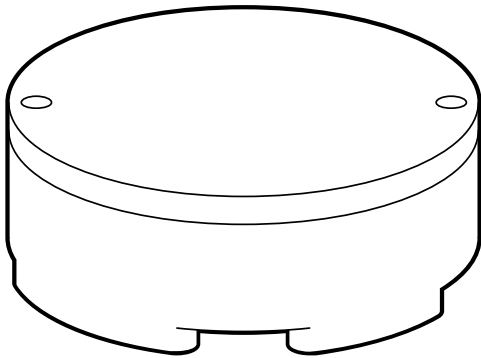


SNOOPER-DP

Installation/Operation Manual

2020.03.27 revision



- Before installing and using the sensor system, please read this manual carefully.
- Be sure to keep it handy for future reference.
- The contents of this manual are subject to change without notice to improve quality.

Safety Information

CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK)
NO USER SERVICEABLE
PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



Warning

This symbol indicates that dangerous voltage consisting a risk of electric shock is present within this unit.



Precaution

This exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

To prevent damage which may result in fire or electric shock hazard, do not expose this appliance to rain or moisture.

WARNING

1. Be sure to use only the standard adapter that is specified in the specification sheet. Using any other adapter could cause fire, electrical shock, or damage to the product.
2. Incorrectly connecting the power supply or replacing battery may cause explosion, fire, electric shock, or damage to the product.
3. Do not connect multiple systems to a single adapter. Exceeding the capacity may cause excessive heat generation or fire.
4. Securely plug the power cord into the power receptacle. Insecure connection may cause fire.
5. When installing the sensor unit, fasten it securely and firmly. A falling sensor may cause personal injury.
Do not place conductive objects (e.g. screw drivers, coins, metal items, etc.) or containers filled with water on top of the product. Doing so may cause personal injury due to fire, electric shock, or falling objects.
6. Do not install the unit in humid, dusty, or sooty locations. Doing so may cause fire or electric shock. If any unusual smells or smoke come from the unit, stop using the product. Immediately disconnect the power source and contact the service center. Continued use in such a condition may cause fire or electric shock.
7. If this product fails to operate normally, contact the nearest service center. Never disassemble or modify this product in any way.
8. When cleaning, do not spray water directly onto parts of the product. Doing so may cause fire or electric shock.

Precaution

Operating

- Before using, make sure power supply and all other parts are properly connected.
- While operating, if any abnormal condition or malfunction is observed, stop using the sensor system immediately and contact your dealer.

Handling

- Do not disassemble or tamper with parts inside the sensor unit.
- Do not drop the sensor or subject it to shock or vibration as this can damage the sensor.

Installation and Storage

- Do not install the sensor in areas of extreme temperature, exceeding the allowed range.
- Avoid installing in humid or dusty environments.
- Avoid installing in places where radiation is present.
- Avoid installing in places where there are strong magnetic fields and electric signals.
- Avoid installing in places where the sensor would be subject to strong vibrations.
- Never expose the sensor to rain or water.

Important Safety Instructions

- 1.** Read these instructions. - All these safety and operating instructions should be read before the product is installed or operated.
- 2.** Keep these instructions. - The safety, operating and use instructions should be retained for future reference.
- 3.** Heed all warnings. - All warnings on the product and in the operating instructions should be adhered to.
- 4.** Follow all instructions. - All operating and use instructions should be followed.
- 5.** Do not use this device near water. - For example: near a bath tub, wash bowl, kitchen sink, laundry tub, in a wet basement; near a swimming pool; etc.
- 6.** Clean only with dry cloth. - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners.
- 7.** Do not install near any heat sources such as radiators, heat registers, or other apparatus (including amplifiers) that produce heat.
- 8.** Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 9.** Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 10.** Only use attachments/accessories specified by the manufacturer.
- 11.** Use only with cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 12.** Unplug this apparatus during lightning storms or when unused for long periods of time.
- 13.** Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



Disposal of Old Appliances

1. All electrical and electronic products should be disposed of separately from the municipal waste in accordance to laws designated by the government or the local authorities.
2. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
3. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

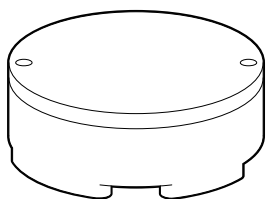
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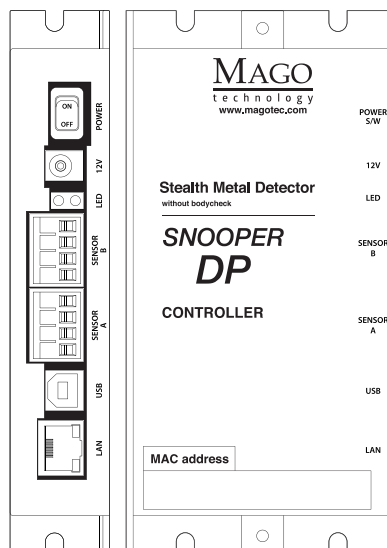
1 Product

* Please check if all the SNOOPER DP system and accessories are included in the package.

