

I. Introduction

This is a user guide for installing the PCU-1000 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 10
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
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- 3. Uninstall any previous version of the **JMA_AISG_RET** controller.
- 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.



Fig. 1 – Welcome screen for installation

Fig. 2 – Beginning the installation

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JMA_AISG_RET_Controller Setup	JMA_AISG_RET_Controller Setup
Installing JMA_AISG_RET_Controller	Completed the JMA_AISG_RET_Controller Setup
Please wait while the Setup Wizard installs JMA_AISG_RET_Controller.	Wizard WIRELESS Click the Finish button to exit the Setup Wizard.
Status:	
	AisgController
Back Next Cancel	Beck Finish Cencel

Fig. 3 – Installing the JMA software

Fig. 4 – The installation completed

6. The remote electrical tilt (RET) controller GUI icon will be automatically installed on your desktop. **Do not launch the RET controller GUI yet**.



- 7. 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.
- 8. 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.



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





Fig. 5 – Device driver installation wizard

Fig. 6 - Device driver installation wizard completed

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

III. GUI display and functions

- 1. First, connect power to the PCU-1000. Then connect the USB cable from the PCU controller to the computer's USB port.
 - If the USB device (PCU-1000 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 14, 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.

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Output		
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A 12-15-01-002 MAX	ALD Ress	ļ
17:55:01:802 NAL	M Alsgi	
17:55:02:023 COM	M COM8	ļ
17:55:02:023 COM	M Foun	
17:55:02:203 HDI	C Conf	
17:55:02:203 COM	K Open	
17:55:02:233 HAI	succ	1
Ready		

Fig. 7- Blank Commands and ALD List before antenna information

4. When you scan, the window will begin to populate, as represented in Figure 8.

AlsgController - ALD #3				6 ×
File View Alarm Controls Tools Help				
R > • F				
40 URT - 0 X	All sup or All sup on All sup or All sup or			
	HE RUPT IN RUTT AN AUTON AN AUTON			• •
Loc United and the second	Jofs BL000 RET Unique Id C2733808452004-41 Firmane Version Fu_27.3.0 Hondraw Version Hu_R1000_C Alare Status None	ET TILT SET TILT 3.0 LITENTE CALEMATE ALL CONTS DAR MARKE DOR		
	Antenna fields	Operator Fields	Commands	
	Model Number Invastancesostast	Install Date	Commando	
			M/index.	
	Serial Number	install 10	VVINDOW	
	Prequency Band 15, 16, 17, 18, •	Antenna Bearing 20.9		
	Beamvidth 60 0 0 0	Mechanical Tilt 92.9		
	Gain 13.8 0.0 0.0 0.0	Base Station Id		
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17:57:54:141 COMM TX(06	7 7 02 F1 F1 DA 7E			
17-57-54-1211 COMM RX(04	TE OZ FI FI DA TE			
17:57:54:231 COMM THIOM	75 03 F1 29 C3 75			
17:57:54:311 COMM RX(04	7E 03 F1 29 C3 7E			
17:57:54:331 POLL 004 Polli	ng Request			
17:57:54:331 COMM TX(06	7E 04 F1 21 8E 7E			
17:57:54:411 COMM RX[06	7 04 F1 21 0K 7E			1
2.00				

Fig. 8 – Commands Window and ALD List with antenna information

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5. If you accidentally close the ALD List or Output windows, or change it to where it no longer displays like *Figure 8*, go to **View** and select **ALD List** or **Output**. See *Figure 9*.



Fig. 9 – Options selections

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



- a. Bus reset button to clear the device list for a new scan.
- b. Scan button to scan for ALDs.
- c. Stop scan.
- d. For device selection, use the ALD list or the ALD tabs.



ALDs under the ALD list could have four different states that are indicated by colored circles in the column labeled **ALD**.

- Red indicator means ALD is in ALARMED status.
- Green indicator means ALD has no ALARMS.
- Yellow indicator means ALD is CALIBRATING.
- O Gray indicator means ALD is disconnected.



00	is neip
	Reconnect Device
	L7 Software Reset
	Get All
	Clear All

olc Hole

- e. Go to the "Tools" menu and click **Get All** to get all the data, or **Clear All** to clear the RET data.
- f. If ALD has lost connection, clicking **Reconnect Device** will reconnect that ALD.



- g. Set Tilt sets the tilt within the min/max range. Get Tilt will tell the position of the tilt. Set button will change to "moving" when a set tilt is in progress.
- For operator data such as Antenna Serial Number, Base Station, and Sector Id, etc., see *Figure 10*.
 Note: For NWAV antenna models (internal R1000 RET system), the antenna serial number is automatically populated, and not editable.

ſ	Antenna Fields		Operator Fields	
	Model Number	MX08FR0660023B2	Install Date	
	Serial Number		Install Id	
	Frequency Band	15, 16, 17, 18, 🔻	Antenna Bearing	0.0
	Beamwidth	60 0 0 0	Mechanical Tilt	0.0
	Gain	19.0 0.0 0.0 0.0	Base Station Id	
	Max Tilt	9.0	Sector Id	
	Min Tilt	0.0		
	2	SET GET	S	ET GET

Fig. 10 - The antenna and operator field window.









j. This icon is for saving the report in .txt or .csv formats for the devices from the ALD list. See *Figures 11* and *12*.

