hz → system running indicator
H14: ON if connected to internet
H16: Master/Slave indicator → Master ON, Slave OFF

10. REMOTE SERVICE/TUNING

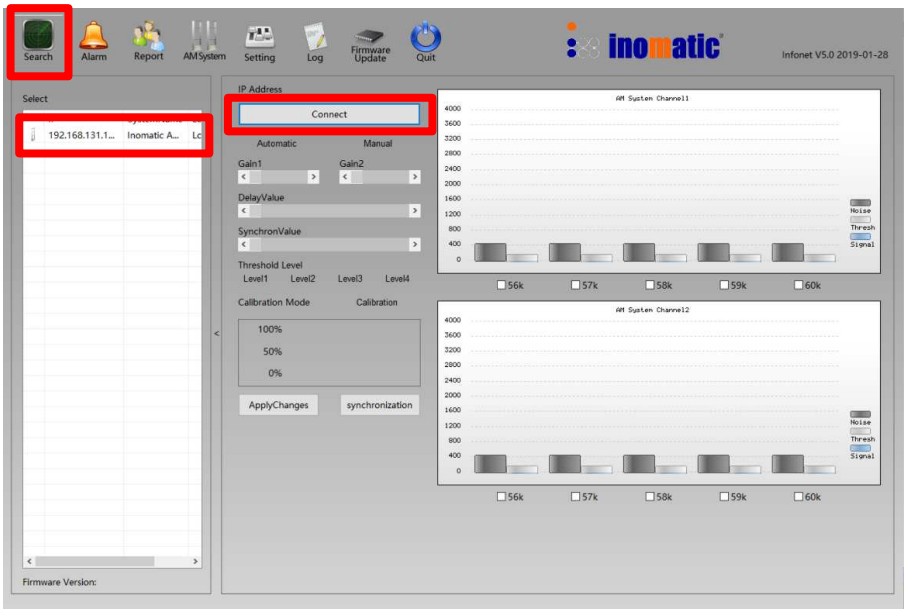
10.1 Connection within the intranet (shop LAN)

If the computer and the system are connected to the same LAN network simple start **infoNet** V5 and click on “Search”

➔ **infoNet** will display in the upper left corner of the IP numbers of systems connected to the Intranet as well as System Name and Location

➔ Click on the relevant system IP address

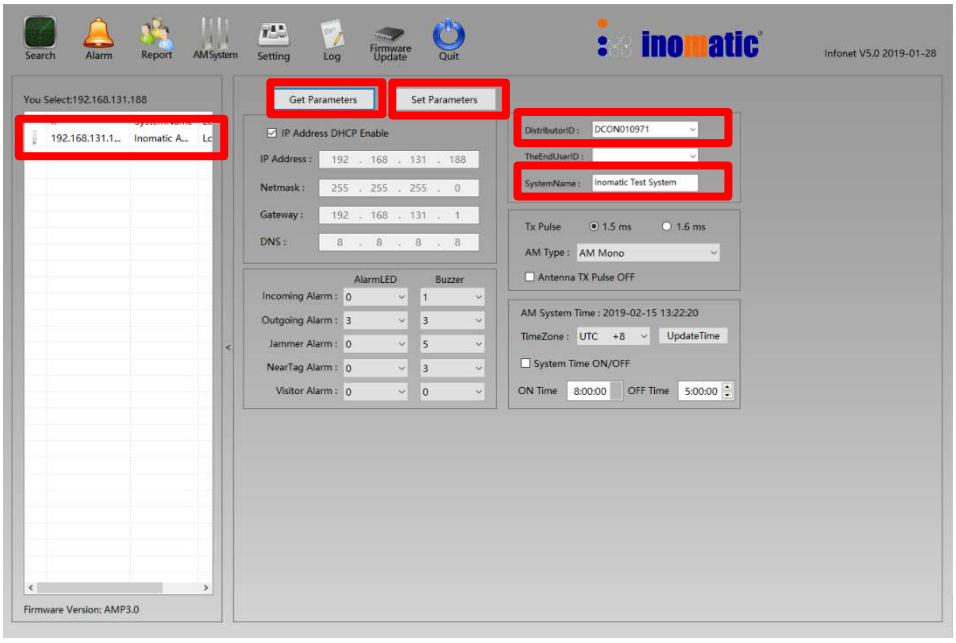
➔ Click on Connect



To enable remote service, the system parameters have to be set during installation.

