

Alien Academy

Section 3 Module 2 : I/O

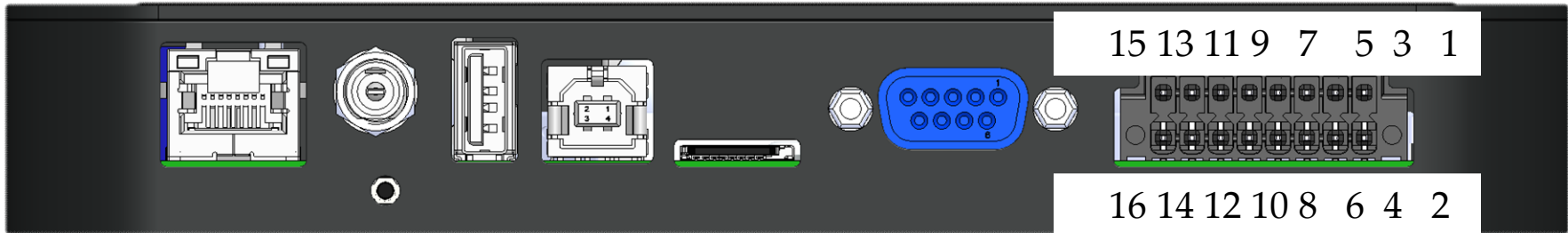
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IDENTIFICATION **IoT**
Of Things™

