

Airport Lighting Controller AFS1000 User Manual

January 10, 2017



Contents

Table of Figures	iv
Table of Tables	v
Introduction	1
System Description	1
Operation	2
Basic Controller Operation.....	2
1. Pilot Activation.....	4
2. Manual Command.....	5
3. Emergency Override.	6
4. External or Remote Pushbuttons.....	7
5. Automatic Day/Night Operation.....	7
6. Manual Mic Click Button.....	7
Operation of Optional Features.....	8
Multiple Light Intensities	8
Photocell Sensor	9
External Switch.....	10
Remote Switch	10
Current Light Control	11
Voltage Light Control	12
VHF Transmitter.....	13
Transmitting Caution and Warning Messages.....	13
Tone Setup	15
Voice Setup	15
Programming the Airport Identifier	16
Wind Sensor	19
Installation of Lighting Controller	19
Checkout and Troubleshooting of Lighting Controller.....	19
Installation of Wind Sensor.....	20
Checkout and Troubleshooting of Wind Sensor	22

Specifications	23
Lighting Controller Specification.....	23
Wind Sensor Specifications.....	23

Table of Figures

Figure 1: System Block Diagram..... 2

Figure 2: Airport Lighting Intensity Indications..... 5

Figure 3: Location of Manual On Pushbutton..... 6

Figure 4: Location of Emergency On Switch 7

Figure 5: Location of Configuration Switches for 1-Step, 2-Step, or 3-Step Operation..... 9

Figure 6: Identification of the Photocell Option 9

Figure 7: Location of Day/Night Configuration Switches..... 10

Figure 8: Identification of the External Switch Option 10

Figure 9: Identification of the Remote Switch Option 11

Figure 10: Identification of the Current Control Option 12

Figure 11: Identification of the Voltage Control Option 13

Table of Tables

Table 1: Pilot Activation of Lights—1-Step Configuration	5
Table 2: Pilot Activation of Lights—2-Step Configuration	5
Table 3: Pilot Activation of Lights—3-Step Configuration	5
Table 4: Operation of Manual On Pushbutton	6
Table 5: Light Intensity commanded by the Photocell Sensor (during darkness with Night switch up)	10

Introduction

Thank you for choosing the Aegis Flight Systems Airport Lighting Controller. The Lighting Controller is designed to be simple and intuitive to use. We recommend that this User Manual be kept inside the Lighting Controller for quick reference in case we have missed the intuitive mark on some aspect of use.

Somewere need to discuss volume control of received audio

System Description

The following describes a fully configured Lighting System that includes many options. Your particular system may not incorporate all of the features described, depending on choices made at the time of purchase. We have attempted to make clear which features are optional, and to indicate how to determine which features are incorporated in your system. Most optional features can be added to existing systems for a reasonable upgraded fee. Please see www.aegisflightsystems.com for a list of upgrade prices, or call (303) 378-1749 to discuss your needs.

A fully configured system consists of a Lighting Controller, and Wind Sensor, and potentially includes external contactors, depending on the configuration of lights being controlled. This is shown in **Figure 1**.

The Lighting Control box responds either to VHF radio transmissions from the pilot, or to the optional photocell sensor, and turns on the airport lights. If the lights were activated by the pilot, then they will flash twice, remain on for 15 minutes, and then automatically turn off. The airport lights will flash during the last two minutes of the 15 minute period. The 15 minute period can be re-started by the pilot at anytime. The lights will flash twice each time the 15 minute period is restarted to provide feedback to the pilot that the timer has been reset. During the last two minutes of the 15 period, the lights can be reactivated by an abbreviated number of light clicks.

Please refer to Table 1 through Table 3 on pages 5 and 5 for detail on pilot activation of the lights.

The optional Wind Sensor senses wind direction and speed, and periodically transmits this information wirelessly to the Light Controller. When the lights are commanded on by the pilot, the Light Controller will flash the airport lights twice, as well as “listen” for a few seconds of no VHF transmission, and then will transmit the wind direction and speed over the VHF radio.

If the Light Controller is not receiving valid wind data, or if the optional Wind Sensor is not installed, then the Light Controller will transmit two tone bursts in lieu of wind information.



Pilot Mic Clicks
are detected by
Light Controller

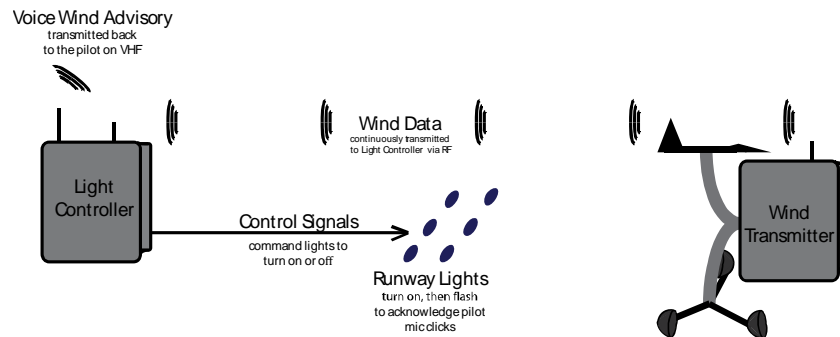


Figure 1: System Block Diagram

Operation

Basic Controller Operation

The airport lights can be turned on by several methods. Turn the Primary Power Switch to the On position for all modes. (See Emergency Override below for exceptions.)

See Figure 2 for a quick reference to controls and switches. See Figure 5 for the location of the Primary Power Switch.

