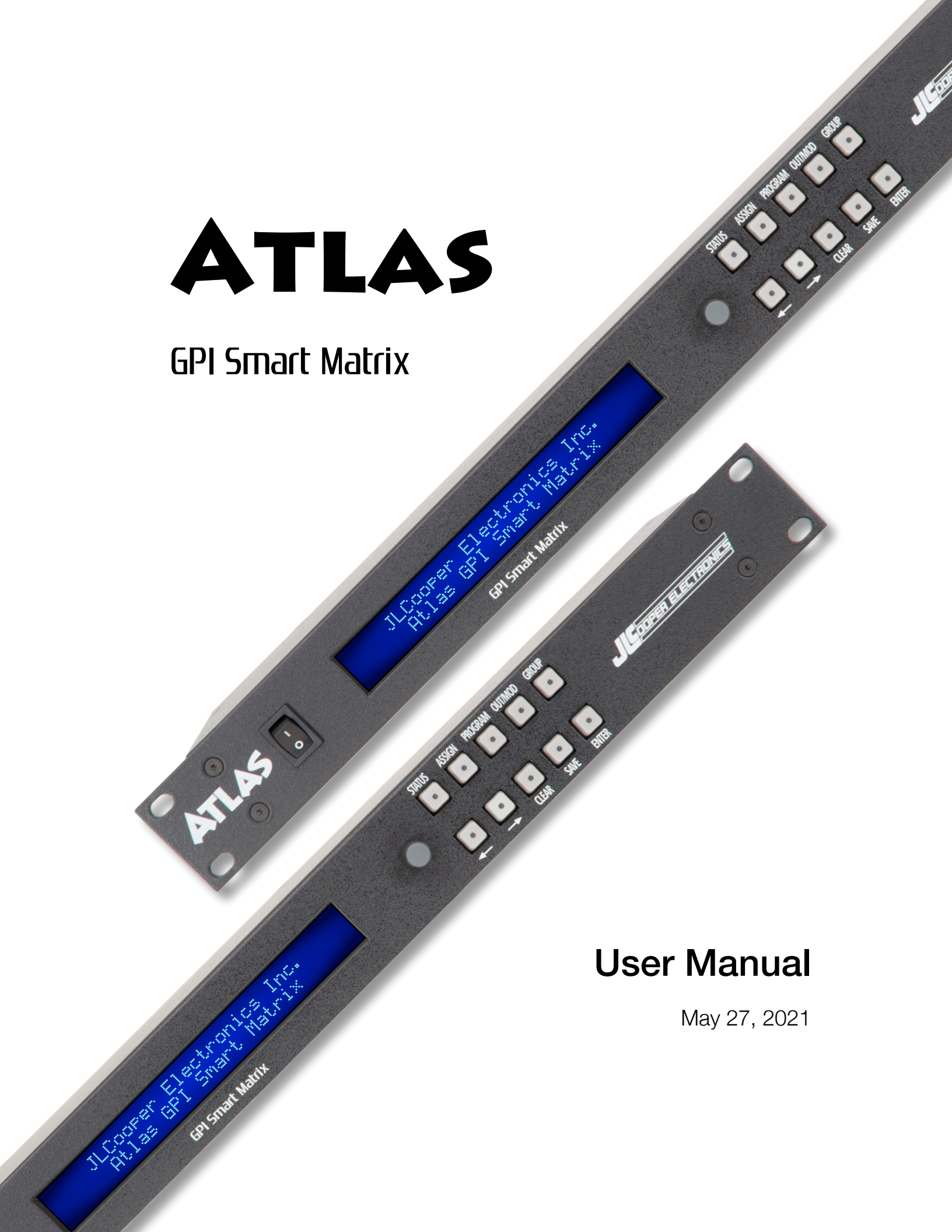
Atlas

GPI Smart Matrix



User Manual

May 27, 2021

Atlas User Manual, May 27, 2021
Part Number 932507

142 Arena St, El Segundo, CA 90245 USA
+1 (310) 322-9990 FAX +1 (310) 335-0110 www.jlcooper.com

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Introduction

Thank you for choosing the Atlas GPI Smart Matrix. The Atlas is essentially a 24 input by 24 output matrix. Each of the 24 outputs has the ability to act on any of the inputs or combination of inputs. In addition, the behavior of the outputs can be modified to suit your requirements.

The behavior of the matrix and outputs can be modified from the front panel or remotely via the rear panel Ethernet or USB connectors.

Identification

Front Panel

The front panel of the Atlas forms the user interface of the unit. It comprises a 2 line by 40 character display, 10 illuminated buttons, a rotary encoder knob and the units power switch.

The front panel shows the status of the GPI Inputs and GPI Outputs. It also allows the various parameters in the unit to be viewed and modified.

Rear Panel

The rear panel contains various connectors for the GPI Inputs, GPI Outputs, Ethernet, USB and Power.

GPI Input

The Atlas has two sets of 24 GPI Inputs. The two inputs are parallel and are logically identical. One is optically isolated and uses a terminal strip. The other is CMOS logic (0 to 5 volt) compatible and appears on a 25 pin D-Subminiature connector.

GPI Output

The Atlas has two sets of 24 GPI Outputs. The two outputs are parallel and are logically identical. One is isolated by a “dry contact” closure and uses a terminal strip. The other is CMOS logic (0 to 5 volt) compatible and appears on a 25 pin D-Subminiature connector.

Ethernet And USB

The Atlas has Ethernet and USB ports. These ports allow the Atlas to be remotely configured and monitored.

The Ethernet port is a 100/10 Mbps port. The Ethernet port can automatically sense the transmit and receive pairs and automatically crossover if necessary.

The USB port is USB 2.0/1.1.

Power

The power connector for the unit is a standard IEC power inlet. The unit can be power from 100 ~ 250 Volts AC, 50 ~ 60 Hz.

Theory Of Operation

The Atlas is essentially a 24 input by 24 output matrix. Each of the 24 outputs has the ability to act on any of the inputs or combination of inputs. In addition, the behavior of the outputs can be modified to suit your requirements.

GPI Inputs

The Atlas has two sets of 24 GPI Inputs. The two inputs are parallel and are logically identical. One is optically isolated and uses a terminal strip. The other is CMOS logic (0 to 5 volt) compatible and appears on a 25 pin D-Subminiature connector.

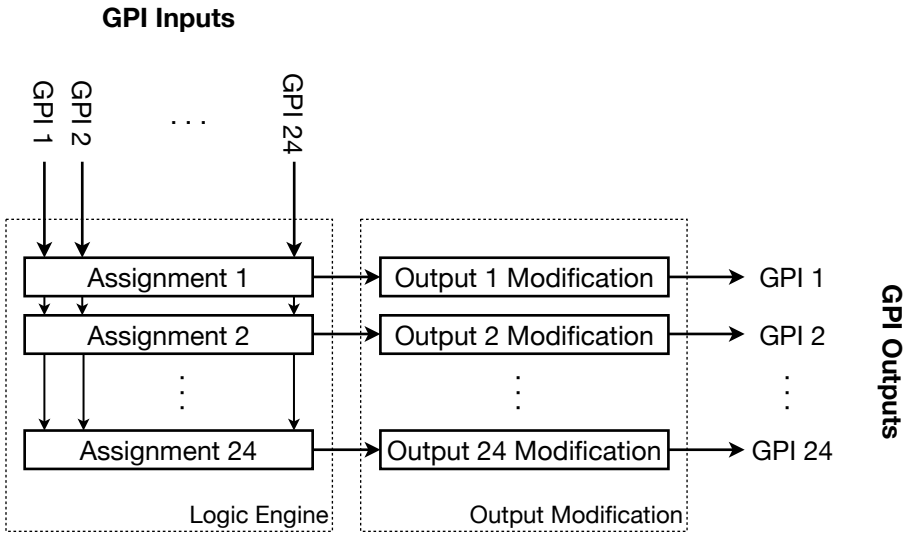
Logic Engine

The Logic Engine refers to the set of 24 Assignments or logic equations that make up the 24 outputs. Each Assignments or logic equation affects one output.

Each Assignment is composed of a logic equation that can use any combination of inputs and basic boolean logic operators. The boolean logic operators AND, OR, XOR and NOT can be used.

Output Modification

The output of the Logic Engine in various ways. The output can transmitted unaltered, inverted, toggled or pulsed (with or without inversion).



Atlas Functional Diagram

GPI Outputs

The Atlas has two sets of 24 GPI Outputs. The two outputs are parallel and are logically identical. One is isolated by a “dry contact” closure and uses a terminal strip. The other is CMOS logic (0 to 5 volt) compatible and appears on a 25 pin D-Subminiature connector.

Management And Configuration

Managing and configuring the Logic Engine and Output Modification is performed by an on board microprocessor. Configuration can be performed by using the front panel or, over Ethernet or USB using an available application.