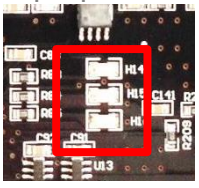
Setting of the parameters:

a.) Connect the board via LAN cable to the shop LAN
b.) Connect the computer to the shop LAN via WIFI or LAN cable
c.) Run **infoNet** V5
d.) Click “Search” → IP address of the board will be shown
e.) Select IP address
f.) Click “Setting”
g.) Click the button “Get Parameters” 



h.) Enter Distributor / Enduser ID and system name
→ Distributor / Enduser ID will be provided by Inomatic
i.) Click on “Set parameter”
j.) Now can proceed with tuning if necessary or Quit **infoNet**

If proper connection with the LAN is established H14 will light up



H14 On→ Internet connection ok
H15 blinking → processor running
H16 Master/Slave indicator

In case H14 is not “on”, there is no connection to the **infoNet-Cloud** ,
In this case the **infoNet** Cloud server could be down or the Gateway address acquired automatically is wrong. Check with your IT department.

10.2 Connection via infoNet-Cloud

Prerequisite:

To facilitate remote service via the internet, the relevant system (processor board) has to be set with the distributor's parameters (Distributor ID and system name). Please ensure that has been done during the installation of the system and that the system is connected to **infoNet-Cloud** (H14 on).

Alternatively go to your web browser and connect to **infoNet-Cloud** website (www.infonet-cloud.com)

If the system is set-up with your Distributor ID and your log-in data are correct the system can be tuned remotely (see **infoNet-Cloud** manual for further information)

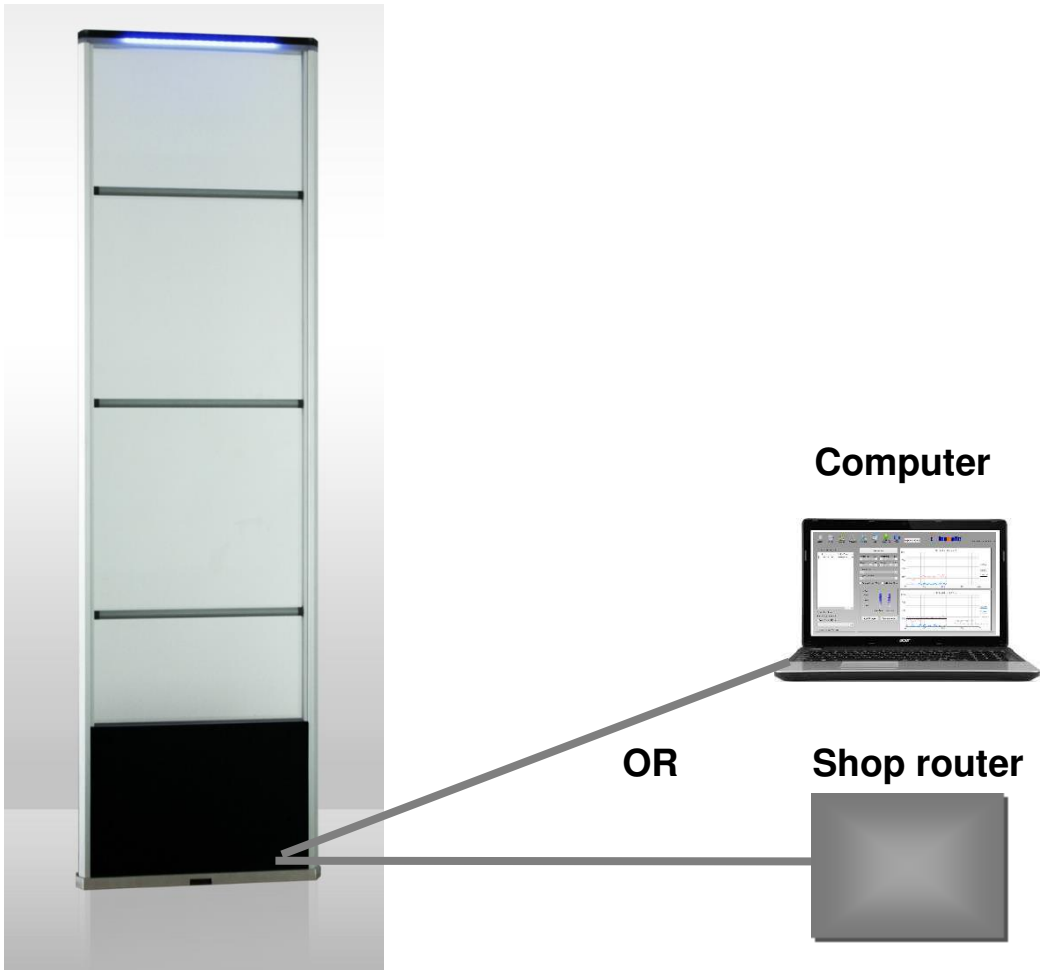
For systems with optional visitor counter, the Enduser ID need to be set also. Log-in to infoNet cloud with the Enduser ID will only give access to the visitor counter reports, no remote tuning is possible.