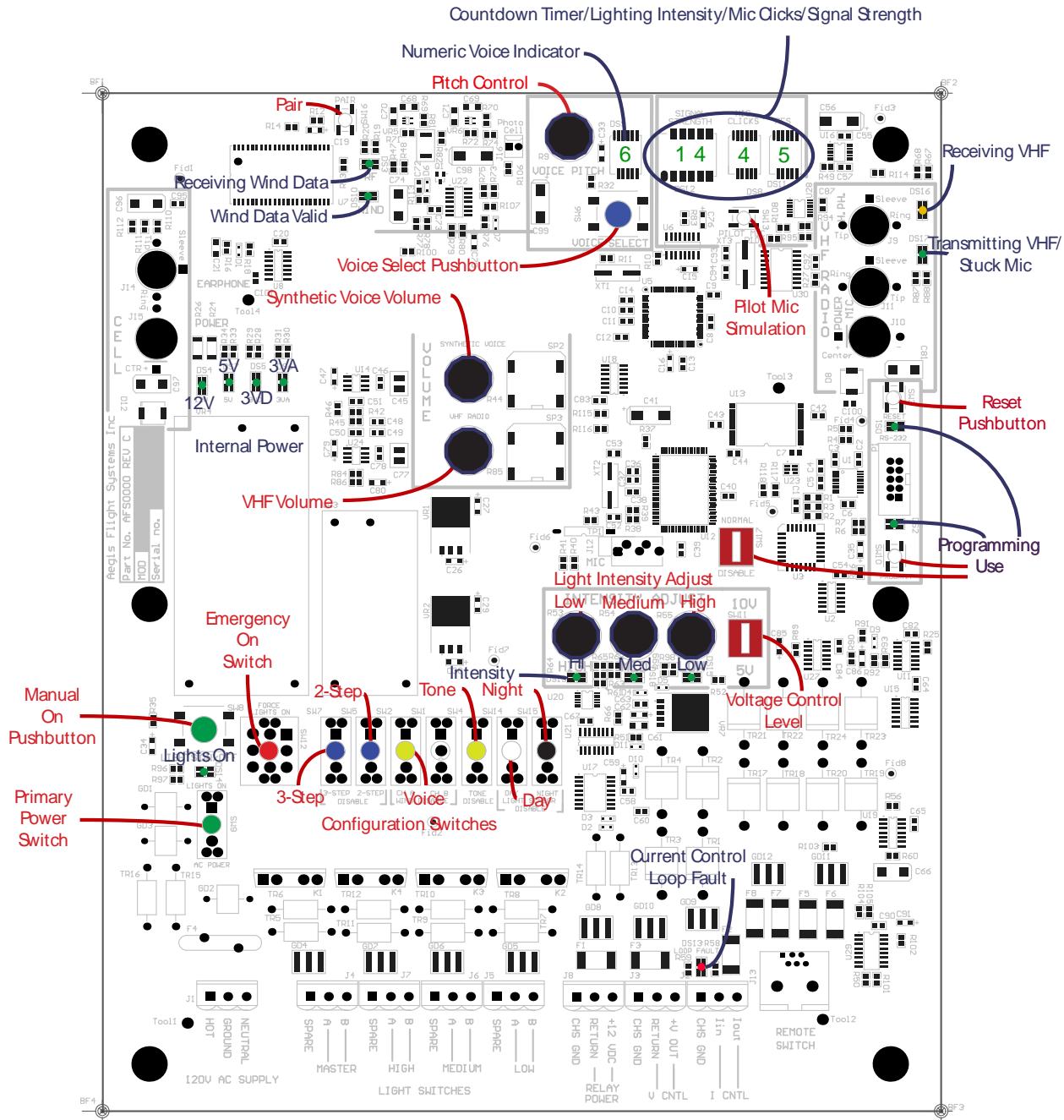


Figure 2: Quick Reference to Switches and Controls

**Primary
Power
Switch**

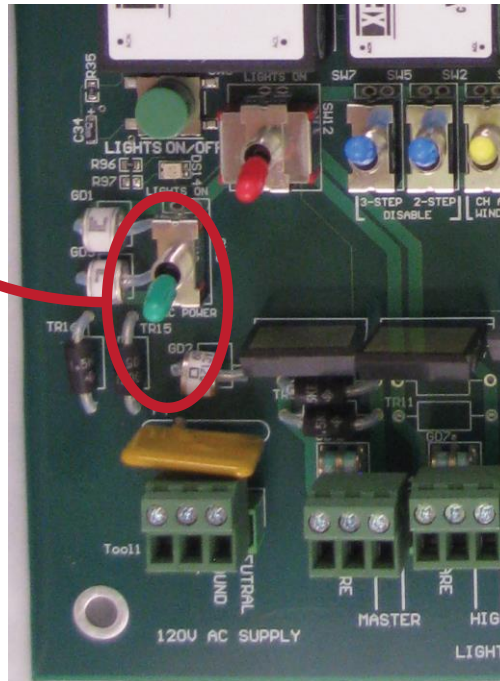


Figure 3: Location of Primary Power Switch

1. **Pilot Activation.** This is expected to be the primary method of operating the Light Controller. The pilot activates the lights by transmitting a certain number of mic clicks on the VHF radio. Please see tables below for the number of mic clicks required to activate the lights to different intensities.

Please note that the basic Light Controller is configured for 1-Step Operation only. The 2-Step and 3-Step modes are optional, but are included here for convenience of reference. See Multiple Light Intensities below to configure the Lighting Controller for the 1-Step, or optional 2-Step, or 3-Step modes.

A filter in the Light Controller differentiates between mic clicks and normal pilot voice communication. All mic clicks in the sequence must be completed within 5 seconds, and each click must be at least .15 seconds long, and no more than 1.5 seconds long. There must be at least .2 seconds pause between each mic click. The best way to activate the lights is to evenly space about half second clicks and pauses over a 5 second interval (click ½ sec, pause ½ sec, click ½ sec...).

Note: It is possible for routine pilot communications to occasionally match the profile needed to get through the VHF filter. This is normal and will cause the Lighting Controller to activate. If the false-activation rate is excessive, resulting in a high number of nuisance activations, then refer to Section xxx for guidance.

No. of Mic Clicks	Current Light Intensity	Commanded Light Intensity
5	Any	High
3	Flashing	

Notes

1. Mic clicks and pauses spaced evenly across 5 seconds
2. All mode transitions reset the 15 Minute Timer.
3. If the lights are Flashing, then only 3 clicks are required to reset the 15 minute timer.

Table 1: Pilot Activation of Lights—1-Step Configuration

No. of Mic Clicks	Current Light Intensity	Commanded Light Intensity
5	Any	High
3	Any except Off	Medium

Notes

1. Mic clicks and pauses spaced evenly across 5 seconds
2. All mode transitions reset the 15 Minute Timer.
3. If the lights are off, in order to activate Medium Intensity, the lights must first be turned on to High Intensity with 5 mic clicks.
4. If the lights are Flashing, then only 3 clicks are required to reset the 15 minute timer.

Table 2: Pilot Activation of Lights—2-Step Configuration

No. of Mic Clicks	Current Light Intensity	Commanded Light Intensity
7	Any	High
5	Any except Off	Medium
3	Any except Off	Low

Notes

1. Mic clicks and pauses spaced evenly across 5 seconds
2. All mode transitions reset the 15 Minute Timer.
3. If the lights are off, in order to activate Medium or Low Intensity, the lights must first be turned on to High Intensity with 7 mic clicks.
4. If the lights are Flashing, then only 3 clicks are required to reset the 15 minute timer.

Table 3: Pilot Activation of Lights—3-Step Configuration

The current activated light intensity is indicated by an alpha-numeric display, and an LED. See Figure 4 for these indications. While the lights are on, a digital timer indicates the time remaining for the 15 minute interval.

[figure for light intensity and for digital time remaining]

Figure 4: Airport Lighting Intensity Indications

2. **Manual Command.** The Manual On pushbutton (See Figure 5) will command the lights to cycle through the various intensities depending on how the Lighting Controller is configured. The Manual On pushbutton is intended for maintenance activities or system checkout.

Each press of the Manual Lights pushbutton will cycle the airport lights through various intensities as shown in **Table 4** (page 6).

Light Controller Configuration	Intensity commanded by each press of the Manual On pushbutton
3-Step	High→Medium→Low→Off→High→...
2-Step	High→Medium→Off→High...
1-Step	High→Off→High→...