All configuration information is stored in nonvolatile memory. This allows the unit to remember its configuration when the power is removed. This Atlas has 10 presets that store all the Logic Engine Assignments and Output Modifications for 24 outputs.

Setup

Initial Configuration

The network settings and memory management of the Atlas are performed through the front panel. To access the configuration of the Atlas, perform the following steps:

1. Power off unit.
2. Press and hold any front panel button.
3. Power on unit.
4. Continue holding any front panel button until the display shows:

5. After a short period, the display will show:

EDIT + STAT

Pressing the EDIT and STAT buttons simultaneously allow the Ethernet settings of the Atlas to be configured.

EDIT + ASSIGN

Pressing the EDIT and ASSIGN buttons simultaneously initializes the Ethernet settings of the Atlas to factory default values. The factory defaults are:

IP Address:	192.168.11.10
Subnet Mask:	255.255.255.0
Gateway Address:	192.168.11.1
Port Number:	5000

EDIT + PGM

Pressing the EDIT and PGM buttons simultaneously initializes Preset #1 of the Logic Engine and Output Modifications to factory default values. The factory defaults are:

Assignment:	No Assignment
Output Modification:	Normal

EDIT + OUTMOD

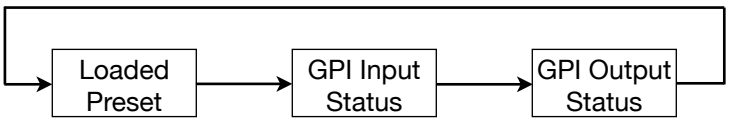
Pressing the EDIT and OUTMOD buttons simultaneously clears all presets of the Logic Engine and Output Modifications. The factory defaults are:

Assignment:	No Assignment
Output Modification:	Normal

Operation

Status

The status screens allow various aspects of the Atlas to be seen. The loaded preset and the states of the GPI Inputs and GPI Outputs can all be seen from the front panel by simply pressing the STATUS button. Pressing the STATUS button toggles the display as follows:



Presets

A preset refers to a defined set of logic equations and output modifications for all 24 GPI Outputs. The Atlas has 10 presets. Presets are stored in nonvolatile memory. The currently loaded preset can be viewed by pressing the STATUS button.

To change the loaded preset, press the EDIT button. The preset number will flash. Turn the rotary encoder to change the preset.

Press the EDIT button to load the preset.

Input Status

To view the status of the GPI Inputs, press the STATUS button until the display shows "Ins Stat". The white numbers above and below the display indicate the GPI inputs. The Atlas indicates an inactive GPI input with "--" and an active GPI input with "ON".

In the example above, GPI Inputs 4 and 20 are active and all the others are inactive.

Output Status

To view the status of the GPI Inputs, press the STATUS button until the display shows "Outs Stat". The white numbers above and below the display indicate the GPI outputs. The Atlas indicates an inactive GPI output with "--" and an active GPI output with "ON".

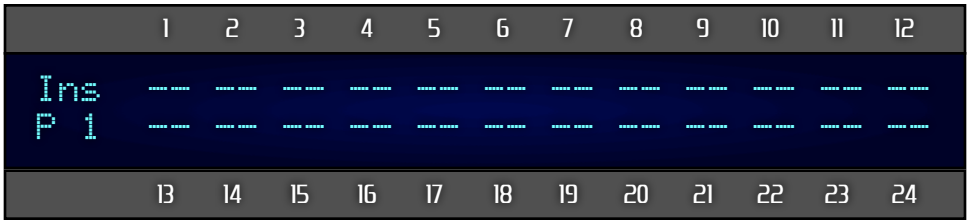
In the example above, GPI Inputs 7, 15 and 23 are active and all the others are inactive.

Programming The Logic Engine

When the Atlas is shipped from the factory or an initialization has been performed, the outputs of the Atlas have no assignments and therefore don't do any thing. For the Atlas GPI Outputs to perform any function, GPI Output Assignments must be programmed.

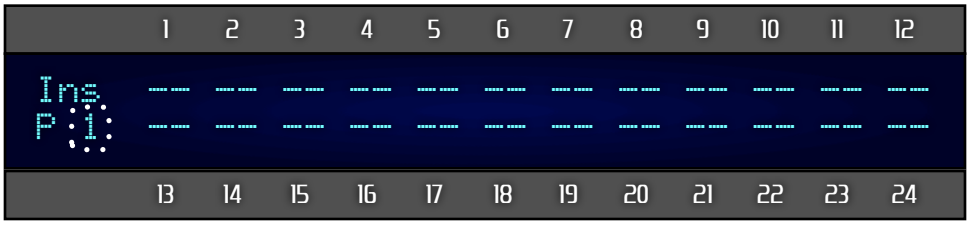
Assign

To program a simple, one term GPI Output Assignment without any logic, press the ASSIGN button. The following will appear on the display:



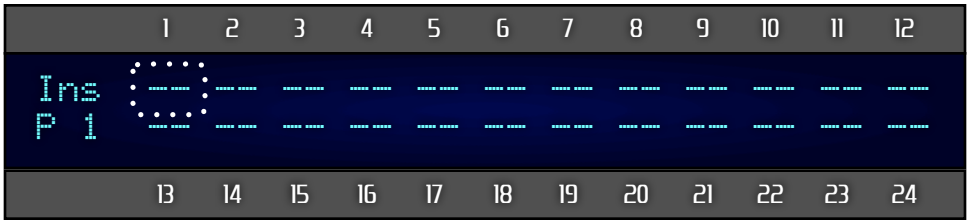
In this screen, a simple, one term assignment can be made. That is, a GPI Output can be controlled by one GPI Input. The white numbers above and below the display indicate the GPI inputs.

To change an assignment, press the EDIT button.



The '1' text in the display will flash. This indicates that the preset can be changed by turning the encoder knob.

Press the → button.



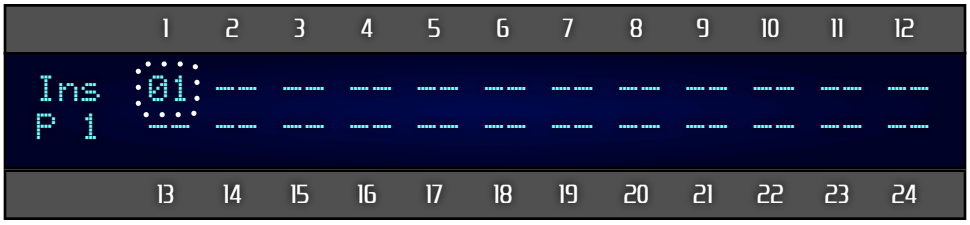
The '---' text in the display will flash. This indicates that the assignment for GPI Output 1 is empty and can be changed by turning the encoder knob. In the example below, GPI Output 1 will be activated when GPI Input 1 is activated.

The list below shows the available terms and logic operators:

01 = GPI Input 1	-01 = Inverted GPI Input 1
02 = GPI Input 2	-02 = Inverted GPI Input 2
: :	: :
23 = GPI Input 2	-23 = Inverted GPI Input 23
24 = GPI Input 2	-24 = Inverted GPI Input 24

*Note: An "**" indicates that a multiple term logic equation is programmed for the GPI Output. Use the* PROGRAM *button to view the assignment.*

Press the SAVE button. This will store the assignment into nonvolatile memory.



To return back to the Status screen, press the STATUS button.

Program

To program a multiple term GPI Output Assignment with logic, press the PROGRAM button. The following will appear on the display:

In this screen, a multiple term GPI Output Assignment with logic can be made. That is, a GPI Output can be controlled by multiple GPI Inputs with a logic equation.

To change an assignment, press the EDIT button.

The '1' text in the display will flash. This indicates that the GPI Output can be changed by turning the encoder knob.

Press the → button.

The 'No Assignment' text in the display will flash. This indicates that the assignment for GPI Output 1 is empty and can be changed. Before changing the assignment, press the CLEAR button.

After pressing the clear button, you can enter the desired logic equation for GPI Output 1.

The logic equation can be entered by using the rotary encoder to select GPI Inputs and logic operators and using the ← and → buttons to navigate left and right. If you make a mistake in entering the equation, simply press the CLEAR button.

The next screenshot shows an example assignment for GPI Output 1. In this example, GPI Input 1 and GPI Input 2 must be active before GPI Output 1 is active.

The list below shows the available terms and logic operators:

01 = GPI Input 1	-01 = Inverted GPI Input 1
02 = GPI Input 2	-02 = Inverted GPI Input 2
: :	: :
23 = GPI Input 2	-23 = Inverted GPI Input 23
24 = GPI Input 2	-24 = Inverted GPI Input 24

AND = Logical AND operator
OR = Logical OR operator
XOR = Logical Exclusive OR operator
(= Opening parenthesis.
-(= Opening parenthesis with inversion.
) = Closing parenthesis.

Notes:
The parentheses allows grouping of terms and operators into smaller, sub-equations.
Equations inside a set of parentheses are evaluated first.
Only one level of parentheses is allowed. Parentheses within parentheses are not allowed.

