Version 5.10



I. Introduction

This is a user guide for installing the PCU-220 controller graphical user interface (GUI) and the required driver for the application. It also contains operating instructions for the GUI, antenna file, and firmware download, and for clearing COM ports.

II. GUI and driver installation

- 1. JMA tech support
 - Toll Free: +1-888-201-6073
 - techsupport@jmawireless.com
- 2. For system requirements, see Table 1, below.

Software specifications	
Windows operating system supported:	Windows XP thru Windows 8
USB-485 window-based VCP driver:	FDTI Window x64 2.08.28 WHQL certified
	http://www.ftdichip.com/Drivers/VCP.htm

Table 1 – Software specifications

- 3. Uninstall any previous version of the **JMA_AISG_RET** control.
- 4. Install the GUI first, then the driver. To install the GUI, run the setup file. Figure 1 is just an example; the rev could be different.
- 5. Follow the setup wizard and click **Next**, then **Install**. Allow the installation, and click **Finish** to complete the installation. Figures 1-4 are the same for setup23 or higher.

JMA_AISG_RETcontrol_23 - 1	InstallShield Wizard	JMA_AISG_RETcontrol_23 - InstallShield Wizard
2	Welcome to the InstallShield Wizard for JMA_AISG_RETcontrol_23	Ready to Install the Program The wizard is ready to begin installation.
	The InstallShield(R) Wizard will install JMA_AISG_RETcontrol_23 on your computer. To continue, click Next. WARNING: This program is protected by copyright law and international treaties.	If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard. Current Settings: Setup Type: Typical Destination Folder: C:\JMA Wireless\JMA_AISG_RETcontrol_23\ User Information: Name: vith Company: HP
	< Back Next > Cancel	InstallShield

Fig. 1 – Welcome screen for installation

Fig. 2 – Beginning the installation

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Fig. 3 – Installing the JMA software

- Fig. 4 The installation completed
- 7. The remote electrical tilt (RET) controller GUI icon will be automatically installed on your desktop. Do not launch the RET controller GUI yet.



- 8. Install the driver for the GUI.
 - If the driver was already installed from a previous version of the GUI, no need to install the driver again.
- 9. Run the CDM exe file per below.
 - Right-click on the driver file name and select "Run as Admin" if you have admin rights.
 - Extract, if the wizard indicates. You may need to repeat before the wizard starts.



10. Follow the installation wizard shown in Figures 5 and 6. Click **Next** for each window.

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Fig. 5 - Device driver installation wizard

Fig. 6 - Device driver installation wizard completed

- 11. If any problems occur, please go to <u>http://www.ftdichip.com/Drivers/VCP.htm</u> to select the proper driver file for your operating system.
- 12. Restart your PC.

III. GUI display and functions

- First connect the USB cable from the PCU-220 controller to the computer's USB port.
 - If the USB device (PCU-220 controller) is being plugged in for the first time, the computer may need time to install the driver to recognize the USB cable. Allow time for this to process.



- If all COM ports are used, go to "Clearing COM ports," Section VII, page 11, of this user guide.
- 2. Launch the GUI from the shortcut on your desktop.





3. When launching the GUI, the screen or window display will first look like Figure 7.



Fig. 7- Blank Commands and Properties windows

4. When you eventually enter RET commands, the window will begin to populate, as represented in Figure 8.

AisgController - ALD #1			AND LOT ME AN ADDRESS		
File View Help					
🖬 🖀 🗐 🖉 🖉 🥥 🦉 R > 👌 A V C I	D P CL				
ALD #1					Properties
Commands	Туре		Subunits		
RESET DOWNLOAD SELF TEST	GET TILT	SET TILT	GET		
GET INFO GET ALL CLEAR ALL	CALIBRATE		N:		
Product Number	CONFIG DWN		Selected:		Descrition
Serial Number			Selected:	Commands	Properties Window
Software Version				Window	Window
Hardware Version	Device Data Field	is			VIIIGOW
	ANTENNA	OPERATOR TMA			=
Alarms					
GET CLEAR SUBSCRIBE	Model Number	GET SET			
	Serial Number	GET SET			
	Frequency Band	GET SET	•		
	Beamwidth	GET SET			
Last Result / Error	Gain	GET SET			
	Max Tilt	GET SET			
	Min Tilt	GET SET			
J					*