1. Sensor Head



2. SNOOPER-DP Controller

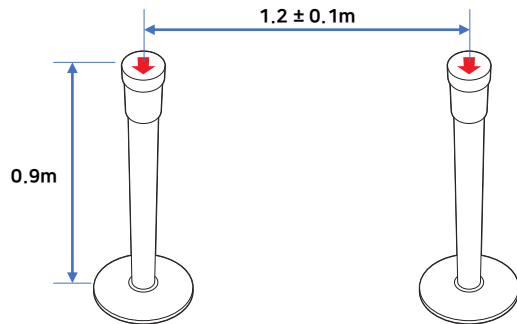


2 Installation of a DP-SNOOPER System

Step 1. Install SNOOPER-DP Sensors

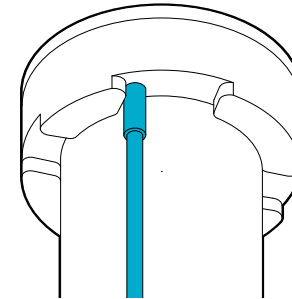
Install two sensor heads of the system on the barrier poles as figure 1.

- Two sensors must be fixed on the solid pillar which is never moved or shaken.
- The setup distance between two sensors is 1.2 ± 0.1 meter.
- The vertical position of two sensor is about 0.9 meter from the floor.



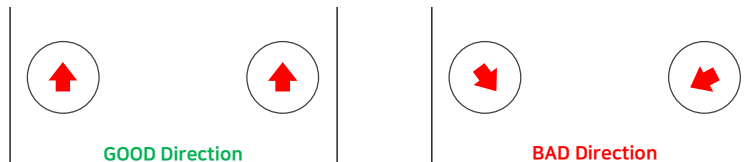
<Figure 1. Installation of two DP Sensors>

- The sensor cable can be hidden inside the pole (figure 3. The cable is pointing down.)



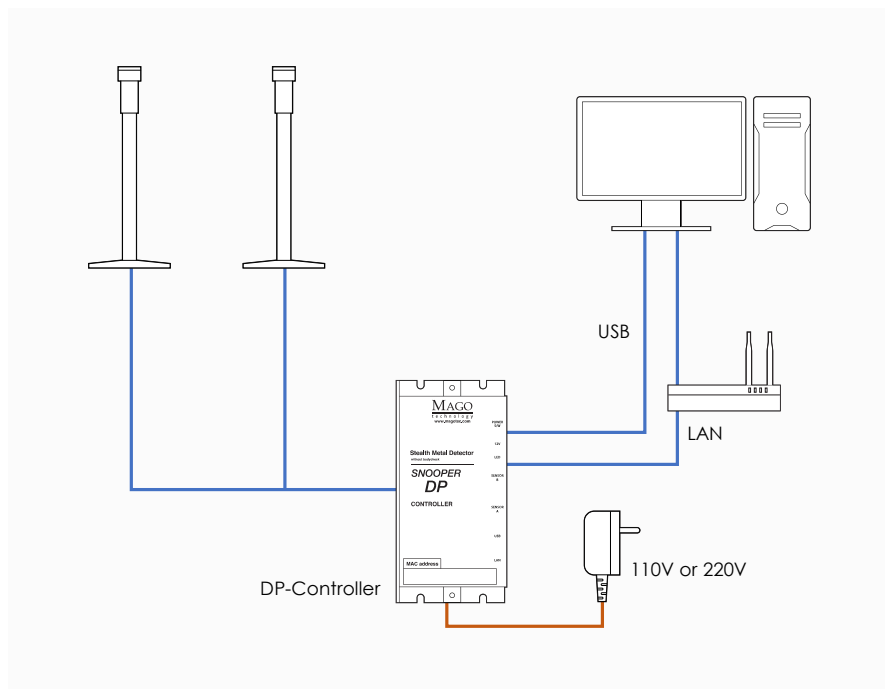
<Figure 3. Bottom of DP Sensor>

- The direction of two sensor heads should be the same toward the passage. (figure 2. Please refer the arrows on the top plate of the sensor.)



<Figure 2. The direction of the two sensor heads>

2 Installation of a DP-SNOOPER System



<Figure 4. System Line Connection>

Step 2. Connect the sensors to the DP controller

There are two sockets for SNOOPER-DP sensors on the controller which named 'Sensor A' and 'Sensor B'. Each sensor should be connected to the socket. Make it sure the power is off while connecting.

