Digital GPIO Wiring Guide (All Fixed Readers – See Specific Sections for Reader Families)

The digital GPIO of all Alien fixed readers utilizes binary states. Enabling specific outputs or inputs follows convention of standard binary network configuration. Example below:

IP Addressing-GPIO in Binary

Alien Reader Default IP
192.168.1.100
32 bit or 4 BYTE address
4 Octets separated by a period
Max Value per Octet is 255 (all bits 1)
Min Value per Octet is 0 (all bits 0)
A "1" is on and a "0" is off
Below is the binary representation of the Alien Default IP

1	1	0	0	0	0	0	0	.	1	0	1	0	1	0	0	0	.	0	0	0	0	0	0	0	1	.	0	1	1	0	0	1	0	0
128	64	32	16	8	4	2	1		128	64	32	16	8	4	2	1		128	64	32	16	8	4	2	1		128	64	32	16	8	4	2	1

This is the same Bit Mapping our GPIO uses for Inputs (last 4) and Outputs (all 8)

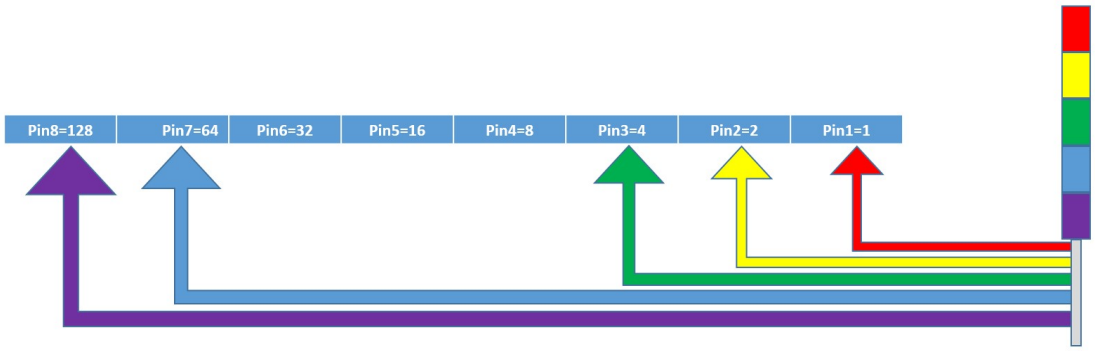
Pin8	Pin7	Pin6	Pin5	Pin4	Pin3	Pin2	Pin1
128	64	32	16	8	4	2	1

Pin4	Pin3	Pin2	Pin1
8	4	2	1

Numbers 1 through 128 represent the value of that bit placeholder when it is set to "ON"

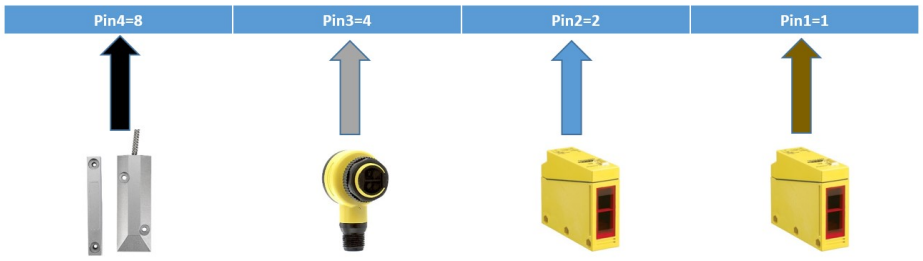
For configuring specific Outputs or Inputs, please refer to the diagrams below. For a complete state diagram of all 255 states and all combinations, please refer to *APN-1011 Configuration Table for All 8 Outputs.*

Examples of Output wiring



5 Way stack light connected to pins 1, 2, 3, 7 and 8 with control wires representing expected colors
Simply add up the pin/s for the desired work, wait, true, false, or pause output
If the desired output during a wait state is yellow and purple – autowaitoutput = 130
If the desired output is yellow and green when I get a good tag read – autotrueoutput = 6
If the desired output is blue and red when I get a false condition – autofalseoutput = 65
And if the desired output is to light up the entire stack when working – autoworkoutput = 199

Examples of Input wiring



2 Banner Q60's connected to pins 1 and 2, 1 Banner T18 connected to pin 3, 1 magnetic sensor connected to pin 4
Simply add up the pin/s for the desired start or stop triggers
If the desired input is to start the reader when sensor 1 or 2 are tripped – autostarttrigger = 3 0 (3 space 0 - rising edge)
If the desired input is to start the reader when sensor 1, 2 or 3 are tripped – autostarttrigger = 7 0 (7 space 0)
If the desired input is to stop the reader when sensor 4 is tripped – autostoptrigger = 8 0 (8 space 0)
Or if the desired input is to start the reader when any sensor is tripped – autostarttrigger = 15 0 (15 space 0)
**note* - autostoptriggers override autostoptimers if tripped before timer expires*