Press the SAVE button. This will store the assignment into nonvolatile memory.

To return back to the Status screen, press the STATUS button.

Output Modification

Setting The Output Modification

When the Atlas is shipped from the factory or an initialization has been performed, the outputs of the Atlas follow the output of the logic engine. The behavior of the GPI Outputs can be modified to be inverted, toggled or generate a pulse. This behavior is configured in the Output Modification Menu.

To enter the Output Modification Menu, press the OUT/MOD button. The following will appear on the display:

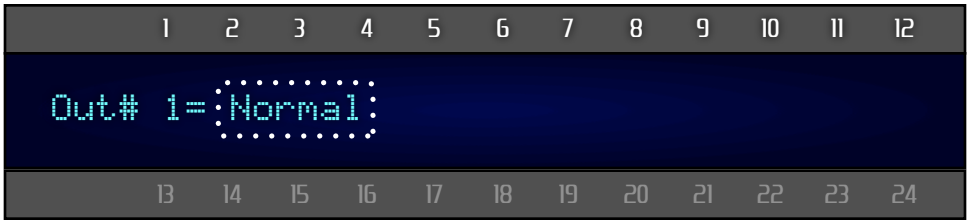
In this screen, the behavior of the GPI Output can be modified.

To change the behavior of a GPI Output, press the EDIT button.

The '1' text in the display will flash. This indicates that the selected GPI Output can be changed by turning the encoder knob. Turn the encoder knob to select the desired GPI Output you wish to modify.

Press the → button.

The 'Normal' text in the display will flash. This indicates that the Output Modification for GPI Output 1 can be changed. Turn the encoder knob to select the desired GPI Output behavior.

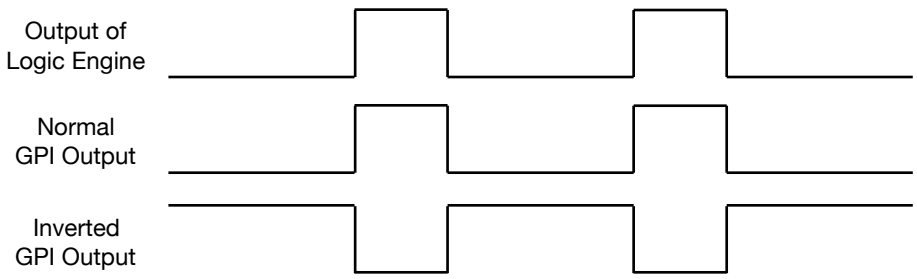


The following behaviors can be selected for the Output Modification.

Normal	The GPI Output follows the state of the logic engine.
Inverted	The GPI Output is inverted from state of the logic engine.
Toggled	The GPI Output toggles it's state when an inactive to active transition occurs.
Pulse	The GPI Output generates an active state pulse when an inactive to active transition occurs.
Inverted Pulse	The GPI Output generates an inactive state pulse when an inactive to active transition occurs.

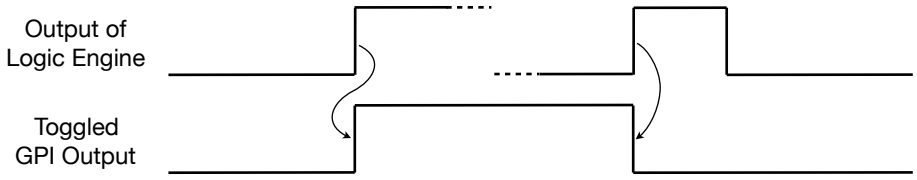
Normal And Inverted

The following diagram illustrates the *Normal* and *Inverted* behaviors of the Output Modification relative to the output of the Logic Engine.



Toggled

The following diagram illustrates the *Toggled* behavior of the Output Modification relative to the output of the Logic Engine.

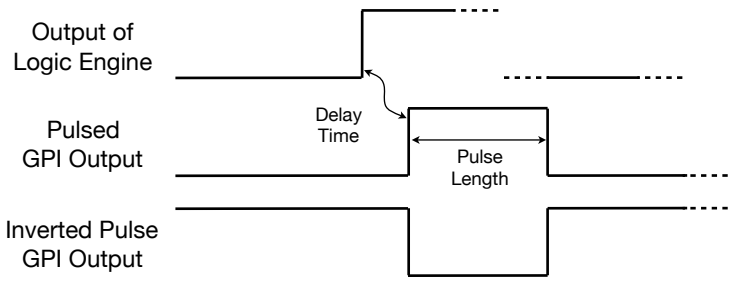


Pulse And Inverted Pulse

When the *Pulse* and *Inverted Pulse* behaviors are selected, two parameters, *Delay* and *Length*, will be available.

Delay	This sets the delay between the output of the logic engine inactive to active transition to the GPI Output pulse. This time is specified in hours, minutes, seconds and tens of milliseconds. This can be any value between 0:00:00.000 and 8:59:59:990.
Length	When a logic engine output is activated, the Atlas waits a period (Delay Time) and generates an inverted pulse (Pulse Length) on the GPI Output. This time is specified in hours, minutes, seconds and tens of milliseconds. This can be any value between 0:00:00.010 and 8:59:59:990. *Note: The length must be larger than zero.*

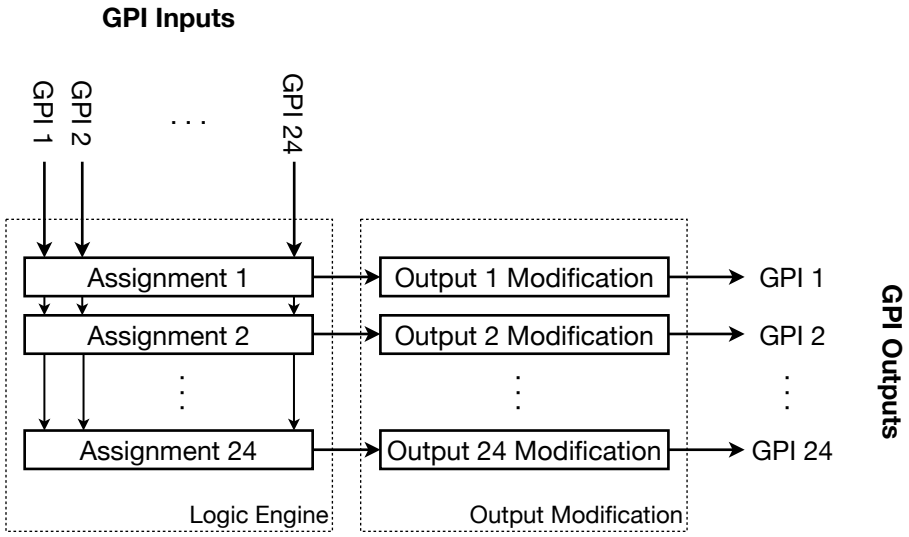
The following diagram illustrates the *Pulse* and *Inverted Pulse* behaviors of the Output Modification relative to the output of the Logic Engine.



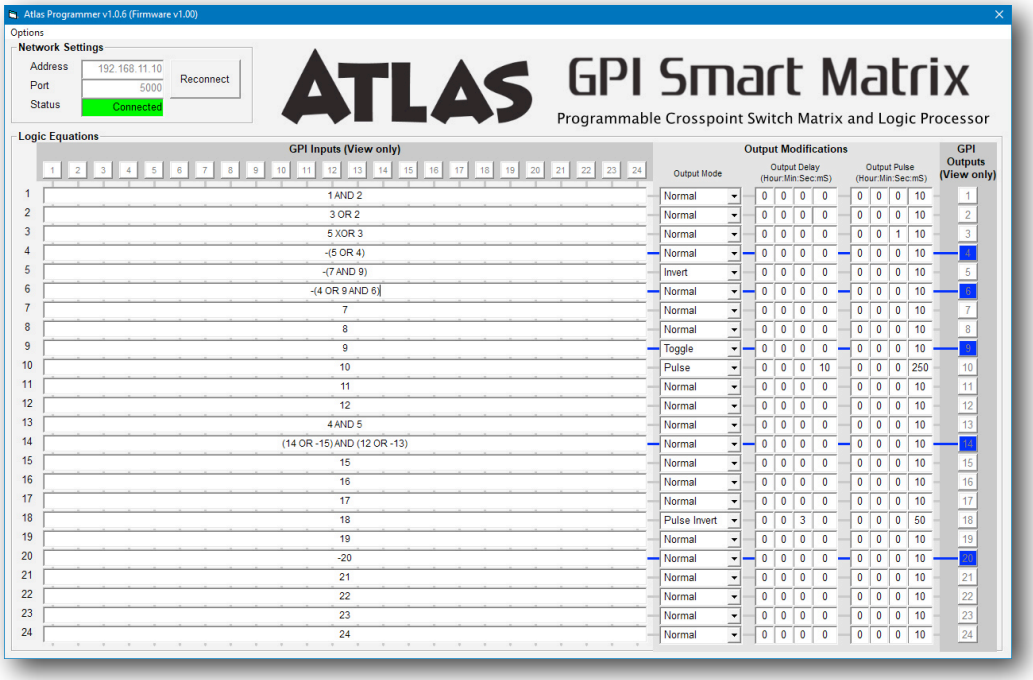
Programming The Atlas Remotely

Atlas Programmer

In addition to programming the Atlas from the front panel, the Atlas can also programmed remotely by the Atlas Programmer. The Atlas Programmer is laid out similarly to the Atlas Functional Diagram. The GPI Inputs are along the top, and feed into the Logic Engine. The Logic Engine is comprised of 24 Assignments. Each Assignment feeds into the Output Modifications and then to the GPI Outputs along the right side.



