

# DIRECT READING/ PROGRAMMABLE ROTARY VANE ATTENUATOR

STA-AT-WG-SI

(AT for Attenuation Range, WG for Waveguide Size)

USER'S GUIDE

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# 1. DIRECT READING MODE OPERATION

Turn on the power switch. If the internal battery is out of power, please plug in the 24V AC to DC power adapter that is included with the unit. It will power on the attenuator and start charging the internal battery.

Follow the guidance displayed on the LCD screen. If it displays "> > >", rotate the knob clockwise; if it displays "< < <", rotate the knob counterclockwise. Keep rotating the knob until the LCD screen displays "Max". The startup routine is now complete, and you can start adjusting the attenuation level to your desired setting.

The attenuation level of the attenuator ranges from 0 to 60 dB or 0 to 40 dB depending on the model. When the knob is rotated beyond the supported attenuation range, the LCD screen will display "Max".

To enter programmable mode, connect the attenuator to a computer with the included USB Type B to Type A cable. The attenuator must also be physically plugged in and powered on with the 24V power adapter. Once both these conditions are met, the attenuator will restart and enter programmable mode.

## 2. PROGRAMMABLE MODE OPERATION

Turn on the power switch and plug in the 24V power adapter. If the 24V power adapter is not connected, the LCD screen will display “24V NC”. Connect the attenuator to your computer using the provided USB Type B to Type A cable.

Once the attenuator is powered on and the USB cable is connected, the unit will automatically return to its home position, and the LCD screen will display “Max”.

In Windows “Device Manager,” the attenuator unit device can be found under “Ports.” It will be listed as “Arduino Mega 2560,” with its respective COM port number located next to it. To control the attenuator through the USB port, set the serial port settings as shown below:

- Baud rate: 9600.
- 8 data bits
- No Parity
- 1 stop bit

If the USB cable or 24V power adapter is disconnected at any time from the attenuator, the unit will restart and enter direct reading manual operation mode. To keep the attenuator in programmable mode, the unit must be connected to a computer with the USB cable and powered on with the 24V adapter always plugged in.

**WARNING: Do not rotate the knob manually while the attenuator is in programmable mode.** The back EMF generated by the motor might damage the components inside. If the knob is rotated while the unit is in programmable mode, the attenuator will still monitor the changes and display the current attenuation reading on the LCD screen.

For users who wish to build their own application to control the attenuator, the command set of the attenuator is listed below:

### Command Set:

Command	Function
A_nn.nn	Move to the attenuation value nn.nn dB
R	Reset to MAX attenuation setting
I	Report the serial number of the attenuator
G	Report the current attenuation value

## Example Code (For Reference Only):

Here is example code in C# programming language to open the serial port, set attenuation to 10dB, and read the attenuation value back:

```
using System;
using System.IO.Ports;

SerialPort SerPort = null;
bool connectStatus = false;
String ReceivedData;

try
{
    SerPort = new SerialPort();
    SerPort.BaudRate = 9600;
    SerPort.PortName = "COM5";
    SerPort.Parity = Parity.None;
    SerPort.DataBits = 8;
    SerPort.StopBits = StopBits.One;

    SerPort.Open();
    connectStatus = true;

    SerPort.WriteLine("A 10");
    System.Threading.Thread.Sleep(500);

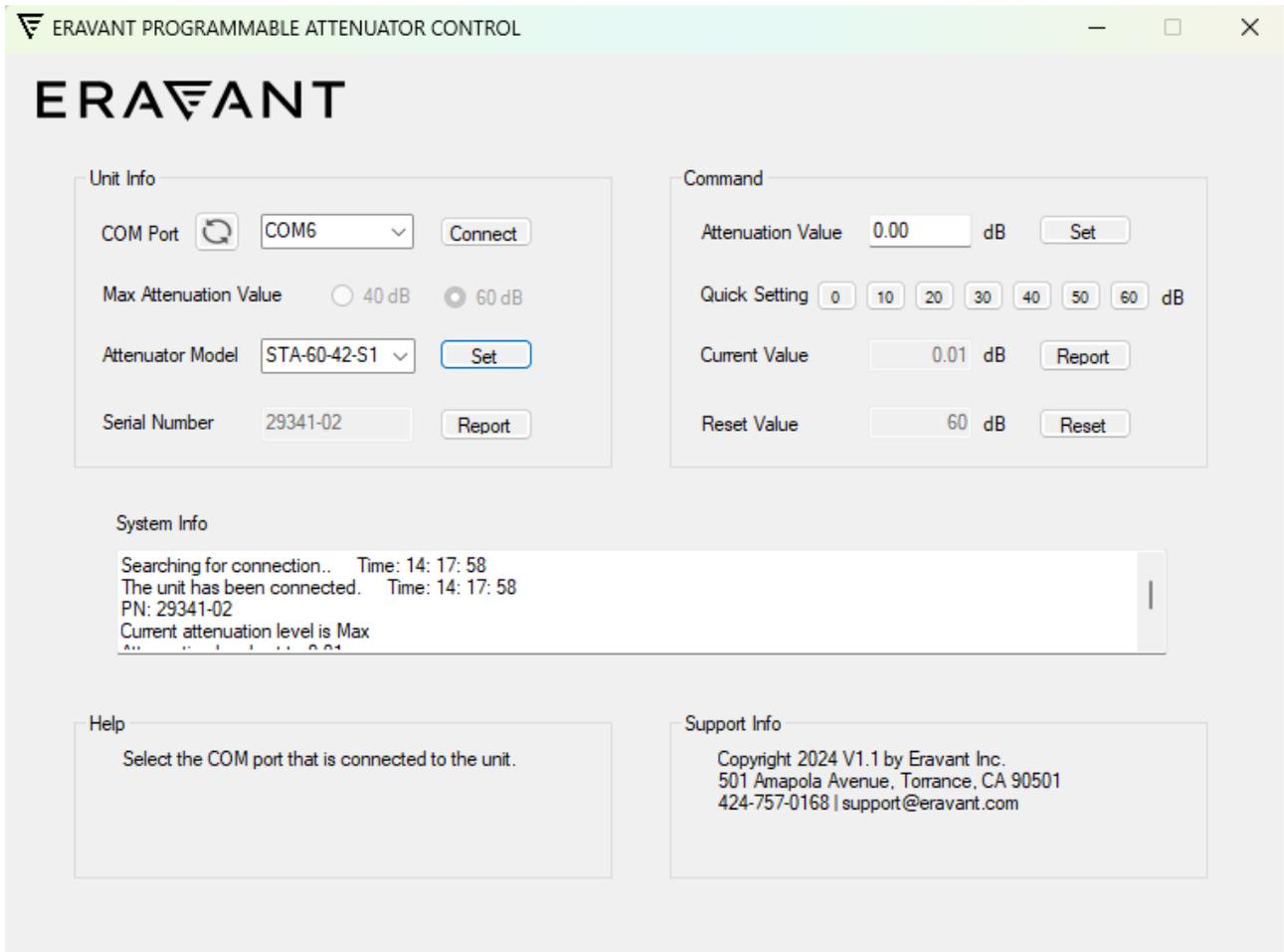
    SerPort.WriteLine("G");
    System.Threading.Thread.Sleep(200);

    ReceivedData = SerPort.ReadLine();
    Console.WriteLine(ReceivedData);
}
catch (Exception ex)
{
    connectStatus = false;
    Console.WriteLine(ex.Message);
}
```