Com	puter Windows (C:) Users Test!			• i j	Search Test!	Q
Organize 🔻 New	folder					· · · · · · · · · · · · · · · · · · ·
🖳 Recent Places	Name	Date modified	Туре	Size		-
a OneDrive - JMA	Contacts	8/22/2016 11:23 PM	File folder			
	Desktop	8/24/2017 4:14 PM	File folder			
🕞 Libraries	Downloads	8/22/2016 11:23 PM	File folder			
Documents	Favorites	8/22/2016 11:24 PM	File folder			
Music	📝 Links	8/22/2016 11:23 PM	File folder			E
Videos	My Documents	8/22/2016 11:24 PM	File folder			
Videos	My Music	8/22/2016 11:23 PM	File folder			
Computer	╞ My Pictures	8/22/2016 11:23 PM	File folder			
Windows (C)	📑 My Videos	8/22/2016 11:23 PM	File folder			
maneng (\\fs01)	Roaming	8/22/2016 2:43 PM	File folder			
	👻 🕞 Saved Games	8/22/2016 11:23 PM	File folder			-
File name:	SampleReport					-
Save as type: 🖌	ALD Files (*.txt)					•
A	ALD Files (*.txt)					
A Hide Folders	ALD Files (*.csv) All Files (*.*)					

Fig. 11 – Save as .txt or .csv

Sampletxt.txt - Notepad			×
File Edit Format View Help			
#######################################	**********************************		
ADDRESS	, 1		
STATUS	, CONNECTED		
TYPE	, SINGLE RET		
VENDOR	, cc		
RET Unique Id	, CC17390884520020-T1		
PRODUCT NUMBER	, R1000		
SOFTWARE VERSION	, Fw_v1.2.0		
HARDWARE VERSION	HW_R1000_C		
ALARM	NONE		
RET TILT	. 0.0		
ANTENNA MODEL NUMBER	MX08FR0660023B2		=
ANTENNA SERIAL NUMBER			
ANTENNA FREQUENCY BAND	, 15: 16: 17: 18: 19: 20: 21: 22: 23: 24: 25: 26: 27: 28: 29: 30: 31: 32: 33: 34: 35: 36:	37: 38:	
39: 40: 41: 42: 43: 44			
ANTENNA BEAMWIDTH	. 60 0 0 0		
ANTENNA GAIN	. 19.0 0.0 0.0 0.0		
ANTENNA MAX TILT	. 9.0		
ANTENNA MIN TILT	. 0.0		
OPERATOR INSTALL DATE			
OPERATOR INSTALL ID			
OPERATOR BASESTATION ID			
OPERATOR SECTOR ID			
OPERATOR ANTENNA BEARING	. 0.0		
OPERATOR MECHANICAL TILT	. 0.0		
#######################################	``````````````````````````````````````		
ADDRESS	. 2		
STATUS	CONNECTED		
TYPE	, SINGLE RET		
VENDOR	, cc		
RET Unique Id	, CC000000000TEST_2		
PRODUCT NUMBER	, R1000		
SOFTWARE VERSION	, FW_V1.2.0		
HARDWARE VERSION	, HW_R1000_C		
ALARM	, NONE		
RET TILT	, 2.0		
ANTENNA MODEL NUMBER	, MX08FR0660023R1		
ANTENNA SERIAL NUMBER	,		
ANTENNA FREQUENCY BAND	, 15: 16: 17: 18: 19: 20: 21: 22: 23: 24: 25: 26: 27: 28: 29: 30: 31: 32: 33: 34: 35: 36:	37: 38:	
39: 40: 41: 42: 43: 44			
ANTENNA BEAMWIDTH	, 60 0 0 0		
ANTENNA GAIN	, 13.8 0.0 0.0 0.0		
ANTENNA MAX TILT	, 14.0		
ANTENNA MIN TILT	, 2.0		
OPERATOR INSTALL DATE	,		
OPERATOR INSTALL ID	,		

Fig. 12 – Sample RET report

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IV. RET system & GUI operation

- 1. Follow the connection diagram in *Figure 13* which shows the various R1000 system diagram connections to the PCU-1000 controller and PC.
 - Homerun AISG cable to RET
 - Smart Bias T to RET



Fig. 13 – Connection diagram for RET-1000 system (NWAV antennas)

2. Note the RET firmware version and serial number in Figure 14.

Product Number	R1000
RET Unique Id	CC17330884520020-R1
Firmware Version	FW_V1.2.0
Hardware Version	HW_R1000_C
Alarm Status	None

Fig. 14 – RET-1000 firmware version and serial number



- 3. Follow the connection diagram in *Figure 15* which shows the various RET-200 system diagram connections to the PCU-1000 controller and PC.
 - Homerun AISG cable to RET
 - Smart Bias T to Smart Bias T to RET



Fig. 15– Connection diagram for RET-200 system

4. Note the RET firmware version and serial number in *Figure 16*.

Product Number	CSS RET-200
RET Unique Id	CC00000000000207499
irmware Version	SW_RET_160311_1
ardware Version	561105 Rev B
larm Status	Not Calibrated





5. If you need to verify the COM assignment, go to **View** and select on the COM# to the right of "Serial Port." See *Figure 17*.