Table 4: Operation of Manual On Pushbutton

See [Section xx] to configure the Lighting Controller for the 1-Step, 2-Step, or 3-Step modes. Note that “3-Step” mode and “2-Step” mode are optional features.

Manual On Pushbutton

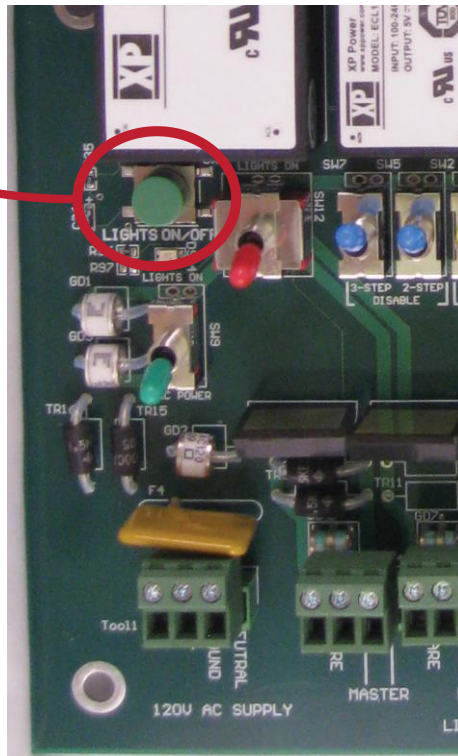


Figure 5: Location of Manual On Pushbutton

3. **Emergency Override.** The Emergency On switch will bypass the electronics of the Light Controller and command the lights to High Intensity. (See Figure 6.) This feature is intended to enable ground operators to force the lights to come on when there is a failure of the Light Controller to operate properly.

The relays on the board will be closed independent of the electrical operation of the board. If the onboard 12V Relay Supply is used to power external relays, then the Emergency Override

switch will not override that Supply. If the 12V Supply is inoperative, or the Primary Power Switch is off, then the Emergency Override Switch will not supply Power to the external relays.

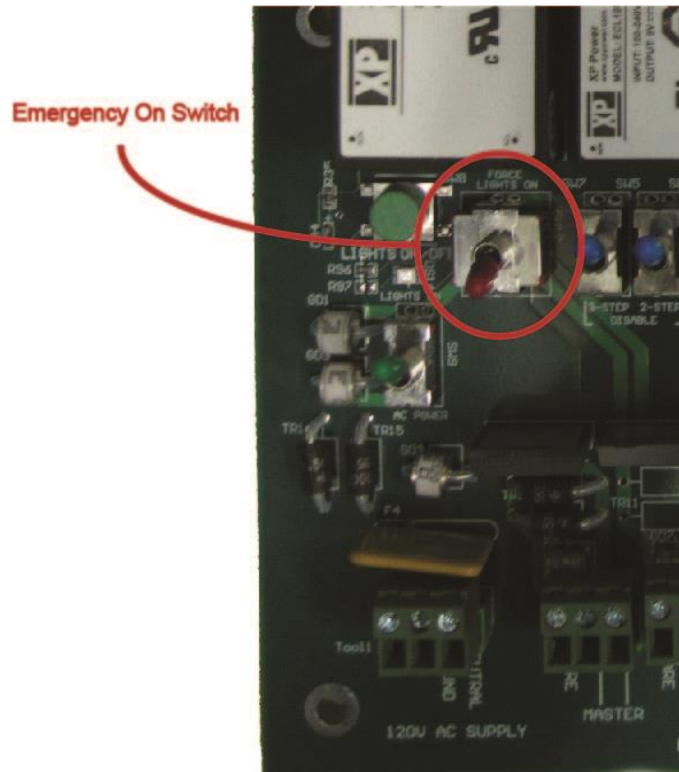


Figure 6: Location of Emergency On Switch

4. **External or Remote Pushbuttons.** These Pushbuttons are optional (See **section xx** below). Operation is identical to the Manual On pushbutton as described in **Table 4**. These switches are intended to provide easy routine operation of the lights by an FBO.
5. **Automatic Day/Night Operation.** With optional Photocell Control, the lights can be configured to automatically turn on at night, or to automatically disable lighting during the day. See **section x** for a description. These modes can be used to conserve power and bulb life during day operations, or to bypass VHF circuitry at night.
6. **Manual Mic Click Button.** The Manual Mic Click pushbutton is intended for system checkout and trouble-shooting. (See **Section ss** for further detail and location of the Manual Mick Click Pushbutton.) The Manual Mic Click pushbutton bypasses the VHF Receiver and mic click filter and sends a “mic click” signal directly to the Light Controller Processor. Thus, the effect of pushing the Manual Mic Click pushbutton is identical to that of a pilot mic click as described in **Item 1** above.

Operation of Optional Features

The following paragraphs describe features of the Airport Lighting Controller that are optional for purchase. Your particular system may not incorporate all of the features described, depending on choices made at the time of purchase. Most optional features can be added to existing systems for a reasonable upgraded fee. Please see www.aegisflightssystems.com for a list of upgrade prices, or call (303) 378-1749 to discuss your needs.

Multiple Light Intensities

The Basic System is be configured for 1-Step operation only, which supports only one lighting intensity (referred to as “High Intensity” in this manual). 2-Step configuration is optional and supports two lighting intensities (described as “Medium” and “High” in this manual). 3-Step configuration is optional and supports three lighting intensities (described as “Low,” “Medium” and “High” in this manual).

Note that the terms “Low,” “Medium” and “High” Intensity refers to operation of the Light Controller. The actual intensity of your lighting depends on what is installed and how they are installed. For example, your installation might be Low Intensity only. Even though the Lighting Controller might command High Intensity, your lighting system might be configured to respond to the command with Low Intensity illumination. See **Installation of Lighting Controller** below for a discussion of Intensity “commands” from the Lighting Controller, and options for interfacing to your particular lights.

Identification of Multiple Light Intensity Options. If the Lighting Controller has the 3-Step Switch installed as shown in [] below, then this indicates that the 3-Step Option was installed at the factory. If the switch is missing, then the 3-Step Option was not purchased.

Similarly, if the Lighting Controller has the 2-Step Switch installed, then the 2-Step Option was installed at the factory. (The factory will normally install the 2-Step Option in addition to the 3-Step Option when the 3-Step Option is requested, but this is not a requirement.)

If neither of these two switches is installed, then the Lighting Controller is configured for 1-Step operation only.

Operation with Multiple Light Intensities. For convenience of reference, operation of 1-Step, 2-Step and 3-Step modes is described in detail in Basic Controller Operation above.

Configuration of the Light Controller for 1-Step, 2-Step, or 3-Step Operation.

To configure for 3-Step Operation, set the 3-Step switch shown in Figure 7 to the up position. This will override the position of the 2-Sep switch and configure the Lighting Controller for 3-Step Operation.

To configure for 2-Step Operation, set the 2-Step switch shown in Figure 7 to the up position, and set the 3-Step switch (if installed) to the down position. This will configure the Lighting Controller for 2-Step Operation.

