Page 3: [1] Deleted Cindy W 11/7/17 3:20 PM

1 YouTube Demo Videos / Quick Start 5
1.1 YouTube Demo Videos 5
1.2 Quick Start 5
2 Introduction 6
3 Visual Tour of the Hardware 8
3.1 USB Port 8
3.2 Binding Posts / PV Connection Cables 8
3.3 Innards 9
3.3.1 Circuit Board with Load Capacitors 9
3.3.2 Arduino UNO 10
3.3.3 Relay Module 11
4 Using the IV Swinger 2 Software 12
4.1 Main Window 12
4.1.1 Swing! Button 13
4.1.2 Results Wizard Button 13
4.1.3 Preferences Button 14
4.1.4 Plot Power Button 14
4.1.5 Loop Mode Controls 15
4.1.6 Axis Ranges Control 16
4.1.7 Image Size Control 16
4.1.8 Version 17
4.2 Tooltips 17
4.3 Menus 17
4.3.1 About Menu (Windows) 18
4.3.2 IV Swinger 2 Menu (Mac) 18
4.3.3 File Menu 19
4.3.4 USB Port Menu 19
4.3.5 Calibrate Menu 19
4.3.6 Help Menu 21
4.4 Results Wizard Dialog 21
4.4.1 Expanding and Collapsing Date Groups 22
4.4.2 Selecting Runs 23
4.4.3 Changing the Title 23
4.4.4 Overlaying Multiple Runs 24
4.4.4.1 Changing Overlay Plotting Options 25
4.4.4.2 Saving Overlays 25
4.4.5 Viewing the PDF 26
4.4.6 Batch Updates 26
4.4.7 Deleting Runs 27
4.4.8 Copying Runs 28
4.4.9 Changing Where to Look for Runs 30
4.4.10 Creating a Desktop Shortcut to Runs Folder 32
4.4.11 Importing Results from a USB Drive 33
4.5 Preferences Dialog 34
4.5.1 Plotting Preferences Tab 35

4.5.1.1 Line type 35
4.5.1.2 Isc, MPP, Voc labels 36
4.5.1.3 Font scale, Line scale, and Point scale 36
4.5.1.4 ADC correction 36
4.5.2 Looping Preferences Tab 37
4.5.3 Arduino Preferences Tab 38
4.5.3.1 SPI clock freq 38
4.5.3.2 Max IV points 38
4.5.3.3 Min Isc ADC 39
4.5.3.4 Max Isc poll 39
4.5.3.5 Isc stable ADC 39
4.5.3.6 Max discards 39
4.5.3.7 Aspect height 39
4.5.3.8 Aspect width 39
4.6 Folders and Files 39
4.6.1 IV_Swinger.cfg file 40
4.6.2 Logs folder 40
4.6.3 Run folders and files 40
4.6.3.1 IV_Swinger.cfg 40
4.6.3.2 iv_swinger2_yymmdd_hh_mm_ss.pdf 40
4.6.3.3 iv_swinger2_yymmdd_hh_mm_ss.gif 40
4.6.3.4 iv_swinger2_yymmdd_hh_mm_ss.csv 40
4.6.3.5 adc_pairs_yymmdd_hh_mm_ss.csv 41
4.6.4 Overlays folder 41
4.6.4.1 overlaid_yymmdd_hh_mm_ss.pdf 41
4.6.4.2 overlaid_yymmdd_hh_mm_ss.gif 41

5 Known Bugs 42
5.1 Gap between second and third points 42
5.2 Tail of curve only 43

6 Ratings and Limitations 44

7 Laptop Software Installation 45
7.1 Mac 45
7.1.1 IV Swinger 2 application (Mac) 45
7.2 Windows 45
7.2.1 IV Swinger 2 application (Windows) 45
7.2.2 Arduino driver (Windows) 45

8 Arduino Software Installation 46

Page 4: [2] Deleted **Cindy W** **11/7/17 3:20 PM**

Figure 2-1: Typical IV Curve of Unshaded PV Module 6
Figure 3-1: USB Port 8
Figure 3-2: Binding Posts and PV Cables 9
Figure 3-3: Circuit Board with Load Capacitors 10
Figure 3-4: Arduino UNO 10
Figure 3-5: Relay Module 11
Figure 4-1: Main Window (annotated) 12
Figure 4-2: IV Curve with Power Plotted 14
Figure 4-3: Results Wizard Dialog 21

Figure 4-4: Expanding a Date Group 22
Figure 4-5: Selecting a Run 23
Figure 4-6: Changing the Title of a Run 24
Figure 4-7: Creating an Overlay 25
Figure 4-8: Copying Runs to a USB Drive (Mac) 29
Figure 4-9: Copying Runs to a USB Drive (Windows) 30
Figure 4-10: Path to Results Folder 31
Figure 4-11: Changing the Path to a USB Drive 31
Figure 4-12: Path Successfully Changed to USB Drive 32
Figure 4-13: Making a Desktop Shortcut to Raw Results 33
Figure 4-14: Preferences Dialog 34
Figure 4-15: Preferences Looping Tab 36
Figure 4-16: Preferences Arduino Tab 37
Figure 4-17: Run folder contents 39