Step 3. Connect the DP controller to PC

There are two communication interfaces on the DP controller. One is 'USB interface' and the other is 'Ethernet Interface'. The USB port can be connected with a PC by a standard 2.0 USB cable. The Ethernet port can be connected with an ACCESS POINT by a standard Ethernet cable.

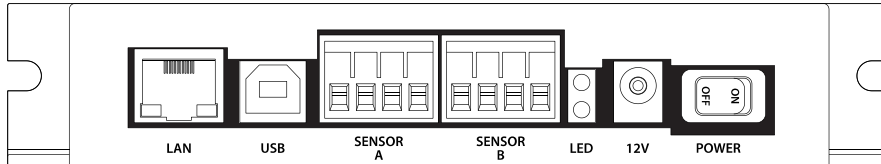
Step 4. Turn on the SNOOPER-DP

- Use 'Power S/W' to turn on the DP controller, and the power LED will be on.
- Two LEDs beside each sensor socket will be on when the sensor is working.

Step 5. Start the DP application on PC

After 'Step 4', user can communicate with the DP-controller by USB interface or Ethernet (please refer section 4.) The SNOOPER-DP Controller send a packet at every specific time. The information of protocol and communication is in another document of 'SNOOPER-DP Protocol'.

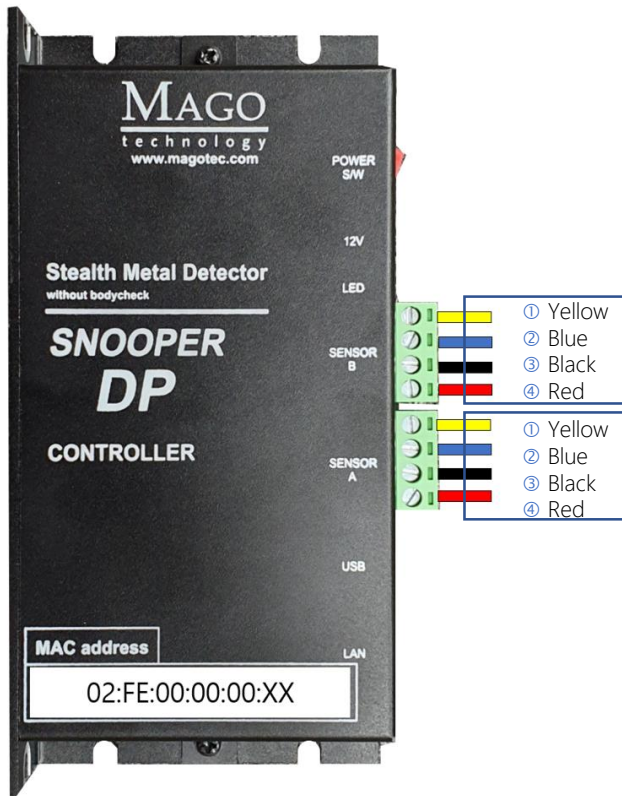
3 Components on a SNOOPER-DP Controller



<Figure 5. Components of a DP Controller>

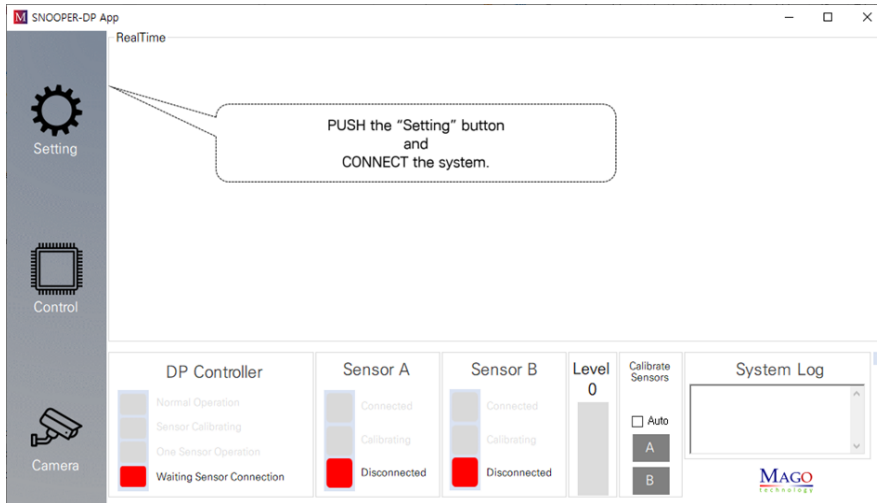
<Table 1. Description of the components on the DP controller>

Name	Description
Power S/W	The switch is to turn on and off the controller.
12V (Power Jack)	User should use DC 12V, 2A adapter.
LED (Sensor A & B)	Sensor LED (the LED near the socket) is turned on when each connected sensor sends data to the controller. Sensor LED is turned off either the SNOOPER-DP sensor is not connected or doesn't send any data to the controller.
Sensor A & B	Each sensor is connected to this socket respectively.
USB & LAN	User can connect with PC using USB or LAN.