To configure for 1-Step Operation, set both the 3-Step and 2-Step switches shown in Figure 7 to the down position (if installed). This will configure the Lighting Controller for 1-Step Operation.

3-Step and 2-Step Enable Switches

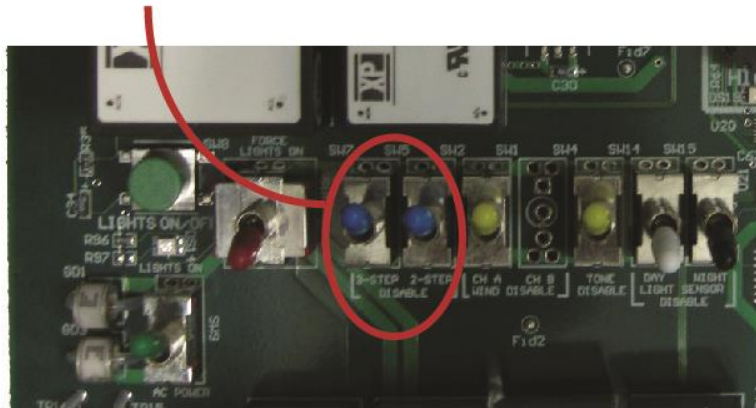


Figure 7: Location of Configuration Switches for 1-Step, 2-Step, or 3-Step Operation

Photocell Sensor

The Photocell Sensor provides the ability to configure the Light Controller to disable the lights during daylight to save energy and bulb life, as well as the ability to configure the Light Controller to automatically activate the lights during darkness. This capability can also serve as a backup mode if there are issues with the VHF function of the Light Controller (such as damaged antenna, etc.).

Identification of the Photocell Sensor Option. If the Lighting Controller has the Photocell Sensor window visible on the top of the Lighting Controller housing (shown in Figure 8), then the Photocell options is installed. There will also be two configuration switches installed as shown in Figure 9.

Operation of the Photocell Option. The photocell can control Day operation or Night operation of the runway lights, depending on switch setting. These two are independent of each other.

Day Photocell Operation. If the Day switch shown in Figure 9 is in the up position, then the airport lights will be commanded off during daylight hours. All other features will be unaffected. Putting the Day switch in the down position will disable all photocell control during daylight hours.

Night Photocell Operation. If the Night switch shown in Figure 9 is in the up position, then the airport lights will be commanded on during darkness. This will override any other commands to the airport lights, but all other Lighting Controller features are unaffected.

The intensity of the lights with the Night switch up will be determined by how the Lighting Controller is configured for Multiple Light Intensity operation, as shown in Table 5 (page 10). (See Multiple Light Intensities to understand which Multiple Light Intensity options are available, or to change the Multiple Light Intensity configuration.)

Putting the Night switch in the down position will disable all photocell control during darkness. Light intensity will be controlled as described in Basic Controller Operation.

[figure xx]

Figure 8: Identification of the Photocell Option

Day and Night Mode Switches

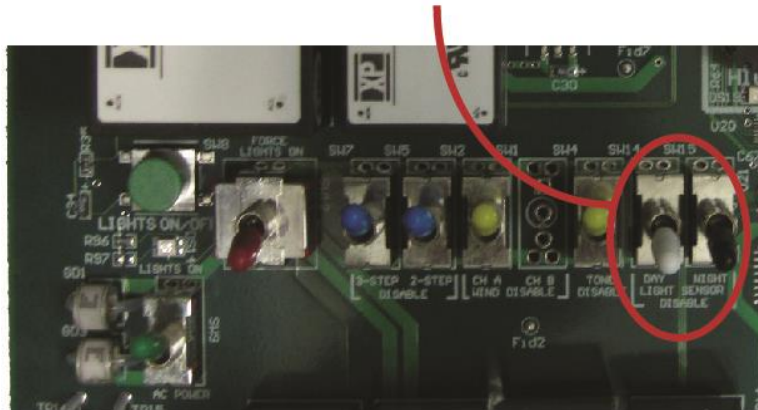


Figure 9: Location of Day/Night Configuration Switches

Lighting Controller Configuration	Light Intensity
1-Step	High
2-Step	Medium
3-Step	Low

Table 5: Light Intensity commanded by the Photocell Sensor (during darkness with Night switch up)

External Switch

The External Switch is mounted in the Light Controller housing and enables ground crews to activate the lights without opening the housing door. It is intended for situations where the Light Controller housing is locked, yet ground crews need to activate the lights, or Light Controller is in a protected area and more convenience is desired.

Identification of the External Switch Option. If the Lighting Controller has the External pushbutton visible on the side of the Lighting Controller housing (shown in **Figure 10** (page 10)), then the External Switch option is installed.

Operation of the External Switch. Pressing the External pushbutton has the same effect as pushing the Manual On pushbutton button. Each press of the External pushbutton will cycle the airport lights through various intensities as shown in **Table 4** (page 6).

[figure xx]

Figure 10: Identification of the External Switch Option

Remote Switch

The Remote Switch can be mounted in any remote location distant from the Light Controller housing itself, and enables ground crews to activate the lights without having direct access to the Light Controller. It allows the Light Controller to be located in a protected area or in any location, while providing a convenient location for the switch itself.

Identification of the Remote Switch Option. If the Lighting Controller has the Remote Switch Jack installed on the Printed Wiring Board (labeled J13), then the Lighting Controller has the Remote Switch option installed. This jack is shown in Figure 11.

Operation of the Remote Switch. Pressing the Remote pushbutton has the same effect as pushing the Manual On pushbutton button. Each press of the Remote pushbutton will cycle the airport lights through various intensities as shown in Table 4 (page 6).

Remote Switch Jack

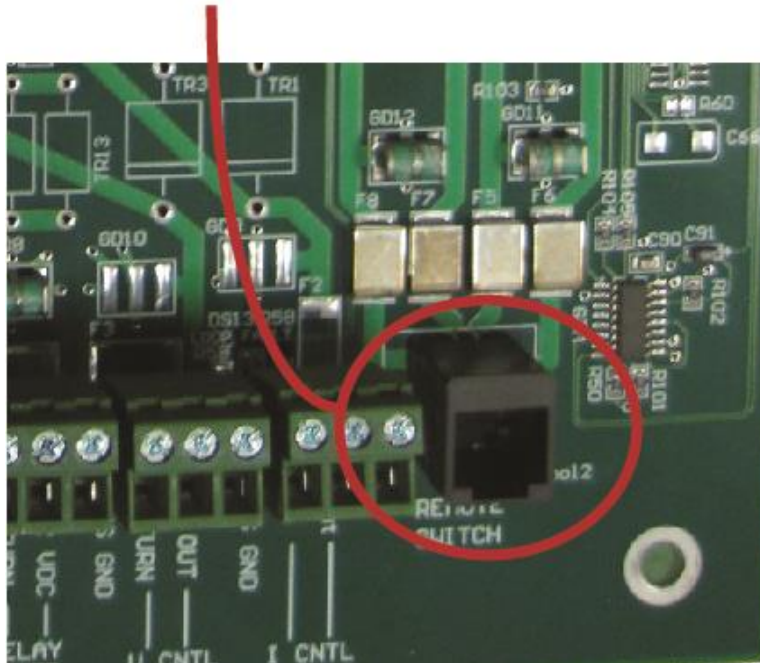


Figure 11: Identification of the Remote Switch Option

Current Light Control

The standard means for the Lighting Controller to control exterior airport lights is through solid state relays installed in the Lighting Controller. A 4-20 ma current driver is available as an alternate means to transmit intensity signals to an external or remote lighting control system.