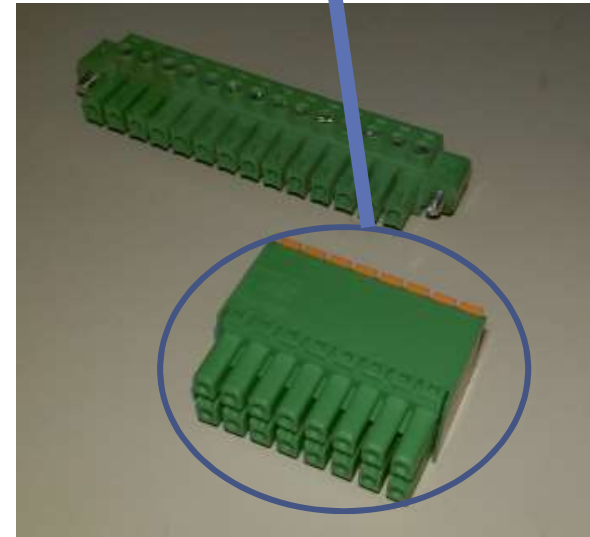
ALR-F800 GPIO

F800 GPIO

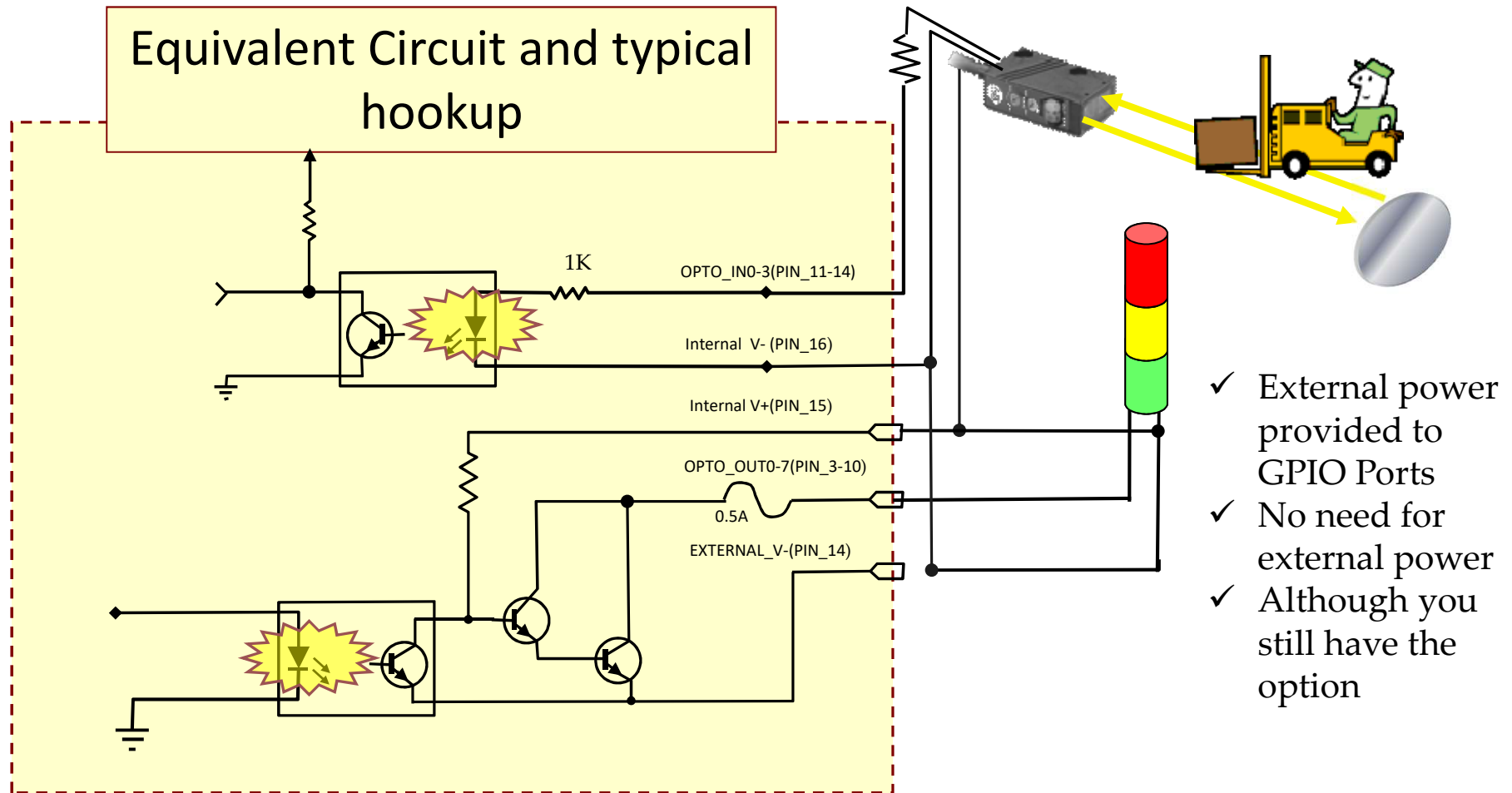


	PIN
EXTERNAL / ISOLATED V+	1
EXTERNAL / ISOLATED V-	2
Output 1	3
Output 2	4
Output 3	5
Output 4	6
Output 5	7
Output 6	8
Output 7	9
Output 8	10
Input 1	11
Input 2	12
Input 3	13
Input 4	14
INTERNAL 12 VDC +	15
INTERNAL 12 VDC -	16