Atlas Functional Diagram



Atlas Programmer

Assignments

Assignments are in the form of boolean logic equations. Assignments are composed of Terms (GPI Inputs) and the AND, OR and XOR (exclusive OR) boolean logic operators.

Assignments can be simple, single term equations. For example, to activate a GPI Output only when input 5 is activated, you would use the following logic equation:

```
5
```

Assignments can combine multiple terms with the AND, OR and XOR (exclusive OR) boolean logic operators. For example, to activate a GPI Output when either or both input 5 OR 6 is activated, you would use the following logic equation:

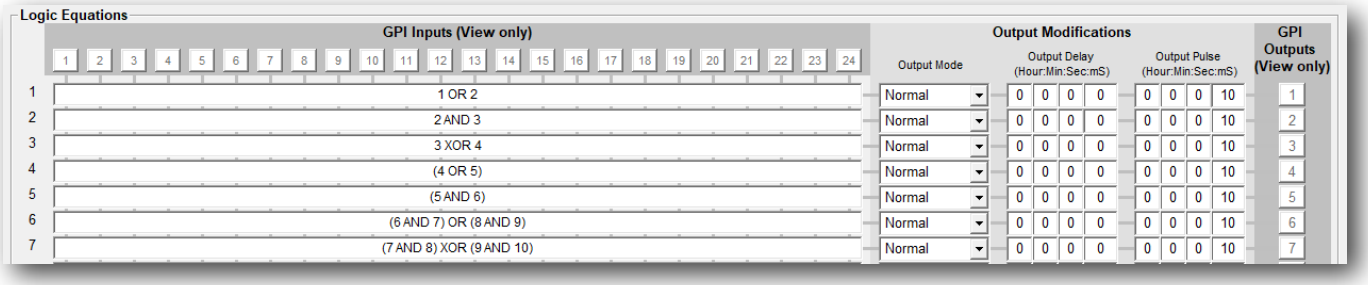
```
5 OR 6
```

In addition, you can use the "(", ")" and "-(" characters to group input terms and logic operators to create more complex logic equations. For example, to activate a GPI Output only when inputs 5 AND 6 are activated or inputs 7 AND 8 are activated, you would use the following logic equation:

```
(5 AND 6) OR (7 AND 8)
```

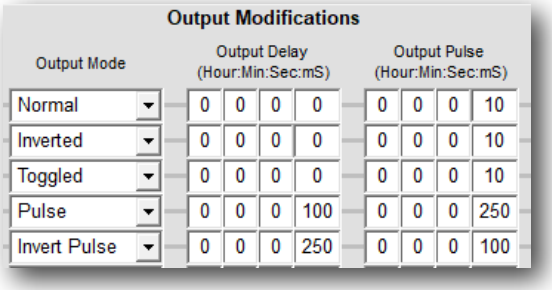
You can find more information on using terms, boolean logic operators and the parentheses. the in the section *Logic Equation Syntax*.

Any changes to the Assignments are automatically sent to the Atlas and immediately read back.



Output Modification

The behavior of the GPI Outputs can also be modified. The GPI Outputs can be inverted, toggled or generate a pulse. When generating a pulse, the pulse can be delayed up to nearly 9 hours and can be up to nearly 9 hours in duration. This behavior is configured in the *Output Modifications* section.

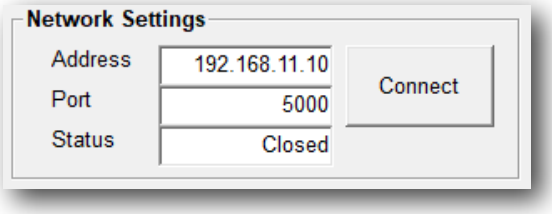


You can find more information on modifying the behavior of the GPI Outputs the in the section *Programming Output Modifications*.

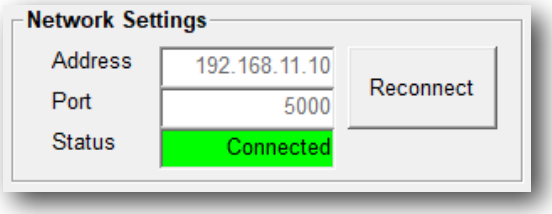
Any changes to the Output Modifications are automatically sent to the Atlas and immediately read back.

Using The Atlas Programmer

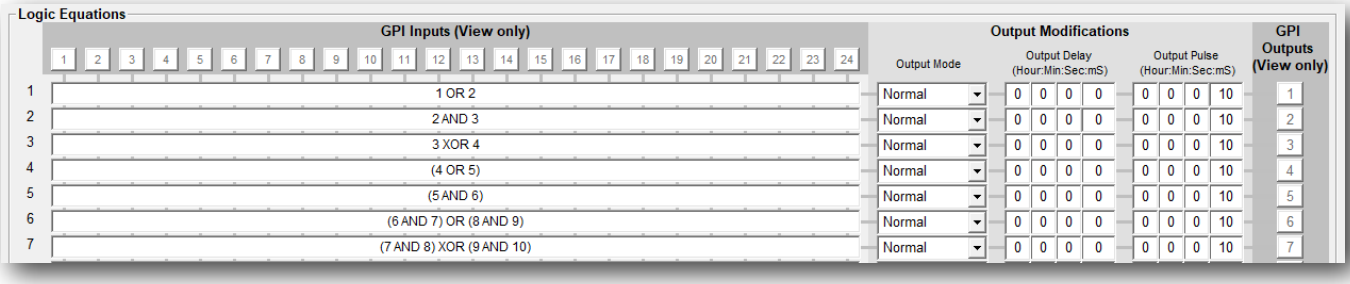
To connect to the Atlas, simply enter the IP address and port number of the unit. The default IP address is 192.168.11.10 and the default port number is 5000. After entering units IP address and port number, click on the Connect button.



After clicking on the Connect button, the Atlas Programmer will connect to the unit and download all 24 Logic Equations and Output Modifications for Preset #1.



The 24 downloaded Logic Equations and Output Modifications will then appear in the Logic Equations section.



Logic Equation Syntax

The syntax of the logic equations is straight forward. It consists of terms and operators.

Terms

Terms are the GPI Inputs to the Logic Equation. The list below shows the available terms:

1 = GPI Input 1	-1 = Inverted GPI Input 1
2 = GPI Input 2	-2 = Inverted GPI Input 2
: :	: :
23 = GPI Input 2	-23 = Inverted GPI Input 23
24 = GPI Input 2	-24 = Inverted GPI Input 24

Example 1, to activate an output when input 5 is activated, simply type the following and press enter:

5

Example 2, to deactivate an output when input 5 is activated, simply type the following and press enter:

-5

Operators

Operators are keywords and symbols that define how the terms are used to generate the specific GPI output. The list below shows the available logic operators:

AND = Logical AND operator
OR = Logical OR operator
XOR = Logical Exclusive OR operator
S/R = Set/Reset operator (*Requires v1.06 firmware*)

The AND, OR and XOR are standard logic operators. Their operation is shown in the truth table on the following page.

The S/R operator is a bit different. The S/R operator is a latching function. It works just like a SR or Set/Reset Latch or Flip-Flop. And just like a Set/Reset Latch, the S/R operator acts on input transitions rather than on a steady state input.

The S/R operator acts on the inactive to active transition of the input terms. After the transition occurs, the output is latched.

When the first term (Set) receives an inactive to active transition, the output is latched to the active state. Once the output is latched to the active state, additional transitions on the Set term have no effect. The output will only change when the Reset input receives an inactive to active transition.

When the second term (Reset) receives an inactive to active transition, the output is latched to the inactive state. Once the output is latched to the inactive state, additional transitions on the Reset term have no effect. The output will only change when the Set input receives an inactive to active transition.

Note: The Set input and the Reset input cannot be active at the same time. This is an invalid state. When this occurs, the output will latch in the active state.

Note: The S/R operator can only act on two input terms. You cannot use other operators or parenthesis with the S/R operator.

The following table shows the behavior of the AND, OR, XOR and Set/Reset operators.