Fig. 8 - Commands and Properties windows before antenna information

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5. If you accidentally close the Commands or Properties windows, or change it to where it no longer displays like Figure 8, you can go back to the default view by clicking on the See Figure 9. and selecting Restore Default

Application Options	4.0	X
Serial Port	COM4 -	Detect Port
Baudrate:	9600	Restore Default
Scan Max Iterations:	9999	Com Port Auto Detect
Scan Auto Connect		Auto Refresh Selected ALD
Scan Repeat Mode		Scan ALD previously found
Auto Connect After D	ownload	Enable Polling
ALD List Field Selector		
0, 1, 2, 3, 4, 5, 6, 7,	8, 9, 10, 11, 12, 13, 14	-
Trace Configuration:		
Trace Main		✓ Trace Aisg
Trace Comm		✓ Trace Poll
Trace Hdlc		
		OK Cancel Apply

Fig. 9 – Options selections

6. Below are the various command buttons for RET operations.



- a. The COM setting options icon is used to verify that the COM port is recognized with an assigned COM#, and that options are selected per Figure 9.
- b. Bus reset button to clear the device list for a new scan.



CLEAR ALL

CALIBRATE

c. Scan button to scan for ALDs.

- d. Stop scan.
- e. For device selection, use the drop down in the Properties window or click on ALD#.
- f. Get or clear the RET data.
- g. RET Calibrate button. The button will change to "calibrating" when calibration is in progress.

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- h. Set or Get Tilt buttons will change to "moving" when a set tilt is in progress.
- i. Operator data such as Antenna Serial Number, Base Station, and Sector Id, etc.

i 🐨 🗊 🖉 🖉 🧶 🥥 📮 R 🕨 🕘 A V C	D P CL										
12 ALD #1									Properties		•
ommands	RET					Subur	its	^	11 🖬 🖌		
RESET DOWNLOAD SELF TEST	GET TILT	SET TI	LT				GET		ALD #1		_
GET INFO GET ALL CLEAR ALL	CALIBRATE					N:			UniqueId	CC000000000046829	
	CALIBRATE					1			Status	ALARMED	
roduct Number CSS RET-200	CONFIG DWN					Fol	ected:		Туре	Single RET	
Gerial Number 00000000000046829						Self	cteu.		Version Polling	2.0 True	
oftware Version CSS 140727 B									Polling	True	
Hardware Version 561105 Rev B	Device Data Field	s									
SOTIOS NEV D	ANTENNA	OPERAT	OR								
larms								E			
GET CLEAR SUBSCRIBE	Model Number	GET	SET	C7C-FRC)-656-VR	9					
Not Calibrated	Serial Number	GET	SET		20	966					
	Frequency Band	GET	SET	5, 6	, 12, 13	, 14		-			
	Beamwidth	GET	SET	56	0	0	0				
ast Result / Error	Gain	GET	SET	15.9	0.0	0.0	0.0				
Success	Max Tilt	GET	SET	10.0							
lot Calibrated	Min Tilt	GET	SET	0.0							

Fig. 10 - The Command and Properties windows, with sample antenna information entered.



j. This icon is for saving the report in .txt format for the devices from the ALD list. See Figure 11.

ADDRESS	:1
STATUS	: CONNECTED
ГҮРЕ	: SINGLE RET
VENDOR	: CC
SERIAL NUMBER	: 00009201703026-B1
PRODUCT NUMBER	: R1000
SOFTWARE VERSION	: FW_V1.1.0
HARDWARE VERSION	: HW R1000 B
ALARM	: NONE
RET TTI T	: 0.0
	: MX08FR0860-02B1
ANTENNA SERIAL NUMBER	:
ANTENNA FREQUENCY BAND	: 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31,
ANTENNA BEAMWIDTH	: 60 0 0 0
ANTENNA GAIN	: 19.0 0.0 0.0 0.0
ANTENNA MAX TTI T	9.0
ANTENNA MIN TILT	: 0.0
OPERATOR INSTALL DATE	
	: УУУУУУУ
OPERATOR INSTALL ID	: yyyyy
OPERATOR BASESTATION ID	:
OPERATOR SECTOR ID	÷ ŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷ
OPERATOR ANTENNA BEARING	: 65535
OPERATOR MECHANICAL TILT	: -0.1
#######################################	****

Fig. 11 - Sample RET report

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IV. RET system & GUI operation