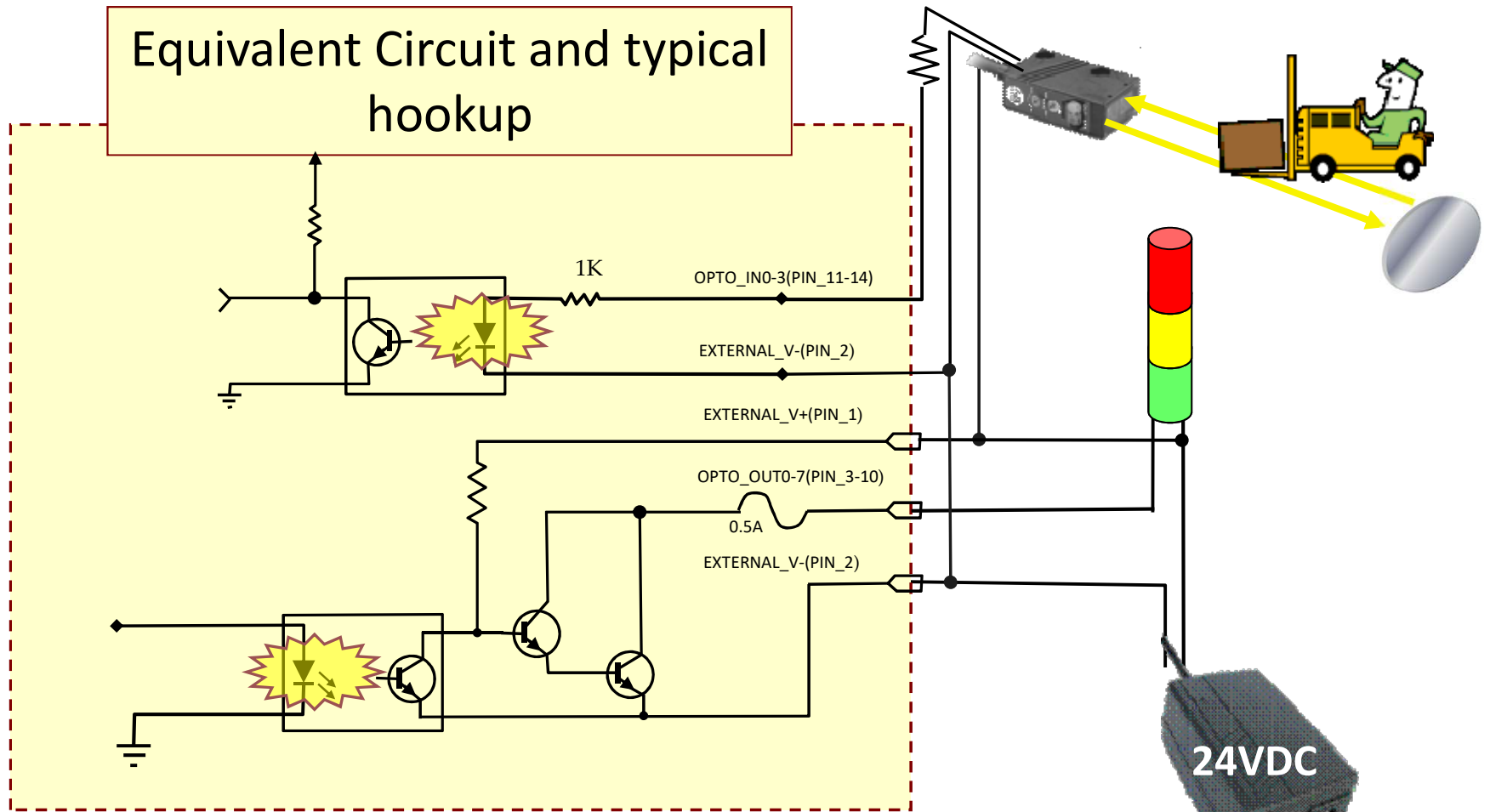
NOTE: There is no optical isolation when using internal 12VDC power source



GPIO Setup (using 12VDC internal power)



GPIO Setup (using 24VDC external power)

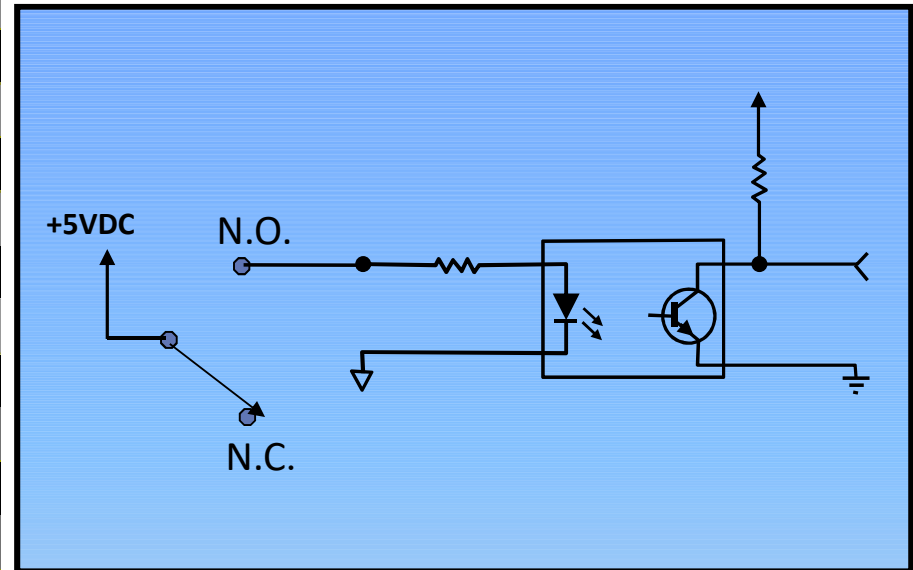


Inputs

Input Assignments (F800/9900+)