GPI Input 1	GPI Input 2	GPI Output			
		1 AND 2	1 OR 2	1 XOR 2	1 S/R 2
Not Active	Not Active	Not Active	Not Active	Not Active	No Change
Active	Not Active	Not Active	Active	Active	Active
Not Active	Active	Not Active	Active	Active	Not Active
Active	Active	Active	Active	Not Active	Active *(Not Valid)*

Logic Truth Table

The following table shows the behavior of logic equations:

Logic Equation	Meaning
	Nothing. The GPI Output is not active.
`5`	The noninverted state of GPI Input 5.
`-5`	The inverted state of GPI Input 5.
`5 AND 6`	The logical AND of GPI Input 5 and GPI Input 6.
`5 OR 6`	The logical OR of GPI Input 5 and GPI Input 6.
`5 XOR 6`	The logical Exclusive OR of GPI Input 5 and GPI Input 6.

Logic Equation Usage

The following table shows some examples of invalid logic equations:

Logic Equation	Reason
~~`5-`~~	Minus sign in invalid position.
~~`5- AND 6`~~	Minus sign in invalid position.
~~`5 -AND 6`~~	Minus sign in invalid position.
~~`5 AND`~~	Missing term. Logic operator require two terms.
~~`AND 6`~~	Missing term. Logic operator require two terms.
~~`5 6`~~	Missing logic operator.
~~`5 - 6`~~	Missing logic operator.
~~`5 AND OR 6`~~	Missing term.

Invalid Logic Equations

Parenthesis

Parenthesis allow the grouping of terms and operators into smaller, sub-equations. The list below shows the available parenthesis:

(= Opening parenthesis.
-(= Opening parenthesis with inversion.
) = Closing parenthesis.

The following table shows the behavior of the parenthesis:

Logic Equation	Meaning
`(5)`	Noninverted GPI Input 5.
`-(5)`	Inverted GPI Input 5.
`(5 OR 6)`	The noninverted logical OR of GPI Input 5 and GPI Input 6.
`-(5 OR 6)`	The inverted logical OR of GPI Input 5 and GPI Input 6.

Parenthesis Usage

The rules for using parenthesis is as follows:

- The parentheses allows grouping of terms and operators into smaller, sub-equations.
- Equations inside a set of parentheses are evaluated first.
- Only one level of parentheses is allowed. **Parentheses within parentheses are not allowed**.

The following table shows some examples of invalid parenthesis usage:

Logic Equation	Reason
`(5`	Missing closing parenthesis.
`5)`	Missing opening parenthesis.
`-(5`	Missing closing parenthesis.
`(5) 6`	Missing logic operator.
`(5 OR)`	Missing term. Logic operator require two terms.
`-(OR 6)`	Missing term. Logic operator require two terms.
`(5 OR (6 AND 7))`	Nested parenthesis.
`(5 OR (6 OR 7) AND 8)`	Nested parenthesis.

Invalid Parenthesis Usage

Programming The Atlas

Programming Logic Equations

To program an equation that affects an output, simply type that equation into the appropriate box and press enter. The Atlas Programmer will upload the logic equation to the unit and immediately download it to confirm the programming.

To activate an output when input 5 is activated, simply type the following and press enter:

```
5
```

To deactivate an output when input 5 is activated, simply type the following and press enter:

```
-5
```

In addition to using input terms, you can also use the logic operators AND, OR and XOR (exclusive OR). To activate an output only when inputs 5 and 6 is activated, type the following and press enter:

```
5 AND 6
```

To activate an output when either or both input 5 or 6 is activated, type the following and press enter:

```
5 OR 6
```

To activate an output when either but not both inputs 5 or 6 are activated, type the following and press enter:

```
5 XOR 6
```

In addition to using input terms and logic operators, you can also use “(“, “)” and “-(” to group input terms and logic operators. To activate an output only when inputs 5 AND 6 is activated, type the following and press enter:

```
(5 AND 6)
```

To deactivate an output only when inputs 5 AND 6 is activated, type the following and press enter:

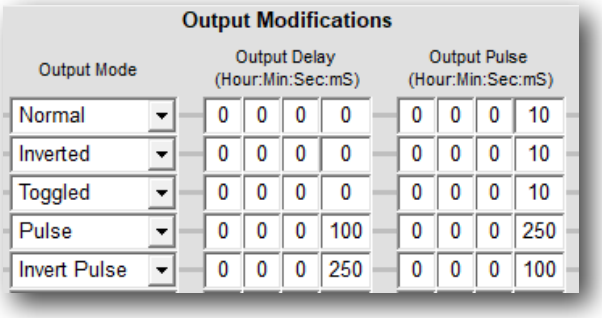
```
-(5 AND 6)
```

Use the “(“, “)” and “-(” to group input terms and logic operators, you can create more complex Logic Equations. To activate an output only when inputs 5 AND 6 are activated or inputs 7 AND 8 are activated, type the following and press enter:

```
(5 AND 6) OR (7 AND 8)
```

Any changes to the Assignments are automatically sent to the Atlas and immediately read back.

Programming Output Modifications



When the Atlas is shipped from the factory or an initialization has been performed, the outputs of the Atlas follow the output of the logic engine. The behavior of the GPI Outputs can be modified to be inverted, toggled or generate a pulse. This behavior is configured in the Output Modifications section.

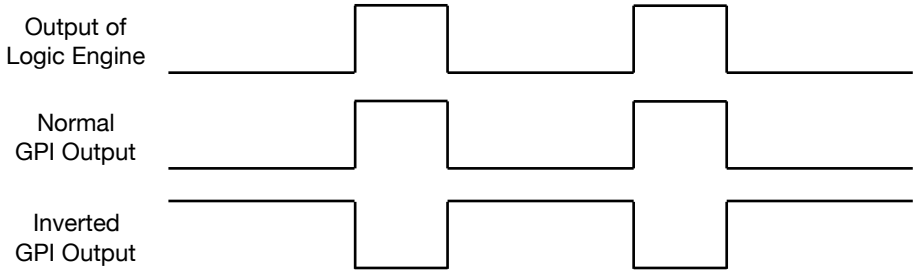
Any changes to the Output Modifications are automatically sent to the Atlas and immediately read back.

The following behaviors can be selected for the Output Modifications.

Normal	The GPI Output follows the state of the logic engine.
Inverted	The GPI Output is inverted from state of the logic engine.
Toggled	The GPI Output toggles it's state when an inactive to active transition occurs.
Pulse	The GPI Output generates an active state pulse when an inactive to active transition occurs.
Invert Pulse	The GPI Output generates an inactive state pulse when an inactive to active transition occurs.

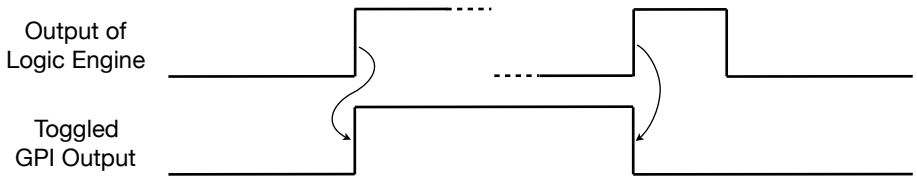
Normal And Inverted

The following diagram illustrates the *Normal* and *Inverted* behaviors of the Output Modification relative to the output of the Logic Engine.



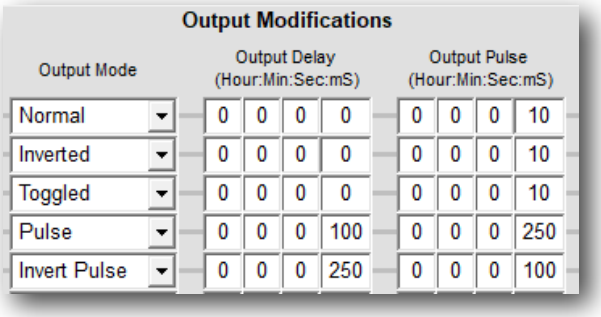
Toggled

The following diagram illustrates the *Toggled* behavior of the Output Modification relative to the output of the Logic Engine.



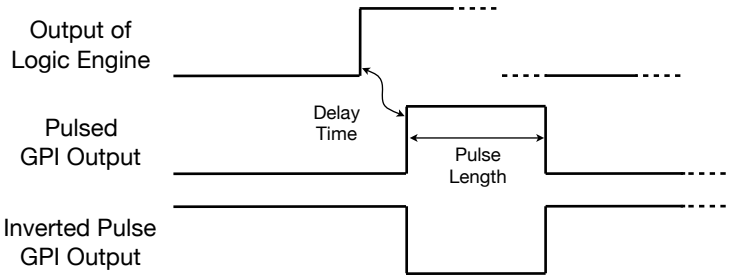
Pulse And Inverted Pulse

When the *Pulse* and *Inverted Pulse* behaviors are selected, two parameters, *Delay* and *Length*, will be available.