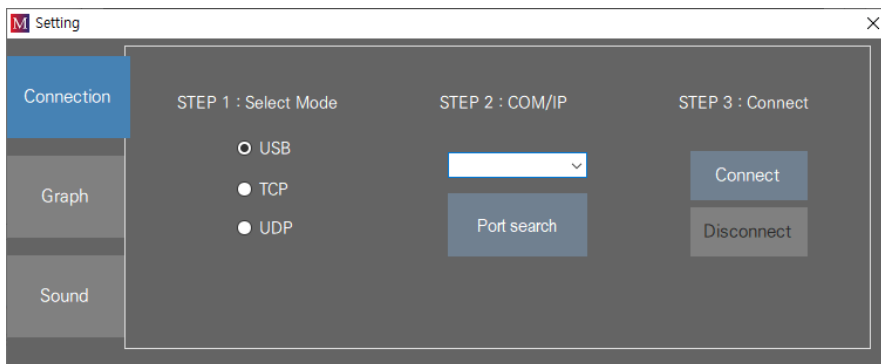


4 SNOOPER-DP App Software

4.1 Connection and Control with the SNOOPER-DP App.



<Figure 6. Components of a DP Controller>



<Figure 7. Screen of the CONNECTION menu>

Step 1. Run the DP application

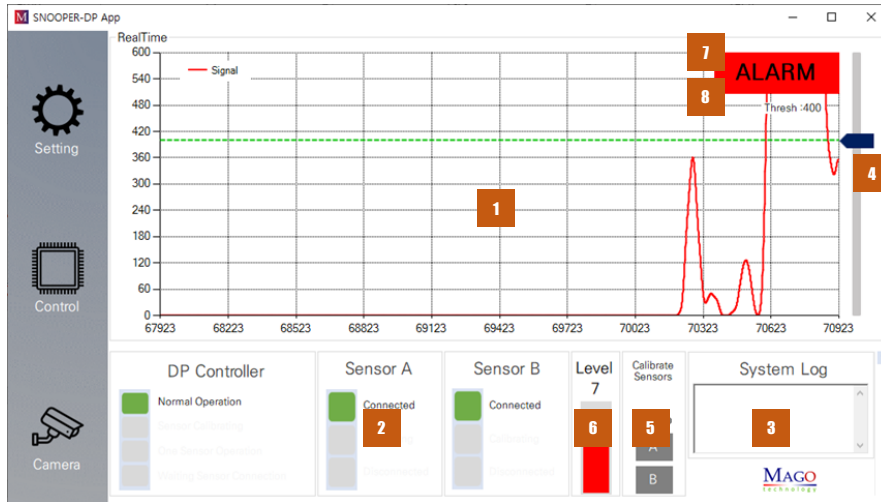
- 1 Run the SNOOPER-DP app on your PC to check the signal from SNOOPER-DP.

Step 2. Set up the connection mode

- 1 Push the "Setting" button and run connection menu.
- 2 For using a USB port, choose the serial port that is connected to the DP system, and press the button of CONNECT.
- 3 For using LAN system, just press the button of CONNECT when you use the default IP address, and if you changed the IP address then modify it and press the button.

4 SNOOPER-DP App Software

4.1 Connection and Control with the SNOOPER-DP App.



<Figure 8. Screen of the MAIN form>

Step 3. Check the main window

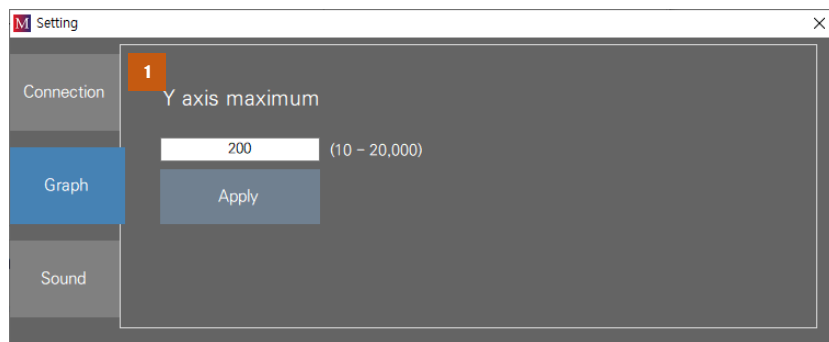
- 1 After all the above setup process, the SNOOPER-DP app. will show the signals from the SNOOPER-DP system on real time.