Identification of the Current Control Option. If the Lighting Controller has the J2 terminal block installed on the bottom edge of the printed wiring board as shown in Figure 10, then the Current Control option is installed.

Operation of the Current Control Option. There are up to three controls in the Lighting Controller that provide the installer with a means to set the intensity levels of the airport lights for Low, Medium, and High Intensity (depending on whether the 1-Step, 2-Step, or 3-Step options were installed at the factory). These are intended to be set during system installation and setup as described in section xx.

An LED indicates when a fault is detected in the external control wiring or external lighting controller. This is discussed in Section cc.

Current Control Terminal Block

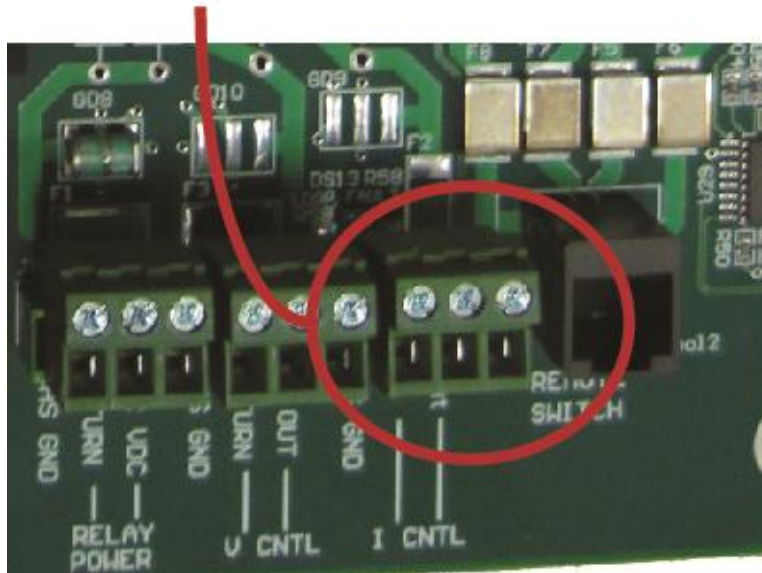


Figure 12: Identification of the Current Control Option

Voltage Light Control

A voltage driver is also available as an optional means to transmit intensity signals to an external or remote lighting control system.

Identification of the Voltage Control Option. If the Lighting Controller has the J3 terminal block installed on the bottom edge of the printed wiring board as shown in Figure 13 below Figure 10, then the Voltage Control option is installed.

Operation of the Voltage Control Option. There are up to three controls in the Lighting Controller that provide the installer with a means to set the intensity levels of the airport lights for Low, Medium, and High Intensity (depending on whether the 1-Step, 2-Step, or 3-Step options were installed at the factory). These are intended to be set during system installation and setup as described in section xx.

An switch selects between 5 and 10 volts of control range. This switch is intended to be set during installation and setup as described in section xx.

Voltage Control Terminal Block

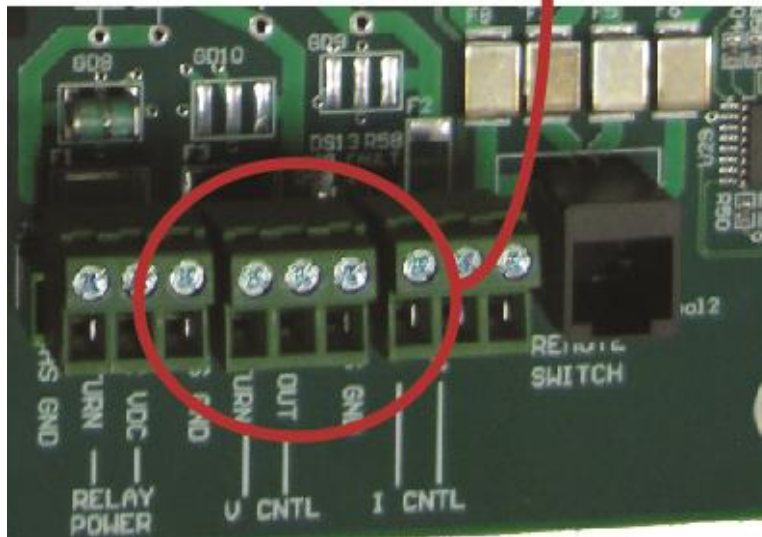


Figure 13: Identification of the Voltage Control Option

VHF Transmitter

The standard Lighting Controller receives VHF radio transmissions from the pilot and responds by turning on and then flashing the airport lights. The VHF Transmitter option adds the capability for the Lighting Controller to transmit voice and tones back to the pilot. The primary intent of this option is for the Lighting Controller to transmit wind information from the optional Wind Sensor (described in xxx) back to the pilot. The VHF Transmitter can also provide positive feedback to the pilot that he or she has selected the correct VHF frequency for the airport, that the aircraft radio is set and working properly, or that the lights have been turned on. The VHF Transmitter option also provides the capability to transmit caution and warning messages, such as when the airport is closed, or runway maintenance is taking place.

Identification of the VHF Transmitter Option. If the Lighting Controller has phone jack J11 installed on the right edge of the printed wiring board as shown in Figure 14 below, then the VHF Transmitter option is installed.

VHF Transmit Jack (J11)

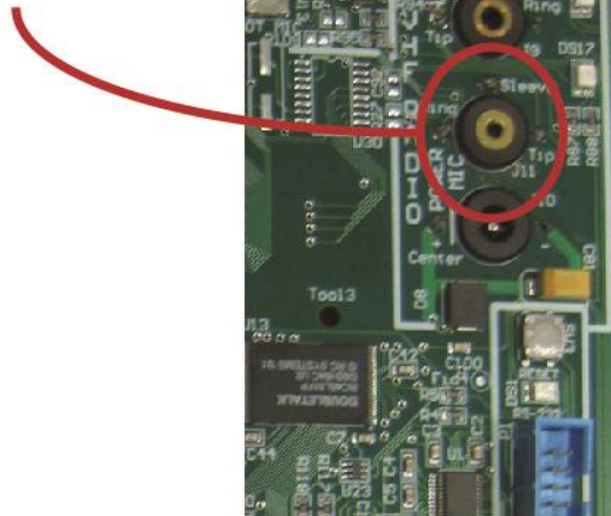


Figure 14: Identification of the VHF Transmitter Option

Operation of the VHF Transmitter Option. If the VHF Transmitter option is installed and set up, then the Lighting Controller will transmit on the Airport Common Frequency (CTAF) whenever the lights are activated by any means for the 15-minute period. Emergency Override and Automatic Night Operation described in **Basic Controller Operation** on page 2 will not activate the 15-minute timer, and thus will not trigger a VHF transmission.