Delay	This sets the delay between the output of the logic engine inactive to active transition to the GPI Output pulse. This time is specified in hours, minutes, seconds and tens of milliseconds. This can be any value between 0:00:00.000 and 8:59:59:990.
Length	When a logic engine output is activated, the Atlas waits a period (Delay Time) and generates an inverted pulse (Pulse Length) on the GPI Output. This time is specified in hours, minutes, seconds and tens of milliseconds. This can be any value between 0:00:00.010 and 8:59:59:990. *Note: The length must be larger than zero.*

The following diagram illustrates the *Pulse* and *Inverted Pulse* behaviors of the Output Modification relative to the output of the Logic Engine.



Any changes to the Output Modifications are automatically sent to the Atlas and immediately read back.

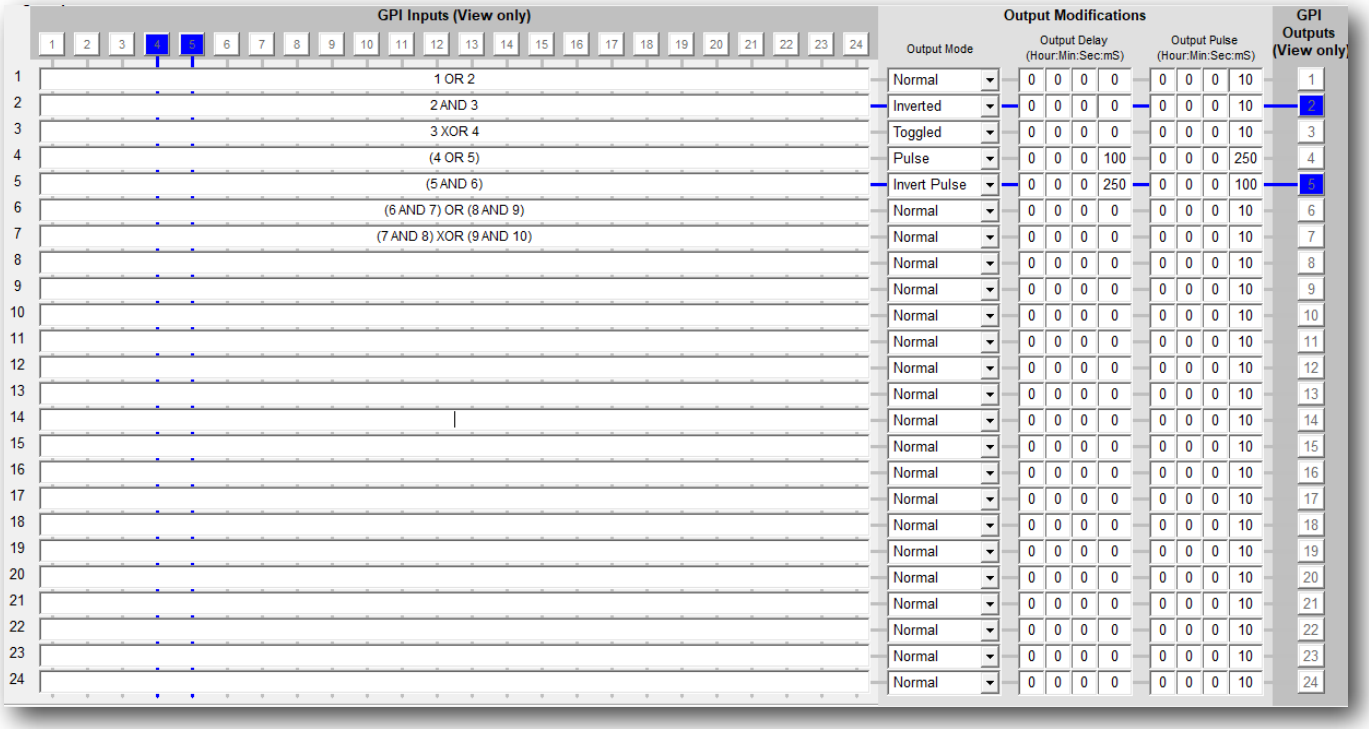
Viewing The GPI Input And Output Status

In addition to viewing and setting the programming of the Logic Equations and Output Modifications, the Atlas Programmer also allows to to view the status of the GPI Inputs and GPI Outputs.

In the screenshot below, the GPI Inputs are represented by the 24 numbered buttons along the top. An active GPI Input is represented by a blue numbered button. An inactive GPI Input is represented by a white numbered button.

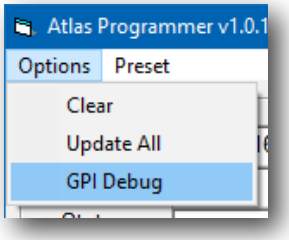
The GPI Outputs are represented by the 24 numbered buttons along the right side. An active GPI Output is represented by a blue numbered button. An inactive GPI Output is represented by a white numbered button.

The state of the GPI Inputs and Outputs are alternately scanned at a rate of approximately 50 milliseconds. Depending on the latency of the link between the Atlas and the Atlas Programmer there may be a delay between the GPI event and the event being indicated in the Atlas Programmer.



Testing The GPI Inputs And Outputs

As test feature, the Atlas Programmer also allows you to set the state of the GPI Inputs into the Logic Engine. The Atlas Programmer also allows you to set the state of the GPI Outputs on the unit. To enable this feature, select Options from the menu and select GPI Debug. Please note that this overrides normal Atlas operation. To revert back to normal GPI operation, simply power cycle the Atlas.



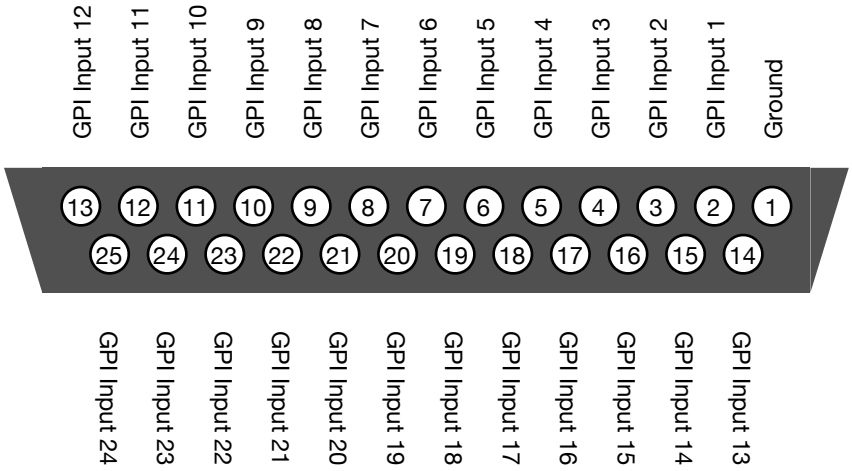
Technical Reference

GPI Input

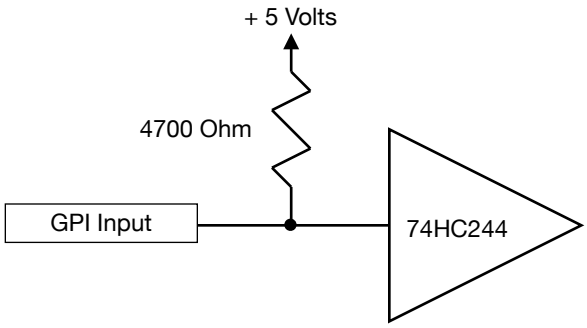
The Atlas has 24 GPI Inputs. There are two sets of inputs, CMOS and optoisolator inputs.

CMOS Inputs

The CMOS inputs are intended to be used with equipment that produces 0 to 5 volt logic signals. The CMOS inputs are pulled to 5 volts using an internal resistor. This also allows the CMOS inputs to be used with a simple switch or an unpowered relay contact.