11. QUIT 

Click on the Quit button, it will close **infoNet.**

12. ROUTER / COMPUTER SETTINGS

a.) LAN connection

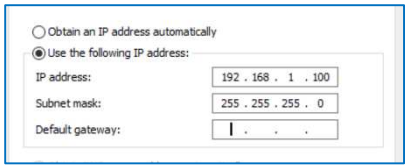


b.) Router setting

No setting of the router is required as the board follows the DHCP protocol and will get all the relevant parameter from the router.

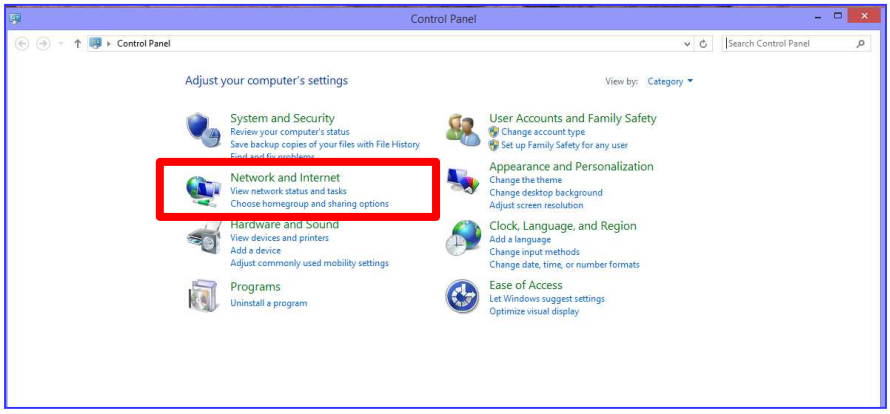
c.) TCPIP setting of computer (if necessary)