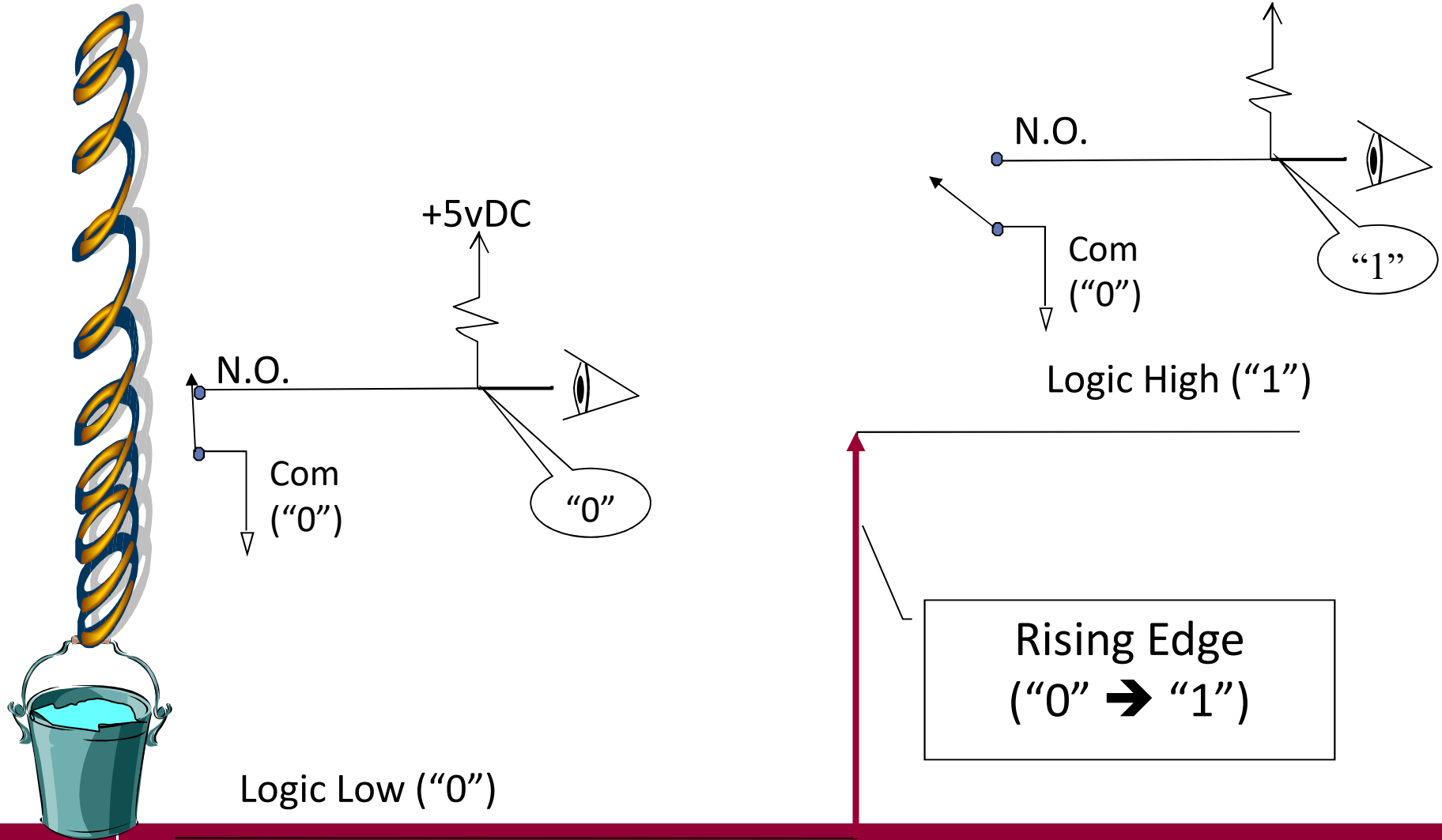
Normally Open

Input State	Input 4	Input 3	Input 2	Input 1
0				
1				Asserted
2			Asserted	
3			Asserted	Asserted
4		Asserted		
5		Asserted		Asserted
6		Asserted	Asserted	
7		Asserted	Asserted	Asserted
8	Asserted			
9	Asserted			Asserted