🤌 . Next, click

pplication Options	2	3
Serial Port:	Detect Port	
Baudrate:	9600 Restore Default	
	OK Cancel Apply	

Fig. 17 – Application options

Do NOT click on Detect Port
 . This works when ONLY one RET is connected.

Application Options		X				
Serial Port:	COM81 Detect Port					
Baudrate:	9600 Restore Default					
Aisg	AisgController					
	ОК					
		_				
	OK Cancel	Apply				

Fig. 18 – Successful PCU-1000 detection

- 6. Always perform a bus reset prior to starting a scan by clicking the
- 7. Click the "Scan" button k to scan for RETs (ALDs).
- 8. After the scan is completed, the list of devices will show in the **ALD List** view.
- Select the ALD you want to control using the ALD List or by clicking on the ALD# tab, and the corresponding ALD information will load in the Command window.
 - 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 13, for instructions to load the correct antenna file.
- 10. Calibrate the RET by clicking CALIBRATE
- 11. Set/get the tilt within the min/max range:
- 12. Verify that the results show "Success" and verify that there are no alarms in "Alarm Status" under info group. See *Table 2* on the next page for alarm lists.

SET TILT

- 13. Configure the operator data such as Antenna Serial#, Base Station Id, and Sector Id, etc. Click **Set** for configuring.
- 14. This icon is for saving the report in .txt or .csv formats for the devices from the ALD list. See *Figure 19*.



Save As								
Com Com	npute	r → Windows (C:) → Users → Test!	•		▼ 4⁄9	Search Test!		٩
Organize 🔻 New	v fold	er						0
🔚 Recent Places	*	Name	Date modified	Туре	Size			*
a OneDrive - JMA	41	🔓 Contacts	8/22/2016 11:23 PM	File folder				
E Librarian		膧 Desktop	8/24/2017 4:14 PM	File folder				
		🚺 Downloads	8/22/2016 11:23 PM	File folder				
Music	Ξ	🙀 Favorites	8/22/2016 11:24 PM	File folder				
Nusic Distures		🗽 Links	8/22/2016 11:23 PM	File folder				E
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windows (C:)		퉬 Roaming	8/22/2016 2:43 PM	File folder				
maneng (\\fsu		🍺 Saved Games	8/22/2016 11:23 PM	File folder				-
File name: SampleReport						•		
Save as type:	ALD F	iles (*.txt)						•
	ALD F	iles (*.txt)						
Hide Folders	ALD F	iles (*.csv)						
		0()						.:
	_							

Fig. 19 - Save as .txt or .csv

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icon.

GET TILT



15. Alarms are listed below in *Table 2* with recommended actions.

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





- 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
 - <u>www.jmawireless.com</u>
- 2. ACF selection is based on antenna model, frequency band, and RET firmware rev. See *Figure 20* for an example.



Fig. 20 – 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
- 3. Click on ANT CONFIG DWN ACF load button.
- 4. Browse for the antenna configuration file.
 - Software Versions 140727_A or 140727_B are in .txt format and are NOT compatible with motors having Version V160311_1.

QAP-480-VR0-ANT 1-140727-B.txt

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

PCU-1000 User Guide Rev. A



 Software Version V160311_1 is in .cfg format and is NOT compatible with motors having Versions 140727_A or 140727_B.

X7CAP-665-VR0-A6-160311_1.cfg

5. Verify the firmware version of the motor, as shown in the GUI, to select the correct CONFIG file. Examples below.





Firmware 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 20* 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 FIRMWARE DWN
- 2. Browse for the new firmware file.
- 3. <u>Double click on the firmware file or click **Open** to load to the RET.</u>
- 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 FIRMWARE DWN
- 7. 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.
 - <u>http://answers.microsoft.com/en-us/windows/forum/windows_xp-hardware/how-do-i-clear-com-ports-that-are-appearing-as-in/0c3a3e6c-5623-4d93-ba89-124399d90448</u>



2. Right-click **Command Prompt** in Accessories and choose **Run as Administrator**. See *Figures 21* and 22.



Fig. 21 – Accessories – command prompt selection

Administrator: Command Pror	npt	.01.1	Strains Inc.	
Copyright (c) 2009 Micr	osoft Corp	oration.	All rights reserved.	-
C:\windows\system32>set	devngr_s}	iow_nonpre	esent_devices=1	
C:\windows\system32>sta	rt devngnt	.nsc		
C:\windows\system32>				
	Mark			
	Сору	Enter		
	Paste			
	Select All			
	Scroll			
	Find			
				*



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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 23*.



Fig. 23 – 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 24*.