With the optional Wind Sensor installed, when the airport lights are activated, the Lighting Controller will pause and “listen” until the VHF frequency is clear, and then transmit the airport name, followed by wind direction and speed. If a Caution or Warning message is activated, then that message will be transmitted following the wind information.

Putting the Wind Disable switch (Figure 15) in the down position will disable all voice transmission, causing the Lighting Controller to transmit two tone bursts instead of voice whenever the lights are activated. This switch would be normally used during a failure of the Wind Sensor that would cause it to transmit faulty wind advisories, such as lack of calibration, or physical damage.

If the Lighting Controller is not receiving wind information because the Wind Sensor is turned off, malfunctioning, not installed, or for any other reason, then the Lighting Controller will also transmit two tone bursts instead of voice wind information (except when a Caution or Warning message is active per xx).

Putting the Tone Disable switch (Figure 15) in the down position will disable transmission of the tones.

Both the Wind Disable and the Tone Disable switches should normally be in the up position, allowing the Lighting Controller to automatically select the method of transmission. If one of the switches are off, then no VHF transmission will occur when that method of transmission is appropriate.

Wind and Tone Enable Switches

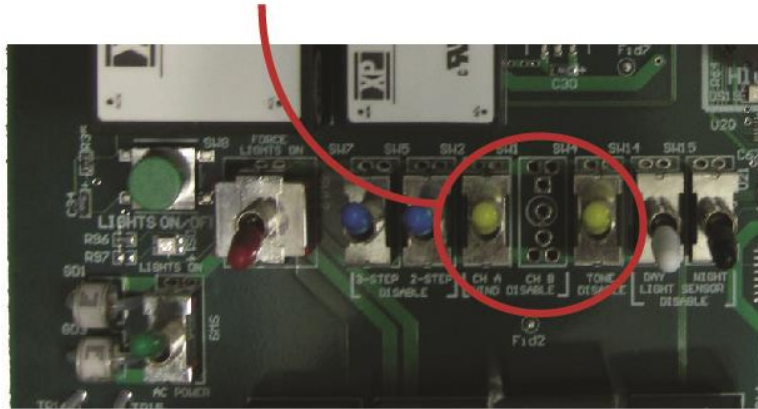


Figure 15: Configuring the VHF Transmitter Option

Tone Setup. A burst of two tones is transmitted (if not disabled) whenever the airport lights are activated and voice data is not available or is disabled. The frequency of the tone can be selected by pressing the Voice Select pushbutton shown in Figure 16. This can be used to differentiate between transmissions from two different airports located near each other, or simply allows selection of the most pleasant tone.

To select the desired tone, follow these steps:

1. Disable all voice by putting the Wind Disable switch in the down position (Figure 15).
2. Enable tone transmission by putting the Tone Disable switch in the up position (Figure 15).
3. Set the Synthetic Voice Volume level to an appropriate level that can be heard (normally full clockwise) (Figure 16).
4. Press and release the Voice Select pushbutton (Figure 16) to cycle through xx available tones.
 - a. The first time the Voice Select pushbutton is pressed, the current tone setting will be heard in the speaker.
 - b. Each subsequent press of the Voice Select pushbutton within 10 seconds will select the next available tone, which can be heard in the speaker. A number designating which tone is selected will be displayed in the numerical display (Figure 16). If desired, this number can be recorded to document the Lighting Controller configuration.

The number displayed corresponds to the telephone key that generates the selected tone. For example, if “3” is displayed, then the frequency of the selected tone matches that of the “3” key on a conventional telephone.

- c. When the end of available tones is reached, the selection will cycle back to the beginning and repeat.
5. When the desired tone is selected, wait 10 seconds for the numeric indication (Figure 16) to go blank, indicating that the current selection is stored.

- Return the Wind Disable and Tone Disable switches to the desired position (normally up).

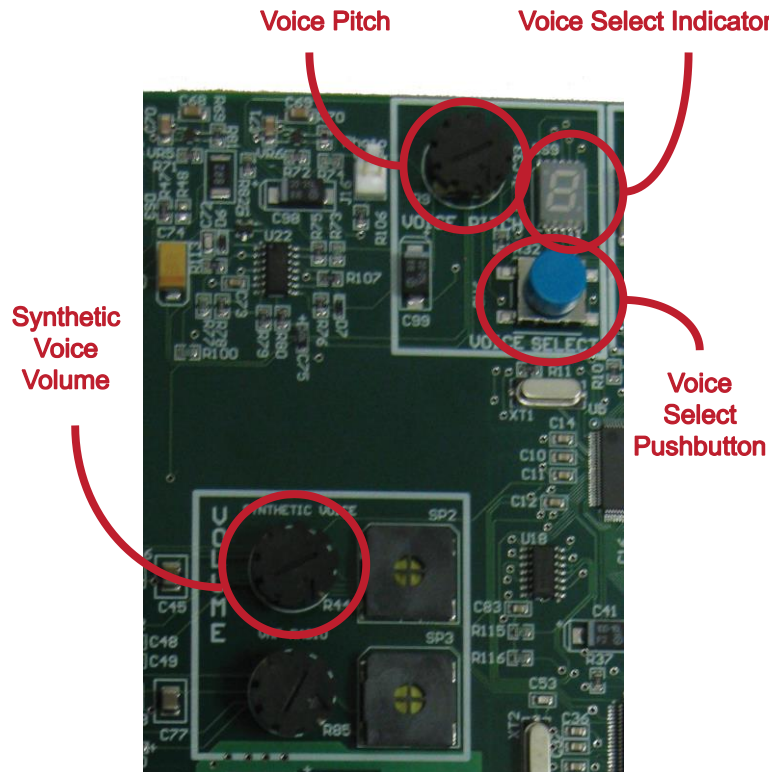


Figure 16: Setting up the Tone

Voice Setup. The user can select from 10 different “voices” to be used in VHF transmission of wind information. The pitch of the selected voice can also be adjusted.

To select the desired voice, follow these steps:

1. Enable voice transmission by putting the Wind Disable switch in the up position (Figure 15).
2. Set the Synthetic Voice Volume level to an appropriate level that can be heard (normally full clockwise) (Figure 16).
3. Press and release the Voice Select pushbutton (Figure 16) to cycle through 11 available voices.
 - a. The first time the Voice Select pushbutton is pressed, the current voice setting will be heard in the speaker.
 - b. Each subsequent press of the Voice Select pushbutton within 10 seconds will select the next available voice, which can be heard in the speaker. A number designating which voice is selected will be displayed in the numerical display (Figure 16). If desired, this number can be recorded to document the Lighting Controller configuration.