10	Asserted		Asserted	
11	Asserted		Asserted	Asserted
12	Asserted	Asserted		
13	Asserted	Asserted		Asserted
14	Asserted	Asserted	Asserted	
15	Asserted	Asserted	Asserted	Asserted



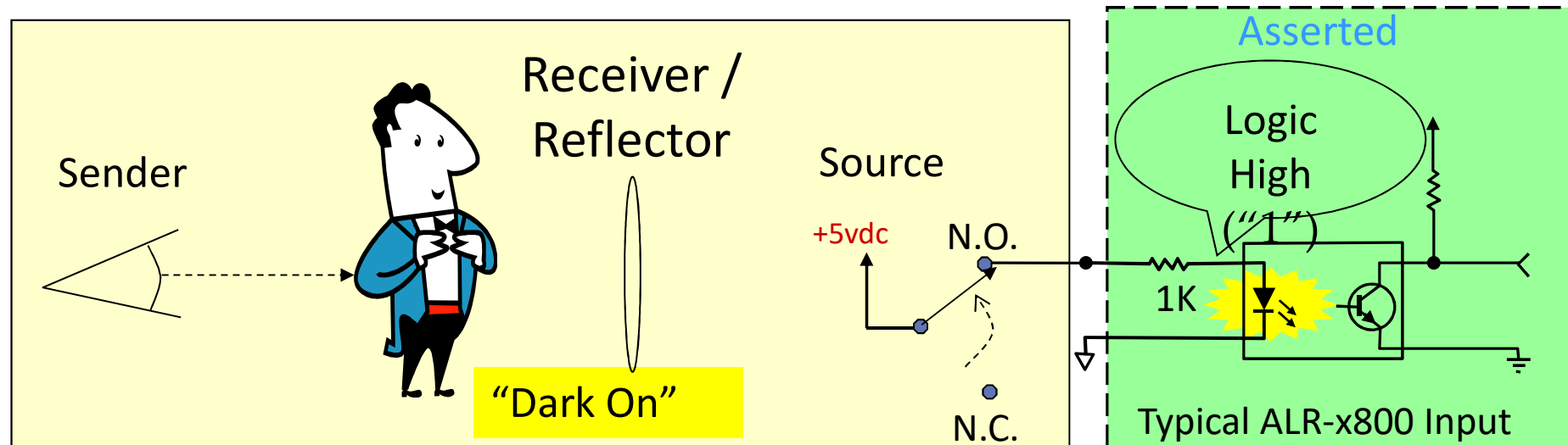
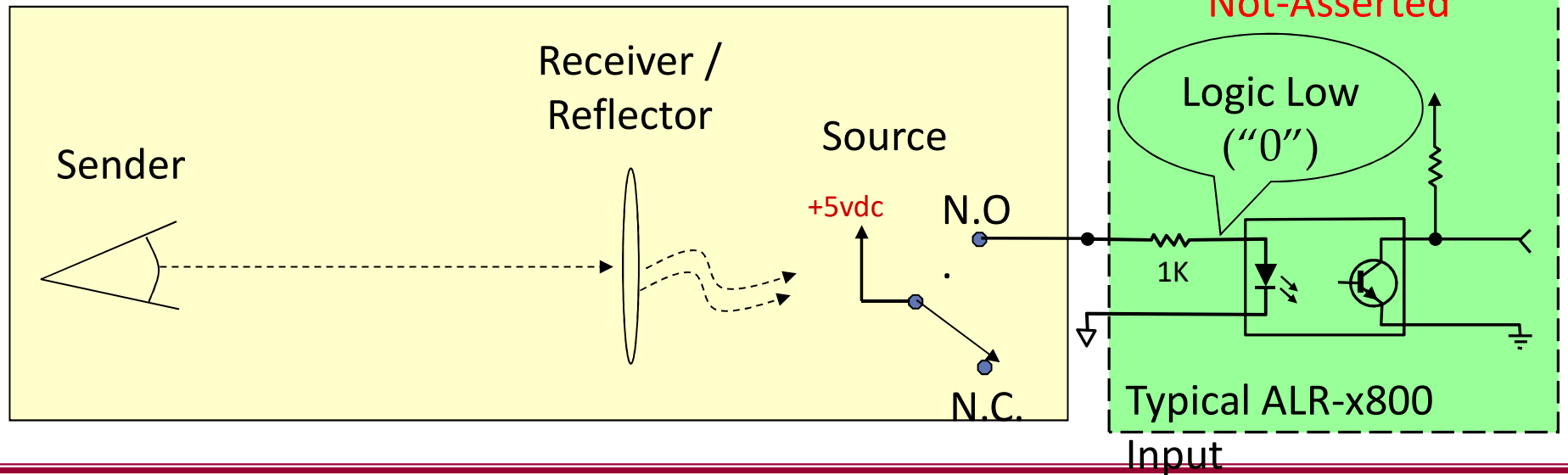
Example of a "Rising" Edge