No.	Name	Description
1	Realtime data graph	The size and position of the target object are shown on this real time graph.
2	State	This box shows all the information of the DP controller and sensors.
3	Log window	Shows all the commands and answers to/from the controller.
4	Threshold control	User can set the threshold value of the graph by dragging the button or double-clicking.
5	Sensor recalibrate	If the system margin is low, user can recalibrate sensors. (If set to Auto, the program will automatically calibrate.)
6	Detection level	Shows the value of the detected object (Level 1-8). (This level is the manufacturer's selection of sections that users frequently use.)
7	Detection Alarm	This box flashes red when the sensor detects an object.
8	Threshold value	It shows the threshold value and can be adjusted by double clicking.

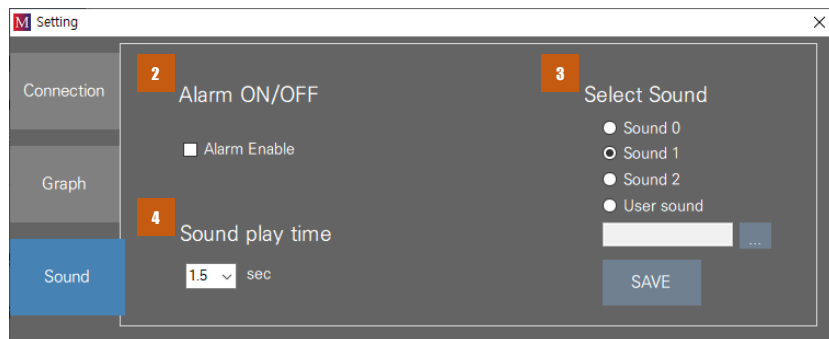
* If the environment is not good, the sensor can perform the calibration arbitrarily even if the user does not set auto check.

4 SNOOPER-DP App Software

4.1 Connection and Control with the SNOOPER-DP App.



<Figure 9. Screen of the GRAPH SETTING menu>



<Figure 10. Screen of the SOUND SETTING menu>

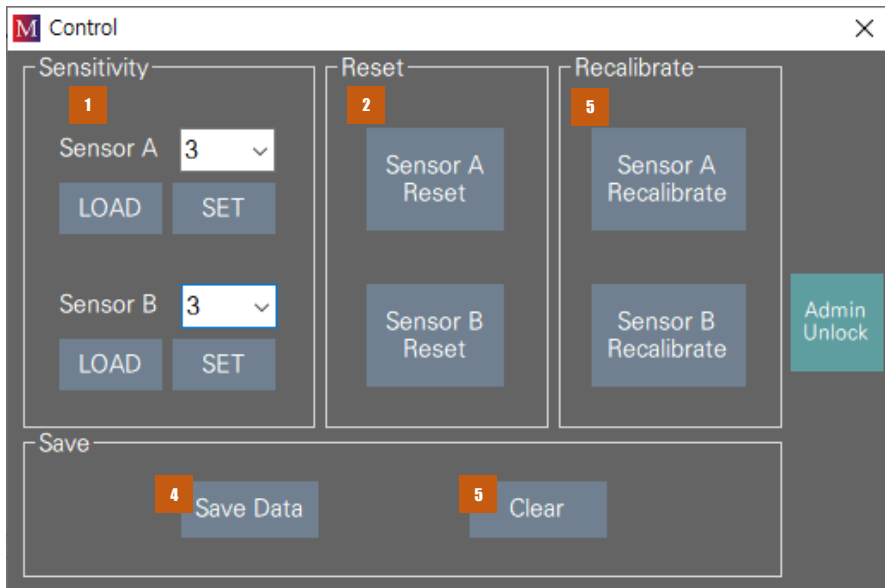
Step 4. Set the user's parameters

- 1 Set the threshold and other parameters as user's needs.

No.	Name	Description
1	Y axis maximum control	Sets the maximum value of Y axis.
2	Alarm Sound Enable	Turn on the alarm sound. User can enable or disable this function. The 'User sound' function allows you to use any wav file.
3	Sound Select	User can select and save the alarm sound.
4	Set play time	Set the alarm operation time.

4

4.1 Connection and Control with the SNOOPER-DP App.



<Figure 11. Screen of the SENSOR CONTROL menu>

Step 5. Control sensors

No.	Name	Description
1	Sensor Sensitivity	Set the sensitivity of each sensor or load. <div> <div>Less Sensitive</div> <div>< 1 2 3 4 5 ></div> <div>More Sensitive</div> <div>↑</div> <div>Default</div> </div>
2	Reset	Reset sensors.
3	Recalibrate	User can recalibrate sensors.
4	Save Data	To save all the stream data to a file(TXT).
5	Clear Data	Clear all of stream data.