For reference, the “name” of each voice and it’s corresponding number are shown in Table 6 below.

- c. When the end of available voices is reached, the selection will cycle back to the beginning and repeat.

4. When the desired voice is selected, wait 10 seconds for the numeric indication (Figure 16) to go blank, indicating that the current selection is stored.
5. Return the Wind Disable switch to the desired position (normally up).

The pitch of the voice can be adjusted by turning the Pitch Adjust knob (Figure 16). Rotating the knob to the right will increase pitch. As the knob is rotated, the Lighting Controller will echo the airport location in Speaker SP2. (Ensure the volume of the speaker is set to an audible level (Figure 16.) A numerical value is assigned to each setting, and is displayed for xx seconds as shown in Figure 16 whenever the pitch is adjusted.

Rotating the Pitch Adjust knob full clockwise will select automatic pitch mode. This will adjust the pitch of VHF transmissions automatically as a function of wind speed or wind gusts. Higher winds speeds will be transmitted with a higher pitch voice. This can assist in getting the pilots attention when unusually wind conditions exist.

[figure xx]

Figure 17: Setting up the Voice Option

Voice Number	Voice Name
0	Perfect Paul
1	Vader
2	Big Bob
3	Precise Pete
4	Ricochet Randy
5	Biff
6	Skip
7	Robo Robert
8	Goliath
9	Alvin
A	Gretchen

Table 6: Available Voice Selections

Format of VHF Wind Advisories. The format of the transmitted wind speed and direction changes with the wind conditions. Table 7 below provides sample formats transmitted by the Lighting Controller.

Wind Conditions	Transmit Format
Average wind velocity < 2 knots Wind energy span < 60 degrees	"[Airport Name] wind advisory calm"

Average wind velocity > 2 knots	"[Airport Name] wind advisory [three] [six] zero at [five] knots"
Wind Gusts > 3 knots ¹	"[Airport Name] wind advisory [three] [six] zero at [five] knots gusts to [ten] knots"
Energy direction spans more than 60 degrees Wind velocity > 2 knots	"[Airport Name] wind advisory variable [three] [three] zero to [zero] [five]zero at [five] knots"
Energy direction spans more than 60 degrees Wind velocity < 2 knots	"[Airport Name] wind advisory variable at [five] knots"
Wind information not available	Two Tone Bursts ²
<ol style="list-style-type: none"> 1. Gust are only reported if maximum wind velocity is 14 knots or greater. 2. Tone switch must be enabled. Assumes Caution or Warning messages are not activated. 	

Table 7: Format of Wind Advisories Transmitted over VHF Radio

Transmitting Caution and Warning Messages. The factory can program two messages in the Lighting Controller that are intended to be used in special situations, such as runway closure or activity near the runway. These messages can then be easily activated as the need arises. For example, and Warning Message might be "Runway Closed," while a Caution Message might be "Caution maintenance activities near the runway." When the message selected, and provided VHF Transmission is installed and enabled, the message will be transmitted on the VHF radio following transmission of wind information.

Advanced users may prefer the capability to customize the Warning and Caution messages at various times after the Lighting Controller is delivered from the factory. See section xx for programming instructions.

Activating the Caution or Warning Message. There are three messaging modes- Normal, Caution, and Warning. In Normal mode, only wind information is transmitted on the VHF frequency. If Caution Mode is selected, then wind information is transmitted on the VHF frequency, followed by the Caution Message. Similarly, if Warning Mode is selected, then wind information is transmitted on the VHF frequency, followed by the Warning Message.

Use the steps below to select between these three message modes:

1. Set the Synthetic Voice Speaker level to an appropriate level that can be heard (normally full clockwise) (Figure 16).
2. Press *and hold* the Voice Select pushbutton (Figure 16) for at least 2.5 seconds. Release the button when you hear the Lighting Controller say "Normal," "Caution," or "Warning," which is the current message mode setting.
3. Each subsequent press of the Voice Select pushbutton within 75 seconds will select the next message mode. Repeated pressing will cycle through all three modes and then repeat.
4. When the desired voice is selected, no further action is required. After 75 seconds, the Lighting Controller will time out back to normal operation.

Wind Sensor

Wind Sensor Paring

Wind Sensor Calibration

Solar Power

Installation of Lighting Controller

Programming the Airport Identifier. Blah blah.

[figure xx]