(Input Logic)



Typical Source Input (Preferred)

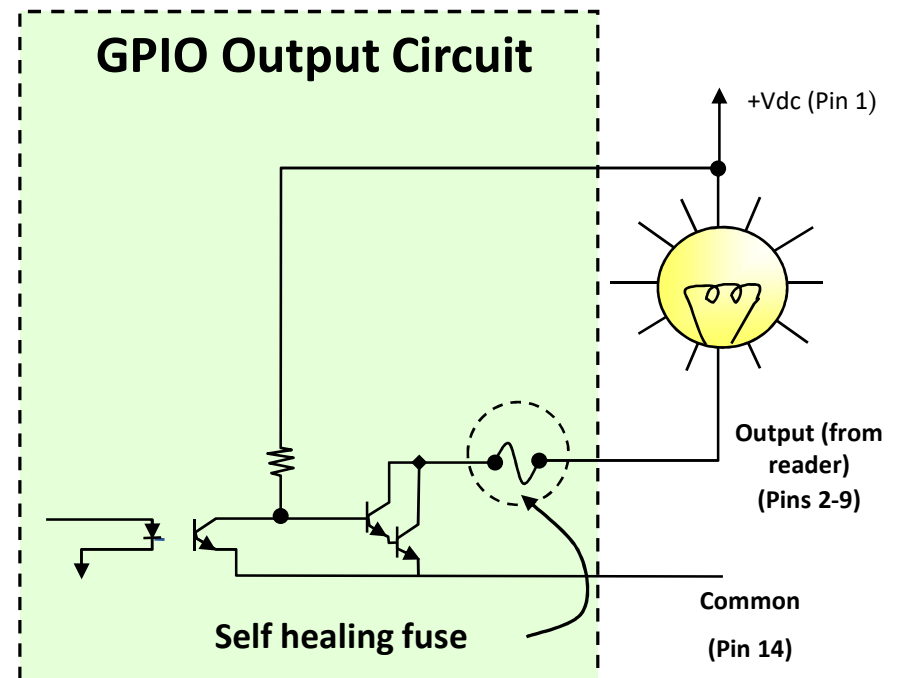
(Normally Closed Dry Contact Shown)



Outputs

Output Assignments (F800 / 9900+)

Output Setting	Output 4 (Beeper)	Output 3 (Green)	Output 2 (Red)	Output 1 (Amber)
0				
1				Asserted L
2			Asserted L	
3			Asserted L	Asserted L
4		Asserted L		
5		Asserted L		Asserted L
6		Asserted L	Asserted L	
7		Asserted L	Asserted L	Asserted L
8	Asserted L			
9	Asserted L			Asserted L
10	Asserted L		Asserted L	
11	Asserted L		Asserted L	Asserted L
12	Asserted L	Asserted L		
13	Asserted L	Asserted L		Asserted L
14	Asserted L	Asserted L	Asserted L	
15	Asserted L	Asserted L	Asserted L	Asserted L