4 SNOOPER-DP App Software

4.1 Connection and Control with the SNOOPER-DP App.



<Figure 12.
Screen of the CAMERA menu>

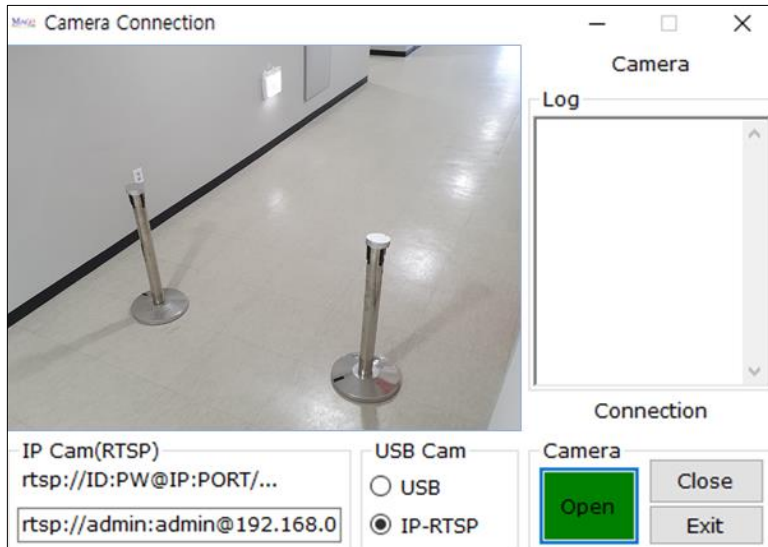
Step 6. Camera setting

No.	Name	Description
1	Camera Connect	Connect to a USB camera or an IP camera.
2	Camera Save	The application will save three of pictures when the output signal is over the threshold if this check box is enabled.
3	Screen Shot	Screenshot camera and graph
4	Open Folder	Open application folder
5	Camera Live	A Live camera streaming is on this area.
6	Camera Capture	This screen shows the pictures taken when SNOOPER-DP data is over the threshold.
7	Graph	Graph captured screen

* Double-click to view the full size of the screen.

4 SNOOPER-DP App Software

4.1 Connection and Control with the SNOOPER-DP App.



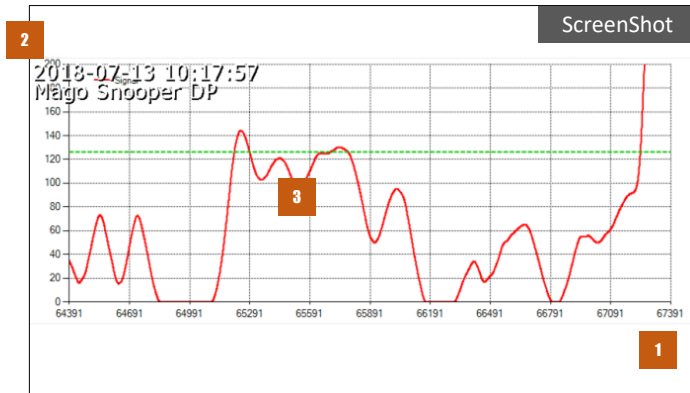
<Figure 13. Camera Connect>

Step 6. Camera setting

- User can connect a USB camera or IP camera to this application.
- This application takes pictures when SNOOPER-DP data is over the threshold.
 - User can see a live picture on the screen.
 - This application takes 3 pictures and a data graph when output is over the threshold (intervals between pictures are 300ms)
 - The captured pictures will be saved by checking 'Save.'

4 SNOOPER-DP App Software

4.2 Signals on Real Time Graph



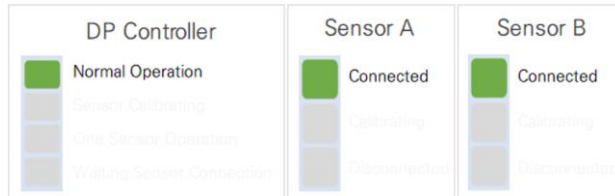
<Figure 14. Signals on Real Time Graph>

Step1. Signals on Real Time Graph

No.	Name	Description
1	Axis-X	It shows time value (one packet period is about 6ms typically.)
2	Axis-Y	It shows sensor data (clicking right button of the mouse is to adjust the scale)
3	The red line	It shows the size of the target object.