- 1. Follow the connection diagram in Figure 12 which shows the various RET system diagram connections to the PCU-220 controller and PC.
 - Homerun cable to RET
 - Smart Bias T to Smart Bias T to RET
 - Smart Bias T to AISG TMA to RET



Fig. 12- RET system connection diagram

2. Note the RET firmware rev and serial number in Figure 13.



Fig. 13 - RET firmware rev and serial number

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3. Verify that COM port is chosen by selecting the right of "Serial Port."



and clicking on the COM# to

Application Options	4.0	×
Serial Port	COM4 -	Detect Port
Baudrate:	9600	Restore Default
Scan Max Iterations:	9999	Com Port Auto Detect
Scan Auto Connect		Auto Refresh Selected ALD
Scan Repeat Mode		Scan ALD previously found
🗸 Auto Connect After D	lownload	Enable Polling
ALD List Field Selector		
0, 1, 2, 3, 4, 5, 6, 7,	8, 9, 10, 11, 12, 13, 14	~
Trace Configuration:		
Trace Main		🔽 Trace Aisg
Trace Comm		✓ Trace Poll
Trace Hdlc		
		OK Cancel Apply

Fig. 14 – Application options

- Do NOT click on Detect Port This works when ONLY one RET is connected.
- If you see multiple COMs on the Serial Port drop down, select one at a time and do a scan to see which one will work.
- If the USB does NOT flash GREEN-RED, then it's not the correct one and the scan will not find any motor.
- Try another COM. Find the one that flashed GREEN-RED during the scan.
- 4. Always perform a bus reset prior to starting a scan by clicking the
- 5. Click the Scan button 🕨 to scan for RETs (ALDs).
 - 6. After the scan is completed, the list of devices will show in the properties box.
 - 7. Select the device you want to control and configure from the Properties window drop down list or single click on the ALD#, and ALD fields will load in the Command window. A single click will load data when there are multiple ALDs.
 - GET ALL will also read from the device and load ALD fields.
 - Verify that the antenna model is correct; if not, refer to "ACF download," Section V, page 10, for instructions to load the correct antenna file.

icon.

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- Calibrate the RET by clicking CALIBRATE
- 8. Set/get the tilt within the min/max range: 9.
- Verify that the results show "Success" and verify that there are no alarms by 10. under "Alarms." See Table 2 for alarm lists. clicking GET
- Configure the operator data such as Antenna Serial#, Base Station Id, and Sector 11. Id, etc. Click Set for each item to write to the RET.
- for the devices from the ALD list in the Properties window. 12. Save a report using
 - Name the report and save.
 - Allow time for the report to generate. GET ALL will show "Running" while each motor is being accessed to get the data for the report.

SET TILT

GET TILT

- A report will be generated for ALL ALDs connected see Figure 11 for a report sample.
- Alarms are listed below in Table 2 with recommended actions. 13.

Basic alarm	Reason	Corrective action
Not calibrated	Antenna is in an un-calibrated state. This can be caused by ACF download, power cycle during motor movement, or an invalid tilt was set.	Run the Calibration sequence.
Busy	The RET is busy processing another command.	Allow the active command to complete.
Motor/actuator jam	The RET was unable to move properly during a Calibration or Set Tilt command.	 Ensure the proper antenna configuration file is loaded in the RET. Run the Calibration sequence. If the problem persists, contact technical support.
Out of range	An invalid tilt value was set.	 Run Calibration sequence. Set the tilt to a valid number within the range shown for max/min tilt.
Read only	User trying to write data to a read- only field.	No corrective action. Fields cannot be changed by user.

Table 2 – Alarm list and corrective actions

JMR

V. Antenna configuration file (ACF) download

- 1. RET configuration files can be obtained from our website or by contacting JMA tech support
 - Toll Free: +1-888-201-6073
 - techsupport@jmawireless.com
 - www.jmawireless.com
- 2. ACF selection is based on antenna model, frequency band, and RET firmware rev. See Figure 15 for an example.



Fig. 15 – ACF selection guide

- Antenna models with one RET will only have one file.
- If antenna models have two or three RETs:
 - For different bands, one for low and one for high band:
 - A is High Band file (Remember A for AWS)
 - C is Low Band file (Remember C for Cell)
 - For two of the same bands:
 - -1 is for Ant 1
 - -2 is for Ant 2

Click on CONFIG DWN – ACF load button.