... ETC. Continues to 255 for the 8 outputs

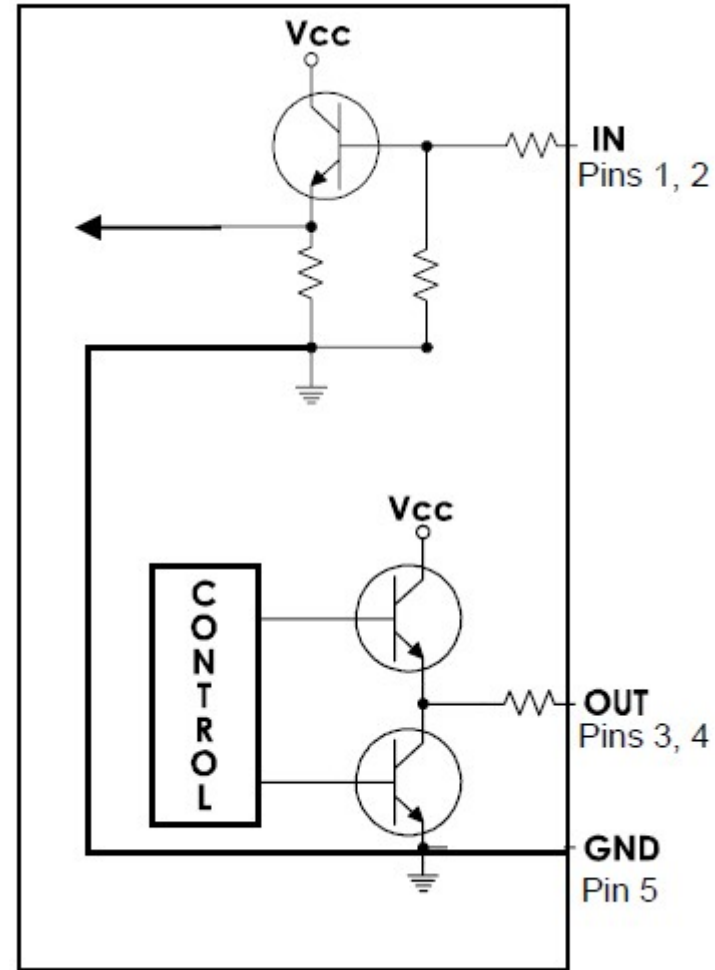
ALR-9650/9680 GPIO

Input / Output Assignments (9650 / 9680)

Normally Open

Input State	Input 2	Input 1
0		
1		Asserted
2	Asserted	
3	Asserted	Asserted

Output Setting	Output 2 (Red)	Output 1 (Amber)
0		
1		Asserted L
2	Asserted L	
3	Asserted L	Asserted L



Outputs can source up to 20 mA's without an external supply.

Outputs should be protected from transients such as inductive kickback so as to not exceed the absolute maximum voltage allowed at the outputs.

9650/80 Wiring



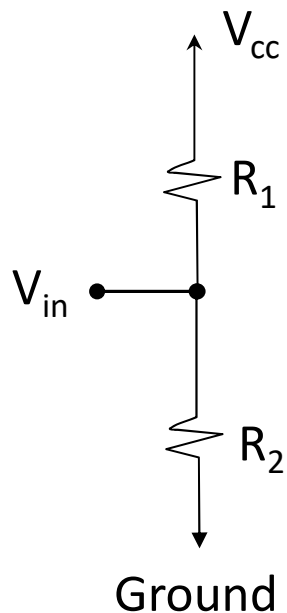
Pin #	Description
1	Input 0
2	Input 1
3	Output 0
4	Output 1
5	Ground

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

Voltage Divider

Select values such that V_{in} does not exceed 5Vdc. In this example, we assume $V_{cc} = 12\text{vdc}$.