4 SNOOPER-DP App Software

4.3 Messages on the STATE Window



<Figure 15. Controller and Sensors STATE>

<Table 2. Message of DP Controller state>

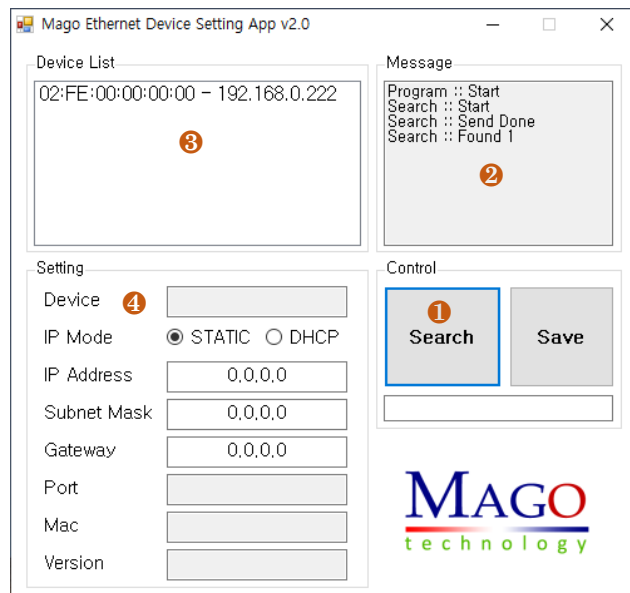
Message	Detail
Normal Operation	Both Sensor A and B are working in the normal operation.
Waiting Sensor Connect	There is no sensor connected
Sensor Calibrating	Sensor(s) is(are) on calibrating and DP Controller are waiting for the end of calibration.
One Sensor Operation	One sensor is working in the normal operation. Another sensor is not connected or on calibrating. DP Controller makes a data from only one sensor that is ready to work.

<Table 3. Message of Sensor state>

Message	Detail
Disconnected	Sensor X is disconnected.
Normal Operation	Sensor X is working in normal operation.
Calibrating	Sensor X is on calibrating.

5 Ethernet Network Setting

5.1 IP Setting App.



<Figure 16. Network information by the IP setting app.>

Step1. Click the 'Search' button.

Step2. Check the message ② "Search::Start", "Search::Send Done", "Search::Found".

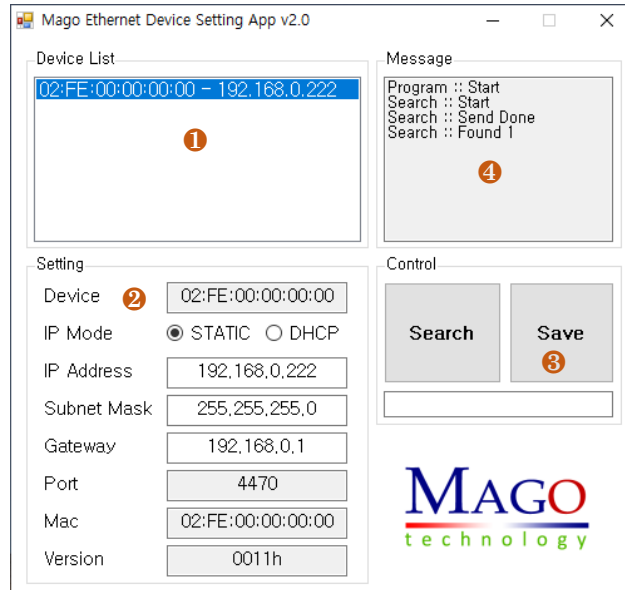
Step3. Select the device (Mac-IP) in the device list ③ .

Step4. Network information is shown on the list ④ .

* The SNOOPER-DP should be in the same network group with the PC.

5 Ethernet Network Setting

5.2 IP Saving Network Information



<Figure 17. Saving network information>

Step1. Select the device which you want to set in the list ①.

Step2. Set the network information in the message screen ④.

Step3. Click the 'Save' button.

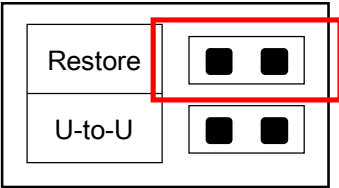
Step4. Check the message ④ "Save::Start", "Save::Parsing Done", "Save::Send Done", "Save::Device Removed", "Save::Completed".

* Load and check the information again after all the process of 5.2.

5 Ethernet Network Setting

5.3 Jumper Set

<Table 4. Default IP address on boot-up>

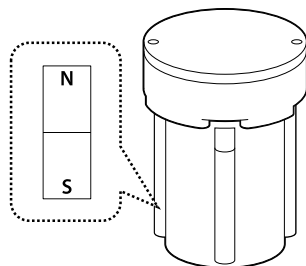
Jumper Set	Boot-up Detail
	<p>Set 'Jumper' at red mark Boot-up with default IP Address</p> <ul style="list-style-type: none">- Static IP Address: 192.168.0.222- Subnet Mask: 255.255.255.0- Gateway: 192.168.0.1 <hr/> <p>Remove 'Jumper' at red mark Boot-up with saved IP Address</p>

* User can manually set the IP Address of a SNOOPER-DP system (IP address, Subnet mask, Gateway) by the supported application program. Please refer Section 5.