3.

- 4. Browse for the antenna configuration file.
 - Software Version 140727_A or 140727_B are in .txt format and are NOT compatible with motors having Version 150702_6.

QAP-480-VR0-ANT 1-140727-<u>B.txt</u>

OAP-480-VR0-ANT 1-140727-A.txt

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 Software Version 150702_6 is in .cfg format and is NOT compatible with motors having Version 140727_A or 140727_B.

X7C-480-VR4-150702_6.cfg

5. Verify the software/firmware version of the motor, as shown in the GUI, to select the correct Ant file, then go to the folder for that version. Examples below.





Software	Version:
CSS_RET_	140727_A

- 6. In the folder, select the antenna file per the selection guide in Section V: step 2, referring to Figure 13 as necessary.
- 7. Double click on the antenna file or click **Open** to load to the RET.
- 8. The "Antenna Model Number" will update to the new file.
- 9. Calibrate the RET.
- 10. Set Tilt. Done.

VI. RET firmware download

- 1. Click on DOWNLOAD
- 2. Browse for the new firmware file.
- 3. <u>Double click</u> on firmware file or click **Open** to load to the RET.
- 4. **DOWNLOAD** will change to "Downloading."
- 5. This will take approximately 5-6 minutes to load (32000 bytes).
- 6. When completed, the button will change back to bownLOAD
- 7. Click for and verify that the software version changed to the new rev.

Product Number	CSS RET-200
Serial Number	0000000000046829
Software Version	CSS_140727_B
Hardware Version	561105 Rev B

8. Done.

VII. Clearing COM ports

- 1. For additional support, go to this link:
 - The link below has the same instructions, so you can use it to copy the commands and paste them in Command Prompt. You won't be able to copy the commands from this user guide since it is in PDF.
 - http://answers.microsoft.com/en-us/windows/forum/windows_xp-hardware/howdo-i-clear-com-ports-that-are-appearing-as-in/0c3a3e6c-5623-4d93-ba89-124399d90448



2. Right-click "Command Prompt" in Accessories and choose "Run as Administrator." See Figures 16 and 17.



Fig. 16 – Accessories – command prompt selection

Administrator: Command Pro	npt		Reading land	
Microsoft Windows [Ver: Copyright (c) 2009 Mic)			All rights reserved.	^ =
C:\windows\system32>set	: devmgr_sh	ow_nonpre	esent_devices=1	
C:\windows\system32>sta	urt devngnt	.nsc		
C:\windows\system32>				
	Mark			
	Сору	Enter		
	Paste			
	Select All			
	Scroll			
	Find			
				*

Fig. 17 – Command prompt

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- Copy the commands below without the quotes and paste (right click) in the Command Prompt. This will prevent misspelling.
- Enter "set devmgr_show_nonpresent_devices=1" without the quotes.
- Enter "start devmgmt.msc" without the quotes.
- 3. In the box that opens, select "Show hidden devices" in the "View" menu. See Figure 18.



Fig. 18 – Device manager view selection

4. If you expand the section on COM ports, all the COM ports that have ever been created will be displayed, the non-present ones being in gray. You can uninstall anything that you don't want (right click, select uninstall). See Figure 19.



File Action View Help	
	1
> 🔄 Memory technology driver	
- Mice and other pointing device	6
Modems	
p 🌉 Monitors	
Network adapters	
Non-Plug and Play Drivers	
D- D Other devices	
Portable Devices	
 Ports (COM & LPT) 	
LINX SDM-USB-QS-S (COM	
- UNX SDM-USB-QS-S (COM	A THE SHARE A PROPERTY CARD
Prolific USB-to-Serial Comm	
- Prolific USB-to-Serial Comm - Prolific USB-to-Serial Comm	
Silicon Labs CP210x USB to	
USB Serial Port (COM10)	UART Bridge (COMILD)
- USB Serial Port (COM11)	Update Driver Software
USB Serial Port (COM13)	Uninstall
USB Serial Port (COM14)	
- USB Serial Port (COM15)	Scan for hardware changes
USB Serial Port (COM16) USB Serial Port (COM17)	Properties
USB Serial Port (COM3)	
USB Serial Port (COM4)	
USB Serial Port (COM7)	
USB Serial Port (COM9)	
Printers	
Processors	
P-D Processors	