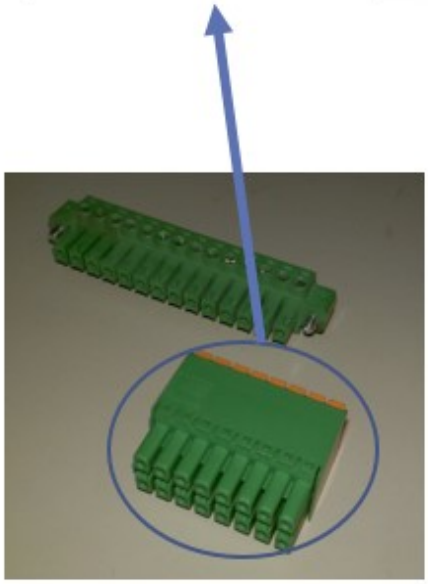
F800

F800 allows connection of up to 8 output devices and 4 input devices. Choice may be made to utilize an external power source for all peripherals or utilize 12 VDC internal voltage provided by F800 (**ONLY** available if powering F800 using external 12 VDC power supply, this is not available utiziling PoE by itself)

GPIO Pinout

	PIN
EXTERNAL / ISOLATED V+	1
EXTERNAL / ISOLATED V-	2
Output 1	3
Output 2	4
Output 3	5
Output 4	6
Output 5	7
Output 6	8
Output 7	9
Output 8	10
Input 1	11
Input 2	12
Input 3	13
Input 4	14
INTERNAL 12 VDC +	15
INTERNAL 12 VDC -	16

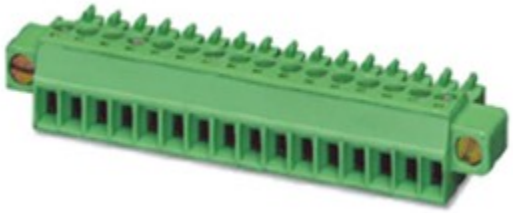
NOTE: There is no optical isolation when using internal 12VDC power source

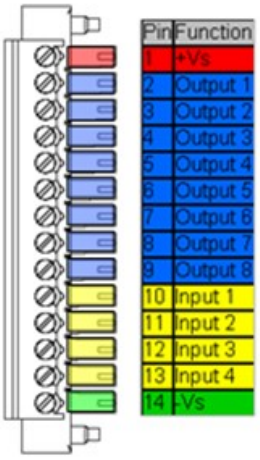


9900+

9900+ allows connection of up to 8 output devices and 4 input devices. An external power supply must be supplied to power all external peripherals.

GPIO Pinout





Equivalent Wiring Circuit

9650 | 9680

9650 and 9680 allows connection of up to 2 output devices and 2 input devices. In addition there is a resident 3 VDC power output available to power low power / low current periphers (i.e. LED lights).

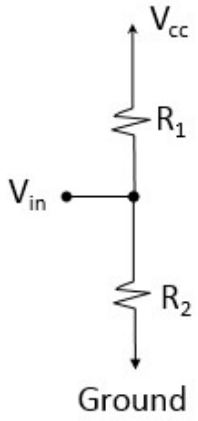
GPIO Pinout

Pin #	Description
1	Input 0
2	Input 1
3	Output 0
4	Output 1
5	Ground

I/O Recommended Operating Conditions

Inputs	
Logic "0"	0 – 0.8 VDC
Logic "1"	2.0 – 5.25 VDC
Outputs	
I_{source}	20 mA @ 3 VDC
I_{sink}	20 mA @ 0.5 VDC

Keep in mind that any input devices should not exceed 5 VDC. It is recommended to use a voltage divider circuit. In the example below, we assume the external voltage supplied is 12VDC (referred to as Vcc in this example):

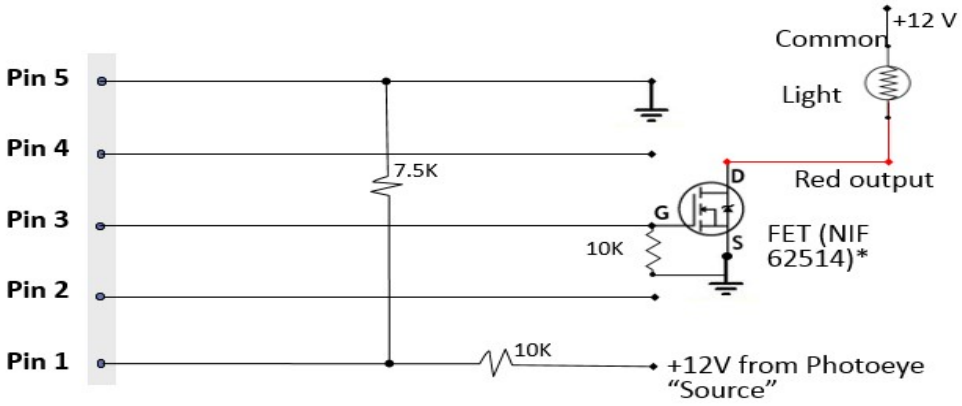


$$V_{in} = \frac{V_{cc}\,(R_2)}{(R_1 + R_2)}$$

For $R_1 = R_2$, $V_{in} = ½\,(V_{cc})$, so for $V_{cc} = 12Vdc$, $V_{in} = 6Vdc$

For $R_1 = 10K$, $R_2 = 7.5K$, $V_{cc} = 12Vdc$, $V_{in} = 5.1Vdc$

Here is the wiring equivalent:



*** NIF 62514 from ON Semiconductor - http://www.onsemi.com/PowerSolutions/product.do?id=NIF62514**

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