### 3. GUI OPERATION

To open the Eravant programmable attenuator control GUI, double click the “Eravant Direct Reading and Programmable STA GUI” application .exe that is included on the USB drive with the attenuator. The GUI is also available for download from the product webpage. On first run it will create an “STA.xml” file.

The GUI is divided into five sections: **Unit Info**, **Command**, **System Info**, **Help**, and **Support Info**.



## 3.1 Unit Info

This section contains the following: **COM Port, Max Attenuation Value, Attenuator Model, Serial Number.**

### 3.1.1 COM Port

This is used to set the COM Port that the attenuator is using to communicate with the computer via the USB cable.

Determine the correct COM port that is connected to the attenuator, then select it from the drop-down menu and press "Connect". If you do not see the correct COM port in the drop-down list, double check that the attenuator is physically connected with the USB cable and hit the refresh button to refresh the list of COM ports.

If successful, the "System Info" section will display a message that the unit is connected and display the unit's serial number. If the wrong COM port is selected, you will receive an error message and will need to try again.

### 3.1.2 Max Attenuation Value

This displays the max supported attenuation range for the model that is connected. You will need to select the correct attenuator model in the Attenuator Model section to get the correct setting to display here.

### 3.1.3 Attenuator Model

This is used to automatically set certain settings and limits to the GUI functions depending on the model.

Select the attenuator model number that is currently connected to the computer from the drop-down list and hit the "Set" button.

### 3.1.4 Serial Number

This just displays the serial number of the attenuator that is connected.

## 3.2 Command

This section contains the following: **Attenuation Value, Quick Setting, Current Value, Reset Value**

### 3.2.1 Attenuation Value

This is used to command the attenuator to move to a specified attenuation value.

Type in the desired attenuation value and press “Set”. If the attenuation value is out of range, an error message will pop up.

### 3.2.2 Quick Setting

These are convenient preset attenuation values in 10 dB increments that allow you to quickly move the attenuator to the selected value. Simply click on one of the buttons to command the attenuator to move to that preset value.

### 3.2.3 Current Value

This displays the current attenuation value that the attenuator is at. Click “Report” to display and refresh the value.

### 3.2.4 Reset Value

This displays the home position of the attenuator, which by default is at the max attenuation setting. Click “Reset” to command the attenuator to move to home position.

## 3.3 System Info

This section just displays messages from the software as you use the various functions of the GUI, such as the attenuation value you selected, serial number of the unit, etc. It can be used to verify that your commands are received and acted upon accurately.

## 3.4 Help

This section displays user tips on various functions of the GUI as you hover over the buttons and fields.

## 3.4 Support Info

This section displays the contact information of Eravant if you have questions or need further assistance.