6 Trouble Shooting

1. Magnetic Calibration process

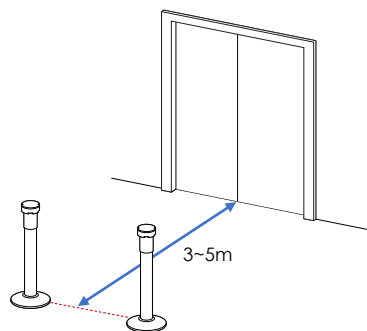
- If the calibration process of a sensor module does not finish within 30 seconds, then check the strong magnetic materials near the sensor.
- For example, rarely some of the barrier poles have a magnet inside the belt tensioner.



<Figure 18. Check magnetic materials near the sensor>

2. An iron door or elevator near the sensor

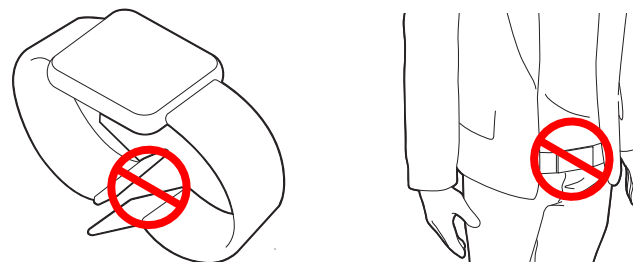
If the movement of the iron door or elevator near the sensor causes disturbance, please move the system at least 3~5 meters away.



<Figure 19. Install two sensors as a stepped direction near an iron door>

3. Magnetic buttons or ornaments

- If a magnetic object is attached to the user's cloth, SNOOPER-DP may make some output signals.
- Some shoes have iron skeleton inside its bottom of the shoe.



<Figure 20. Magnetic ornaments may cause the perturbation of the magnetic field>

4. Do not open the sensor cover

OPENNING THE SENSOR COVER makes temperature changes and random disturbances, so DO NOT OPEN the sensor cover.

7 SNOOPER-DP Specification

1. Introduction

- SNOOPER-DP is an innovative and exclusive solution for detecting a **HIDDEN METAL OBJECT** inside a pocket or bag **without body check** for the visitors.
- The system can detect **CONCEALED WEAPONS** such as daggers and rifles those made of ferrous materials.
- SNOOPER-DP has the elaborate function of compensation about the magnetic disturbance from the large moving metal objects such as an **ELEVATOR** or a **BUS** near the system.
- Sensor modules of the system are designed to be installed on the standard barrier poles.
- The system consists of a DP Controller board and two of micro MAD Sensors (Barrier poles are sold separately.)
- SNOOPER-DP system can be set up easily with a notebook PC or it can be connected to the user's security system by the standard Ethernet LAN.

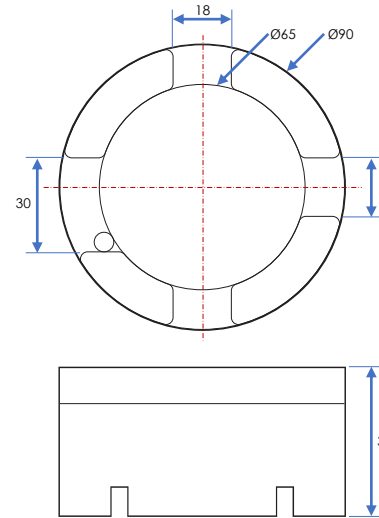
2. Specification of SNOOPER-DP

<Table 5. Specifications>

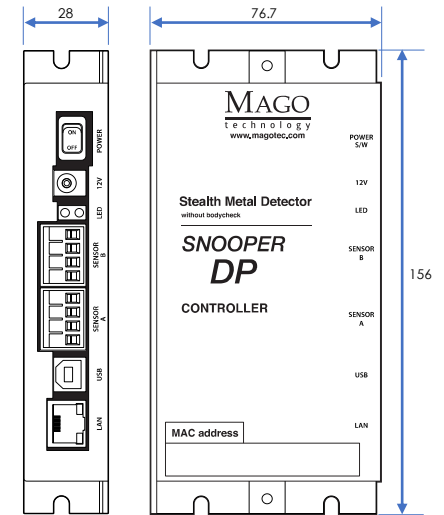
	Value	Note
Input	DC12V	Use 2A adaptor
Output	USB & Ethernet	Digital data communication
Sensor	2	Two DP Sensors
Controller	1	DP Controller
Operation Temp.	-10°C ~ 50°C	Industrial Spec.

3. Case Dimensions

Unit: mm



<Sensor Head>



<Controller>