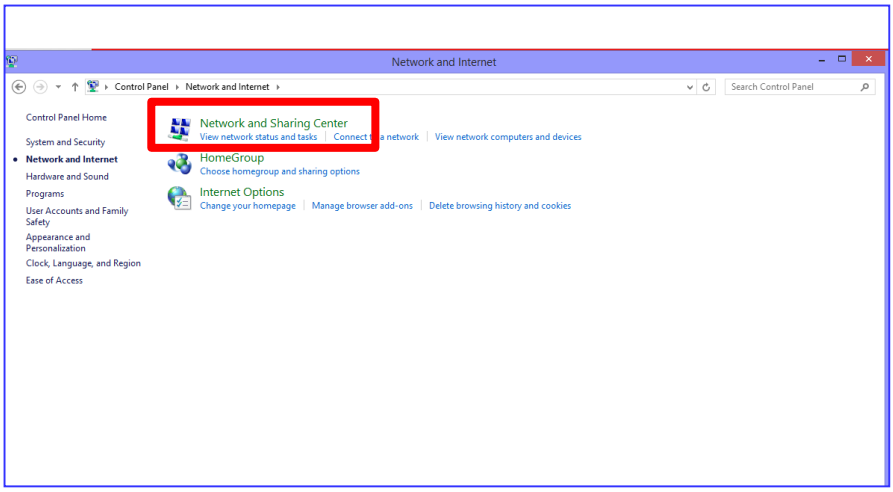
If the computer is directly connected to the AM TX V7 board it may happen that the board cannot detect a valid IP address and therefore the connection to infoNet will not be established. In this case follow the procedure below to set valid IP address in the computer. → **Any valid IP address will do**

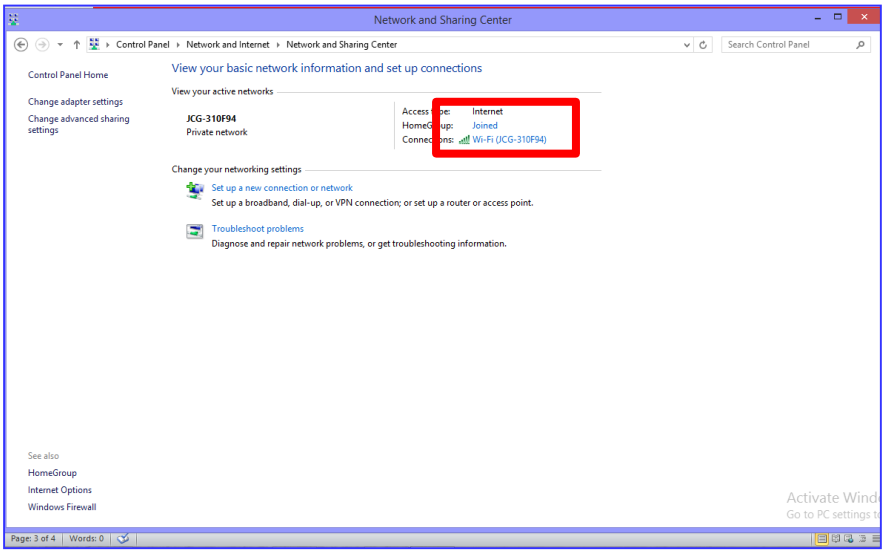


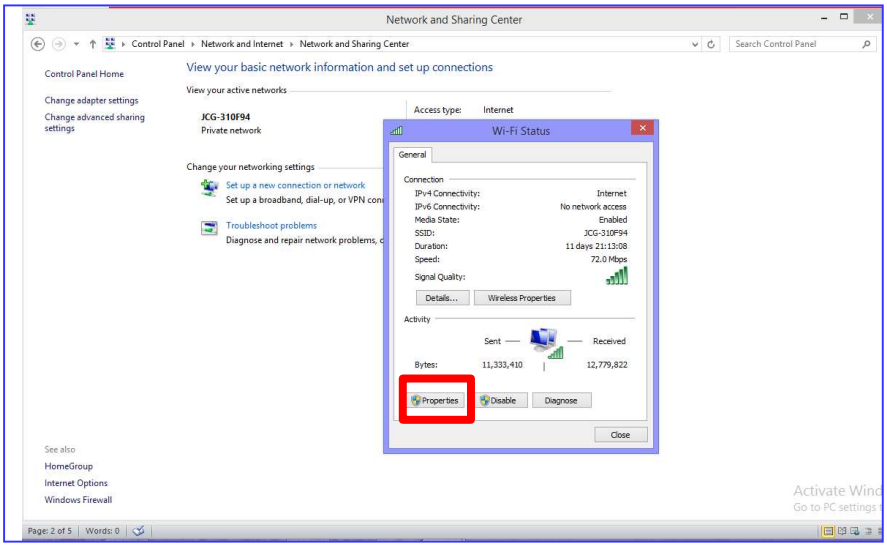
If the TX V7 board is connected to the router (LAN) and the computer is connected to the LAN (WIFI), the computer will be assigned a valid IP from the router (DHCP) and can directly communicate with the system. **No settings of the computer is necessary**.