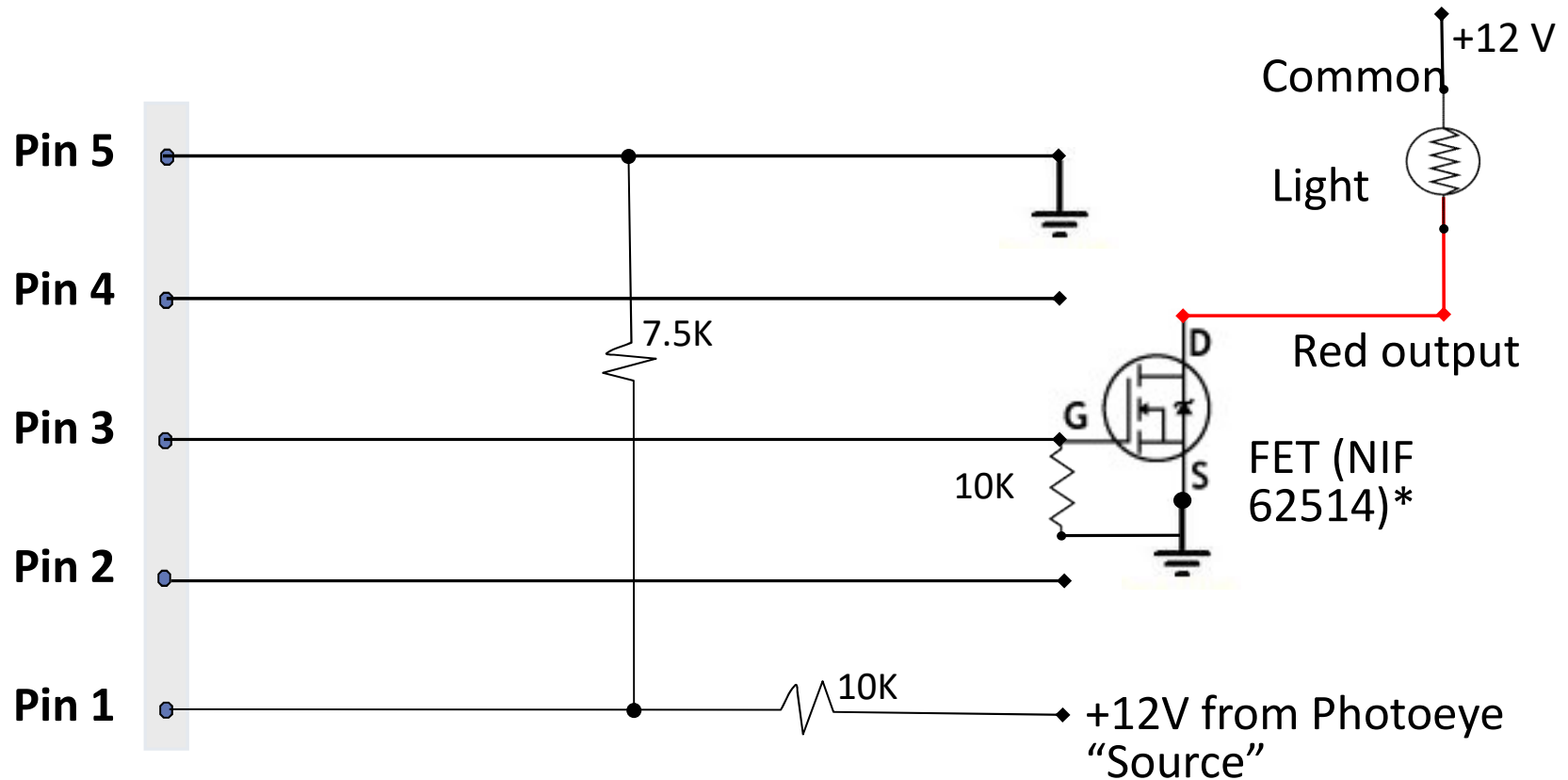


$$V_{in} = \frac{V_{cc} (R_2)}{(R_1 + R_2)}$$

For $R_1 = R_2$, $V_{in} = \frac{1}{2} (V_{cc})$, so for $V_{cc} = 12\text{Vdc}$, $V_{in} = 6\text{Vdc}$

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

ALR-9650/80 Non-TTL I/O Wiring



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