Blue Box MRI Remote Monitoring

This document serves as awareness to hospital or any healthcare provider including free standing diagnostic radiology facilities that monitoring devices installed on MRI equipment is strictly for the use of collecting equipment related performance parameters and data that are further interpreted and analyzed to alert Service Engineers when said parameters are out of equipment manufacturers specifications.
Monitoring devices do not have an operating system and have no capability to collect electronic protected patient health information or patient data.

Device Specifications and Information
- Device processor type: microcontroller ATMEGA2560-16AU or ATMEGA4809
- Device operating system: NA
- Monitoring devices require DHCP internet connection.
- IP addresses can be configured and assigned to monitoring devices.
- Device comunicación protocol: TCP IP using plain text POSTs non encrypted
- Device connects to on of the following server:
    a. www.blueboxsense.com or 209.235.70.35
- Device outgoing data communication port: 80
- Device incoming data communication port: 80
- Device MAC addresses on label on device

Device connection process
- Step 1. Connects to IP address www.blueboxsense.com or 209.235.70.35
- Step 2. After successful connection to server, box sends a plain text POST with the box name to server and waits for server acknowledgement response.   If the box can't connect to the server the box will give Device error 2 message on screen. If device connects next step happens
- Step 3. Server response will be a registered signal or unregistered signal. The server does not come back to the box to make changes.
- Step 4. If the response from the server is a registered signal, the box will connect to the server and start sending readings as a plain text POST, it will display current readings on screen. Otherwise it will show on screen an unregistered box message, and will try to reconnect to the server after a few minutes. See Device error 4
- Step 5. After connecting to the server successfully the box will be sending readings as a plain text POST to the server every 10 or 15 minutes, if the box loses connection to the internet it will auto restart after a few minutes to try to reconnect again to the server.

Device errors
1. dhcp ERROR Restarting - Failed to configure Ethernet using DHCP.
- Check if the network cable attached to the box is connected to a device (modem, router, server) that can assign IP addresses via DHCP.
- If no DHCP available on site, assign an IP address, Gateway address, DNS address and Subnet address to the box manually, verify that the assigned IP address has internet access via Gateway address.

2. Check Internet Connection - No Internet, Restarting.
- Verify network cable attached to the box has internet access.
- If an IP address was assigned manually, verify IP address has internet access, internet access is given by the Gateway address, verify Gateway address is correct.
- Verify that no firewall is blocking port 80 to the assigned IP address in the box.

3. Check proper ports open IN & OUT. - Internet OK, Restarting.
- Verify that no firewall is blocking port 80 to the assigned IP address in the box.
- Verify that firewall is not blocking the communication between the server listed in Step1 and the box

4. Unregistered BlueBox. Please Call Service.
- Box connected to the server but unregistered
- Call BlubBox to verify that the name of the box you are connecting is registered in the BlueBox server.