Figure 18: Programming the Airport Identifier

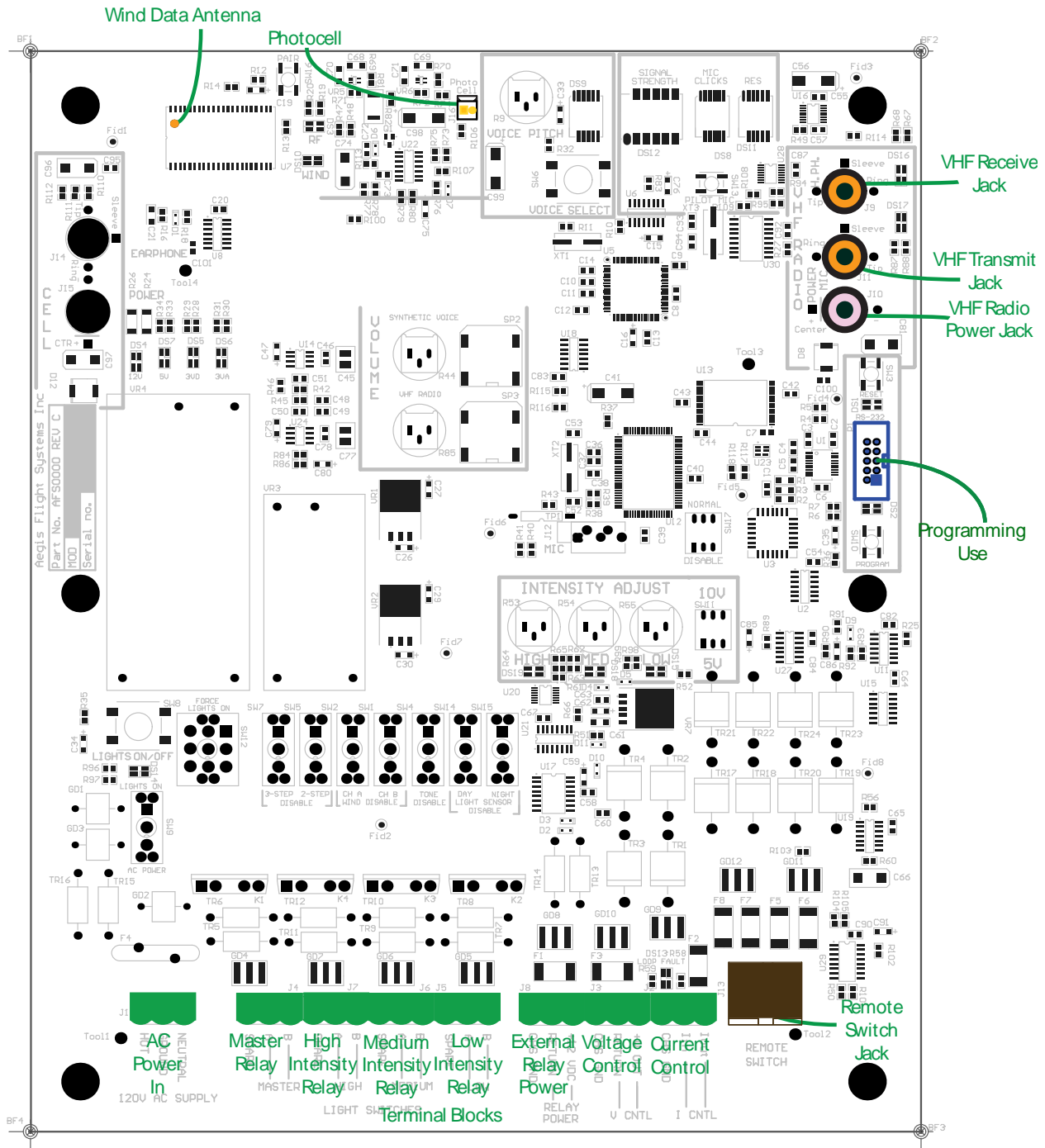


Figure 19: PWB Connections

Checkout and Troubleshooting of Lighting Controller

Setting the Audio Input Signal Level to the VHF Radio. There are 10 selectable audio signal levels used to drive microphone input of the VHF radio. The highest level which results in clear undistorted audio being transmitted over the VHF Frequency is recommended.

To set the audio signal level, follow the procedure below.

1. Set the Synthetic Voice Speaker level to an appropriate level that can be heard (normally full clockwise) (Figure 16).
2. Press *and hold* the Voice Select pushbutton (Figure xx) for at least 5 seconds. After the first 2.5 seconds, you will hear the current message mode stated. Continue to press the Voice Select pushbutton. Release the button when you hear the Lighting Controller say "Volume."

(If you inadvertently release the Voice Select pushbutton too early, then press and hold it again to enter Volume mode. You may need to go back and reset the Message mode if it was inadvertently change.

 - a. The current volume setting will displayed numerically (0-9) will be displayed in the numerical display (Figure x). If desired, this number can be recorded to document the Lighting Controller configuration.
 - b. Each subsequent press of the Voice Select pushbutton within 75 seconds will increment the volume level.
 - c. If the volume level is incremented past 9, then the selection will cycle back to 0 and repeat.
3. Configure the Lighting Controller to transmit voice (SECTION xx). Using a handheld or other radio from more than 50 feet away, activate the lights and evaluate the quality of the audio received in the handheld radio.
4. If necessary, repeat the steps above until the audio is loud and clear.
5. When the desired volume level is selected, no further action is required. After 75 seconds, the Lighting Controller will time out back to normal operation.

Installation of Wind Sensor

Checkout and Troubleshooting of Wind Sensor

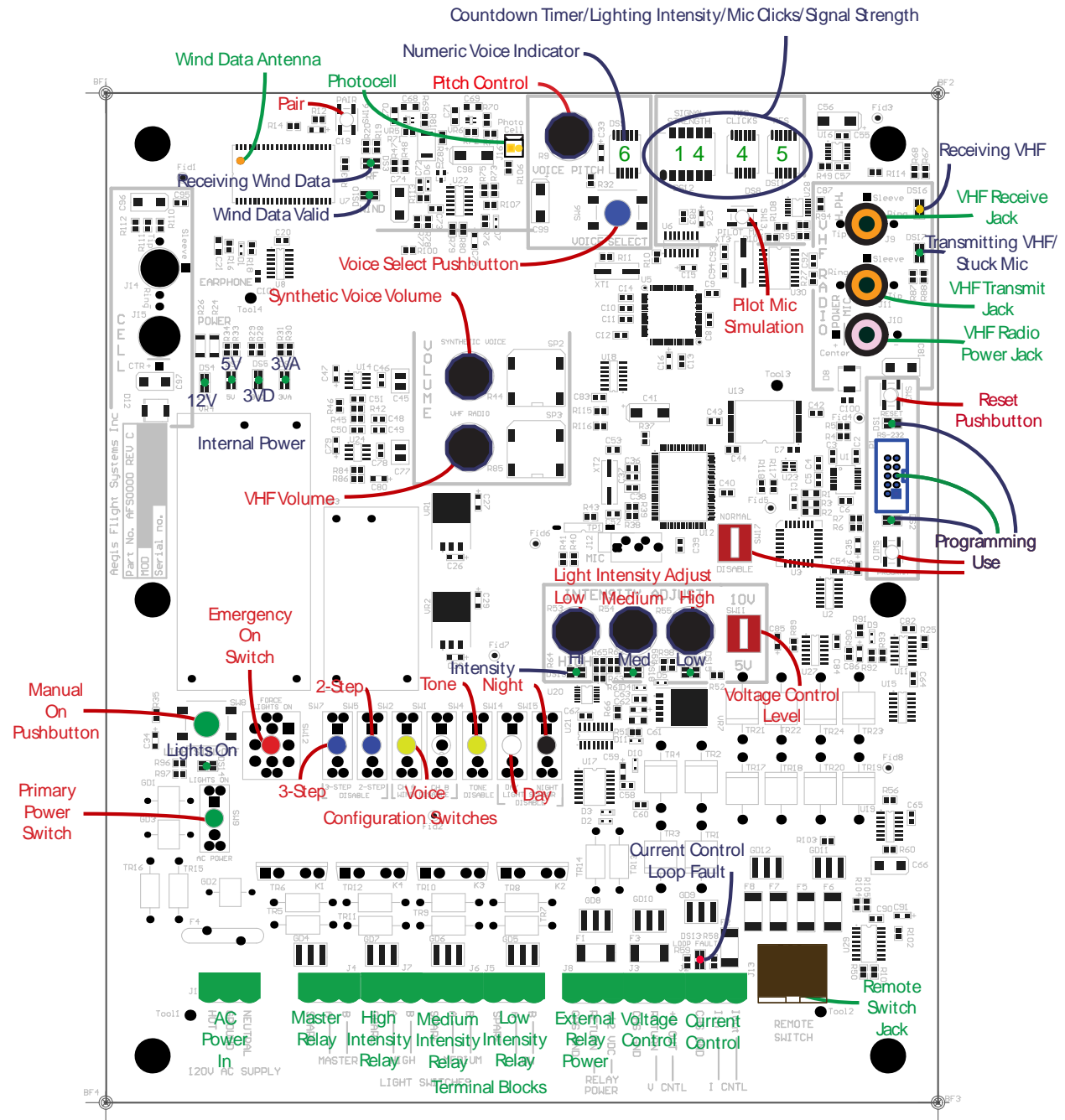


Figure 20: PWB Reference

Specifications

Lighting Controller Specification

Wind Sensor Specifications

No index entries found.