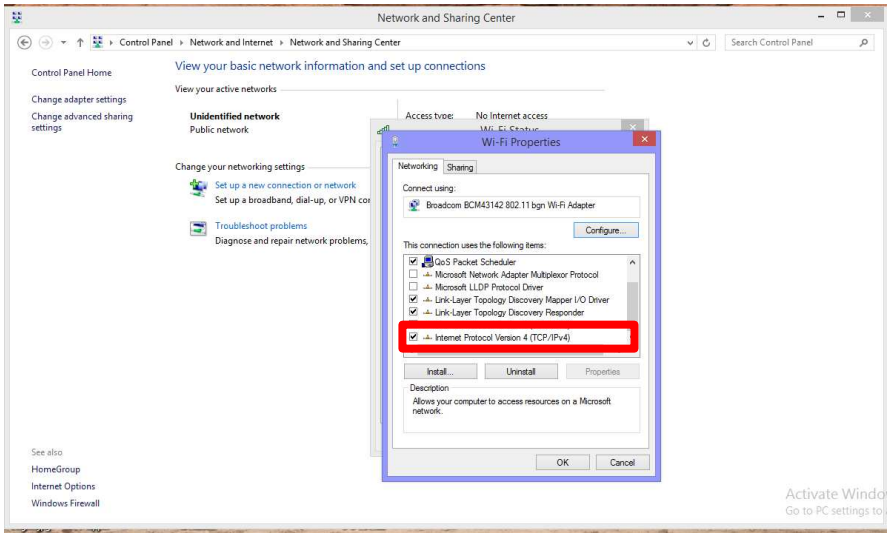
Setting of valid IP address in the computer:

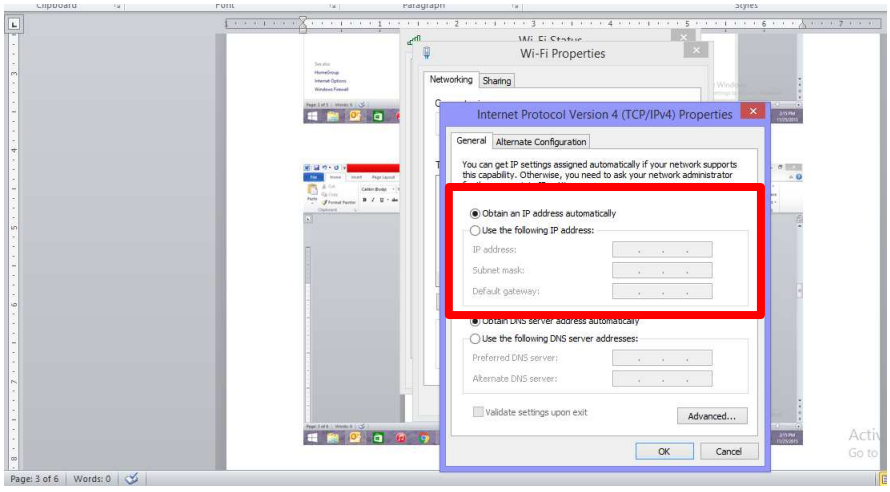




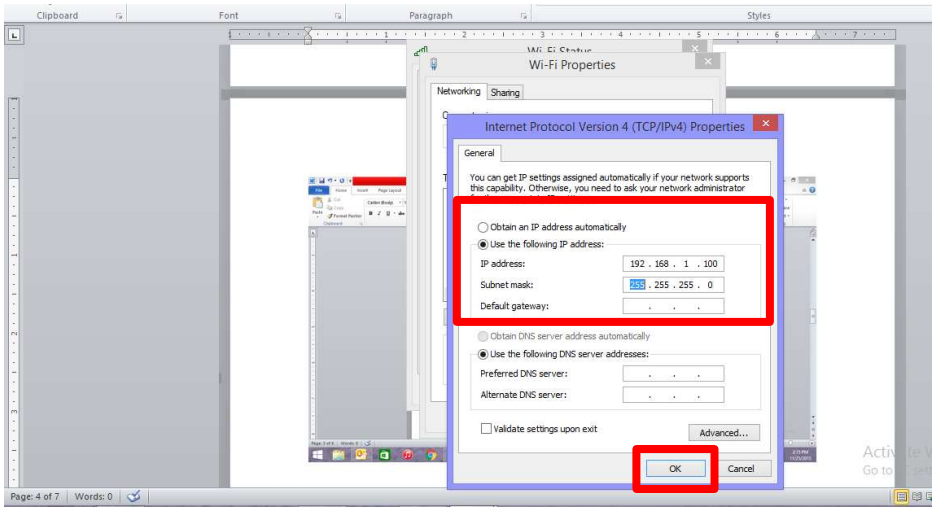



Network and Sharing Center
Control Panel ▸ Network and Internet ▸ Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
View your active networks
JCG-310F94
Private network
Access type: Internet
Change your networking settings
Set up a new connection or network
Troubleshoot problems
Wi-Fi Status
General
Connection
IPv4 Connectivity: Internet
IPv6 Connectivity: No network access
Media State: Enabled
SSID: JCG-310F94
Duration: 11 days 21:13:08
Speed: 72.0 Mbps
Signal Quality:
Details...
Wireless Properties
Activity
Sent
Received
Bytes: 11,333,410 12,779,822
Properties
Disable
Diagnose
Close
See also
HomeGroup
Internet Options
Windows Firewall


Network and Sharing Center
Control Panel ▸ Network and Internet ▸ Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
View your active networks
Unidentified network
Public network
Access type: No Internet access
Change your networking settings
Set up a new connection or network
Troubleshoot problems
Wi-Fi Properties
Networking
Sharing
Connect using:
Broadcom BCM43142 802.11 bgn Wi-Fi Adapter
Configure...
This connection uses the following items:
QoS Packet Scheduler
Microsoft Network Adapter Multiplexor Protocol
Microsoft LLDP Protocol Driver
Link-Layer Topology Discovery Mapper I/O Driver
Link-Layer Topology Discovery Responder
Internet Protocol Version 4 (TCP/IPv4)
Install...
Uninstall
Properties
Description
Allows your computer to access resources on a Microsoft network.
OK
Cancel
See also
HomeGroup
Internet Options
Windows Firewall


Wi-Fi Properties
Networking
Sharing
Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel
Page: 3 of 6
Words: 0

If you don’t see any valid IP address type in a valid IP address for example:
192.168.1.100



After setting a valid IP address, connect the computer to the AMTEK V7.4 board and run the infoNet software. Now communication between the board and computer/InfoNet can be established.

13. POTENTIAL PROBLEMS

Although our system hardware and software are designed to deal with a great level of noise, one must attempt to keep the external 58 kHz noise level as low as possible.

Potential noise source are CRT, flat screen and computers, power supply for LED lights, etc. Some laptop computers are generating quite some 58 kHz noise, if they are running on battery and sometimes even if they run on the mains power supply.

If you get a strong 58Kz noise from a computer or other noise sources nearby, try to move the potential noise source 5 to 7 meter away, which will solve the problem.

Please note that not all functions described in this manual are applicable for Firmware Version AMP 3.0, Hardware AMPRO 700 V7.4.

To further improve our manuals we appreciate any comments. Please send your comments by email to service@inomatic.com