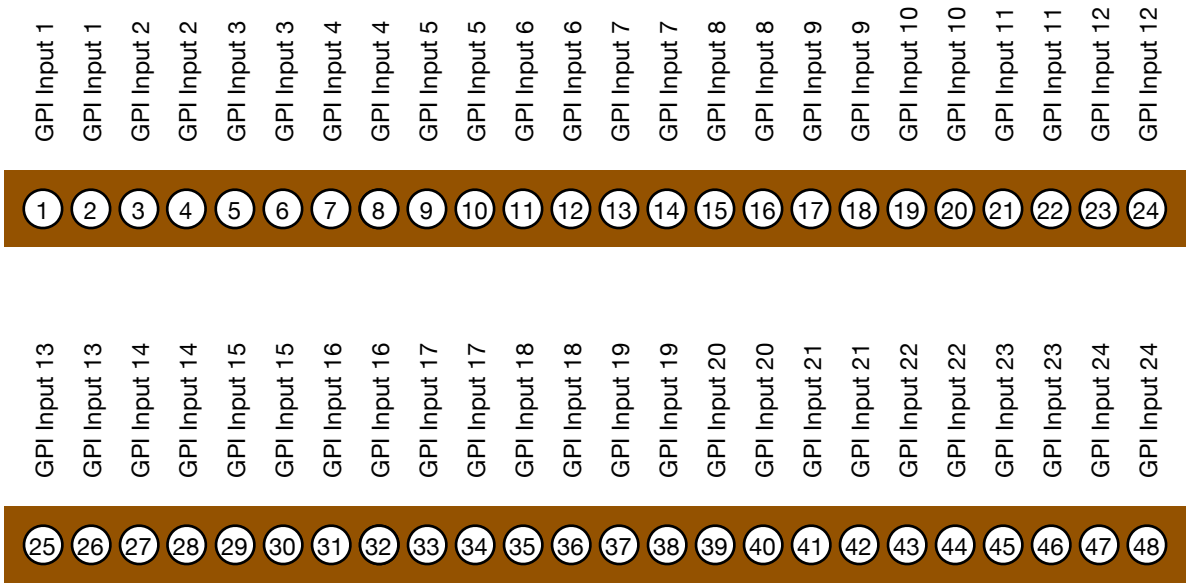
Pinout For CMOS GPI Inputs



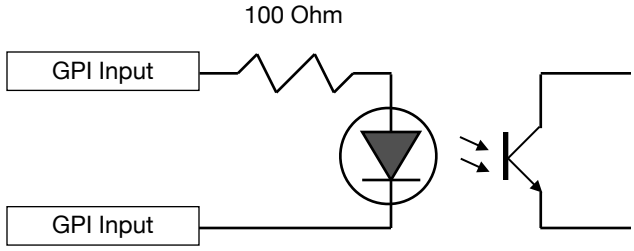
Detail Of CMOS GPI Inputs

Optoisolator Inputs

The optoisolator inputs are intended to be used with equipment that must be electrically isolated from the Atlas. The optoisolator inputs use an LED input that requires a small DC current to activate the input.



Pinout For Optoisolator GPI Inputs



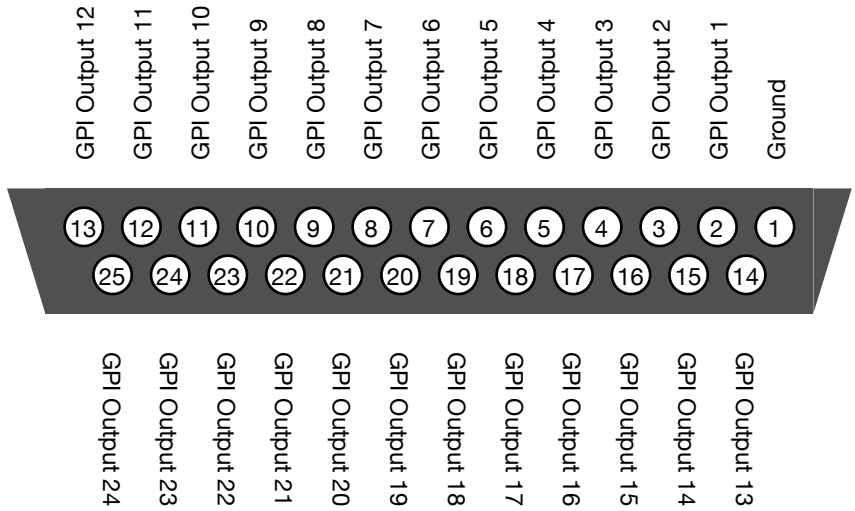
Detail Of Optoisolator GPI Inputs

GPI Output

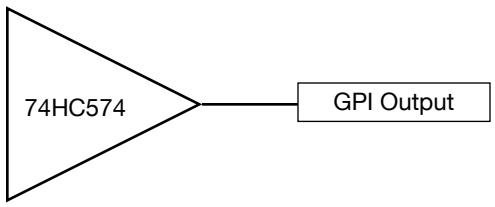
The Atlas has 24 GPI Outputs. There are two sets of outputs, CMOS and relay outputs.

CMOS Outputs

The CMOS outputs are intended to be used with equipment that requires 0 to 5 volt logic signals. The CMOS outputs are driven to 0 or 5 volts by a push-pull circuit.



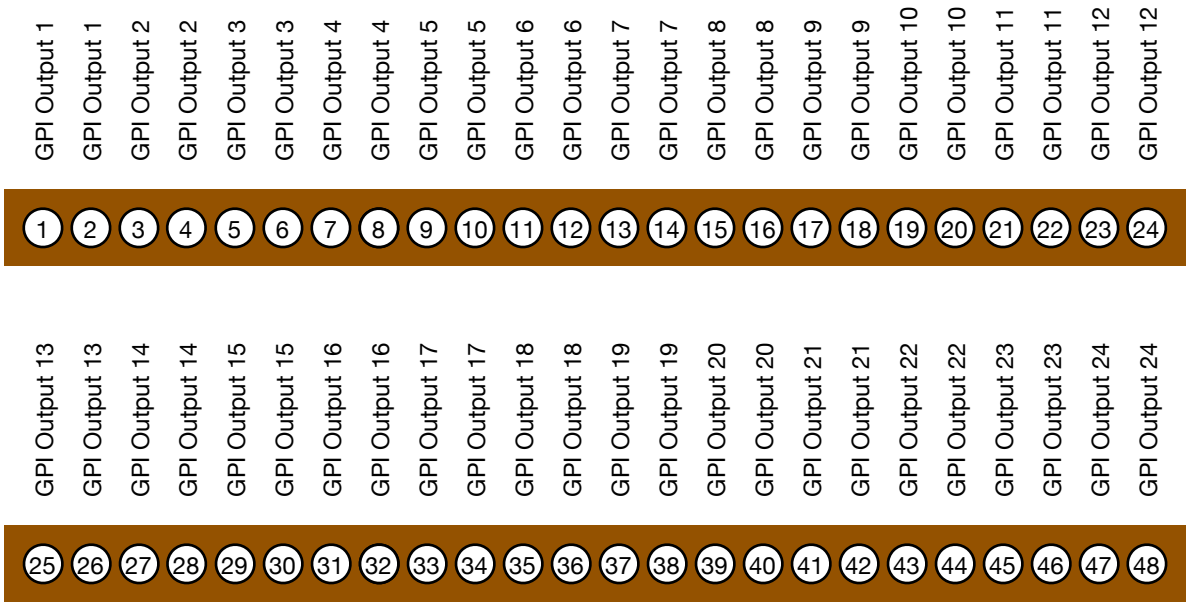
Pinout For CMOS GPI Inputs



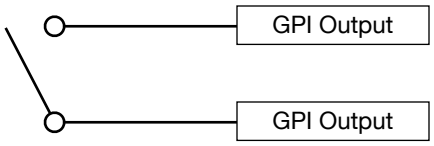
Detail Of CMOS GPI Outputs

Relay Outputs

The relay outputs are intended to be used with equipment that must be electrically isolated from the Atlas. The relay outputs provide a dry or unpowered contact. The relay outputs can switch a small DC current to activate the remote equipment.



Pinout For Optoisolator GPI Inputs

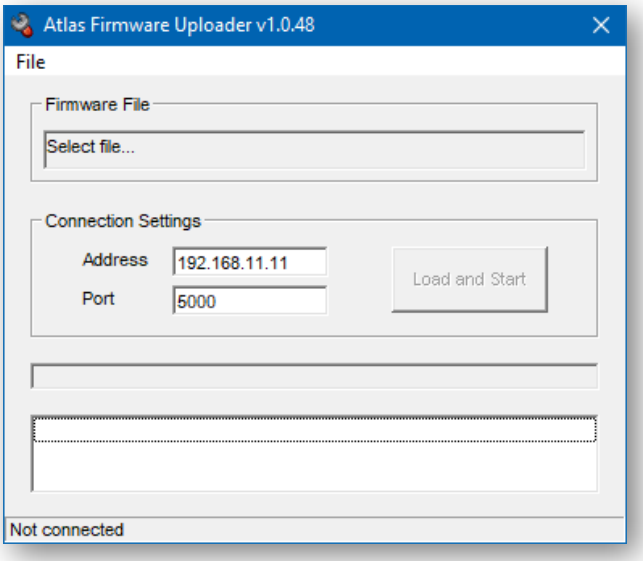


Detail Of Relay GPI Outputs

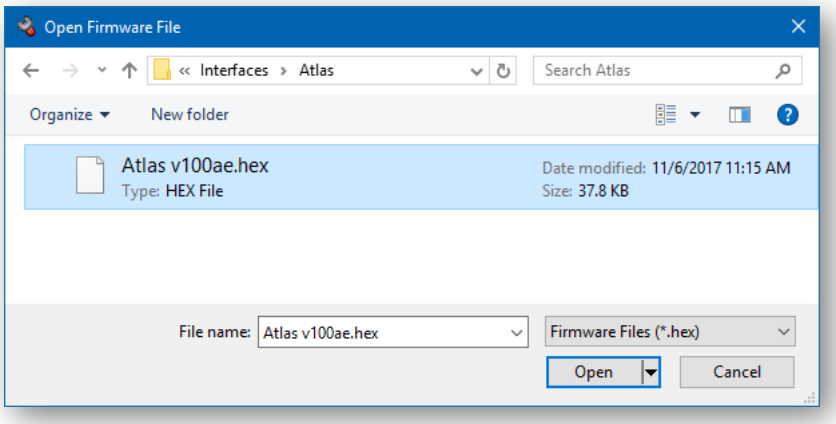
Updating The Firmware In Your Atlas

Using The Firmware Uploader For Windows

To use the Atlas Firmware Uploader, simply launch the software. After the utility launches, you will see the following screen:

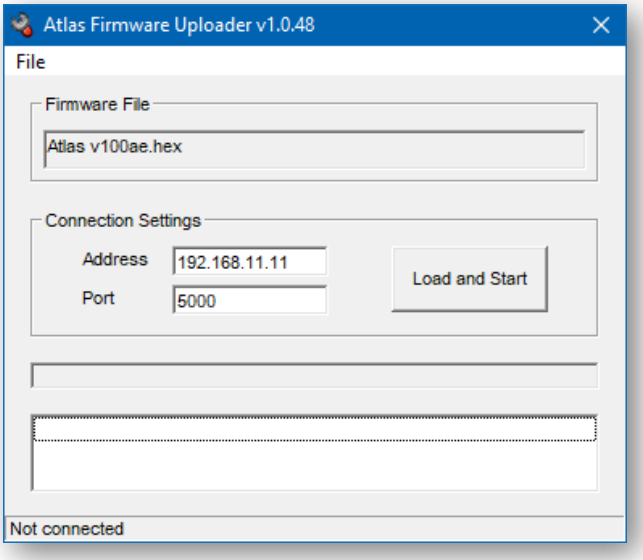


Before you can upload firmware to your Atlas Switcher Control Surface, you will need to select the firmware file that you wish to upload to the unit. To do that, click on File and Open. This will cause the following File Open Dialog Box to appear:



Simply select the appropriate firmware file you wish to upload to the unit and click on Open. The Atlas Firmware Uploader will now show the firmware file in the Firmware File box as shown at left:

To begin uploading the firmware file to the unit, click on the Load and Start button. The Atlas Firmware Uploader will now establish a connection to the unit and start to upload the firmware data to the unit.

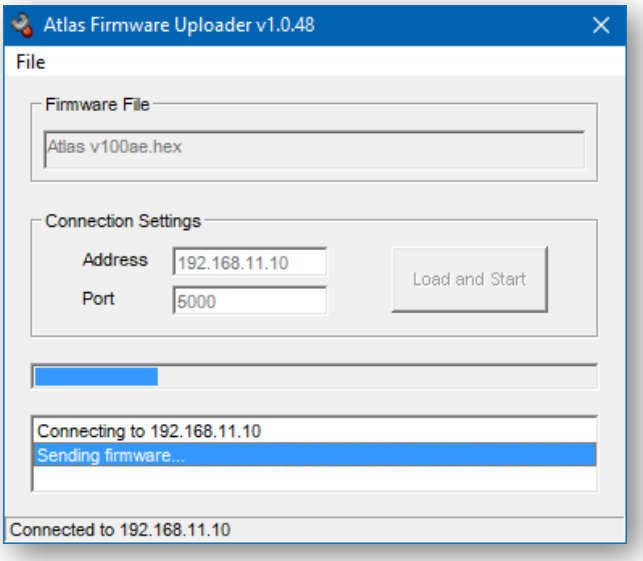


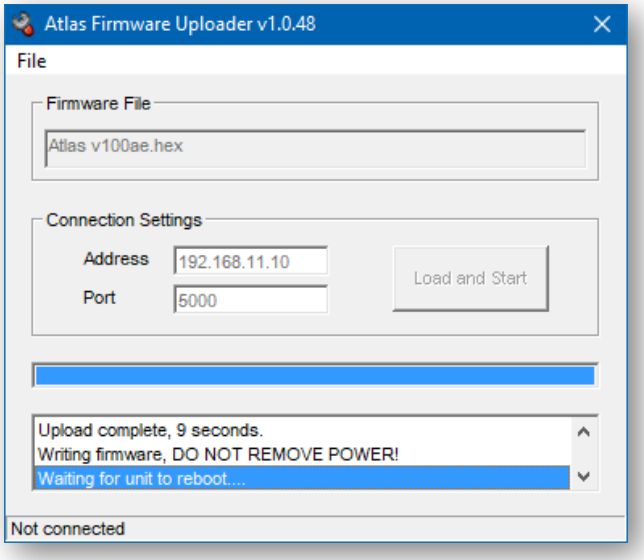
You will see a visual confirmation on the unit that the unit is in the process of updating the firmware.

- The unit will display **Firmware Update Taking Place**.

You will also see the following activity in the Atlas Firmware Uploader window:

- Progress will be shown on the progress bar.
- Data being sent to the unit is shown in the white list box.
- The connection status will be shown at the bottom of the window.





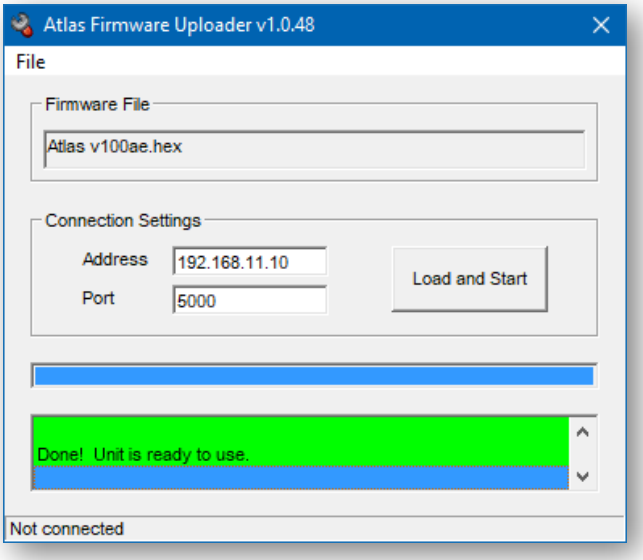
When the Atlas Firmware Uploader has completed transferring the firmware data, the utility will disconnect from the unit.

You will see the following status in the Atlas Firmware Uploader window:

- The progress bar will be all the way to the right.
- The list box will have the entry **Done! Unit is ready to use.**
- The connection status will change to **Not Connected.**

The unit will begin updating the firmware in the unit. This will only take a second or two but it's important that the unit not be disturbed of powered down during this time.

After the unit has completed updating the firmware, the unit will reboot and display the normal power up message with the new firmware version.



JLCooper Limited Factory Warranty

JLCooper Electronics ("JLCooper") warrants this product to be free of defects in materials or workmanship for a period of 12 months from the date of purchase. This warranty is non-transferable and the benefits apply only to the original owner. Proof of purchase in the form of an itemized sales receipt is required for warranty coverage. To receive service under warranty, it is recommended that customers first submit a support request at:

http://jlcooper.com/_php/support_request.php

Customers can also email JLCooper factory service (service@jlcooper.com) or call 310-322-9990 to obtain service instructions. Details, including specific model, serial number, date and place of purchase and a complete description of the problem will be required. If it is determined that the product needs to be returned to the factory for service, a Return Form will need to be completed and an RMA number will be issued. Please do not return products without first receiving an RMA number.

Upon issuance of return authorization, the product should be packed in the original shipping materials and shipped prepaid and insured to: Service Department, JLCooper Electronics, 142 Arena Street, El Segundo, CA 90245. Please include the following: copy of the sales receipt, your name and address (no P.O. Boxes, please), a brief description of the problem, and any other related items discussed with the service department and considered necessary to evaluate the product or effect a repair.

The return authorization number must be clearly written on the outside of the package. JLCooper will at its option, without charge for parts or labor, either repair or replace the defective part(s) or unit. Carriage, insurance, customs duties, impounds, tariffs, taxes, surcharges, brokerage fees and other shipping costs are not covered by this warranty. JLCooper's normal repair turn around time at the factory is approximately 7 business days from receipt of product to return shipping. Your actual turn around time will also include return transit time. Actual turn around time will vary depending upon many factors including the repeatability of the reported complaint, the availability of parts required for repair, the availability of related products needed to evaluate the product, etc. Priority services are available at additional cost. These should be discussed with the service technician at the time the return authorization is issued.

This warranty provides only the benefits specified and does not cover defects or repairs needed as result of acts beyond the control of JLCooper including but not limited to; abuse, failure to operate in accordance with the procedures outlined in this owner's manual; nor does it cover damage from accident, negligence, using incorrect power supply, modification, alteration, improper use, unauthorized servicing, tampering, ingress of foreign matter; nor for damage from natural or man-made events such as, but not limited to flooding, lightning, electrostatic discharge, tornadoes, earthquake, fire, etc.

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