::Goddard:: SW-1

Fully configurable, Multi-purpose, Bi-directional Switching Unit

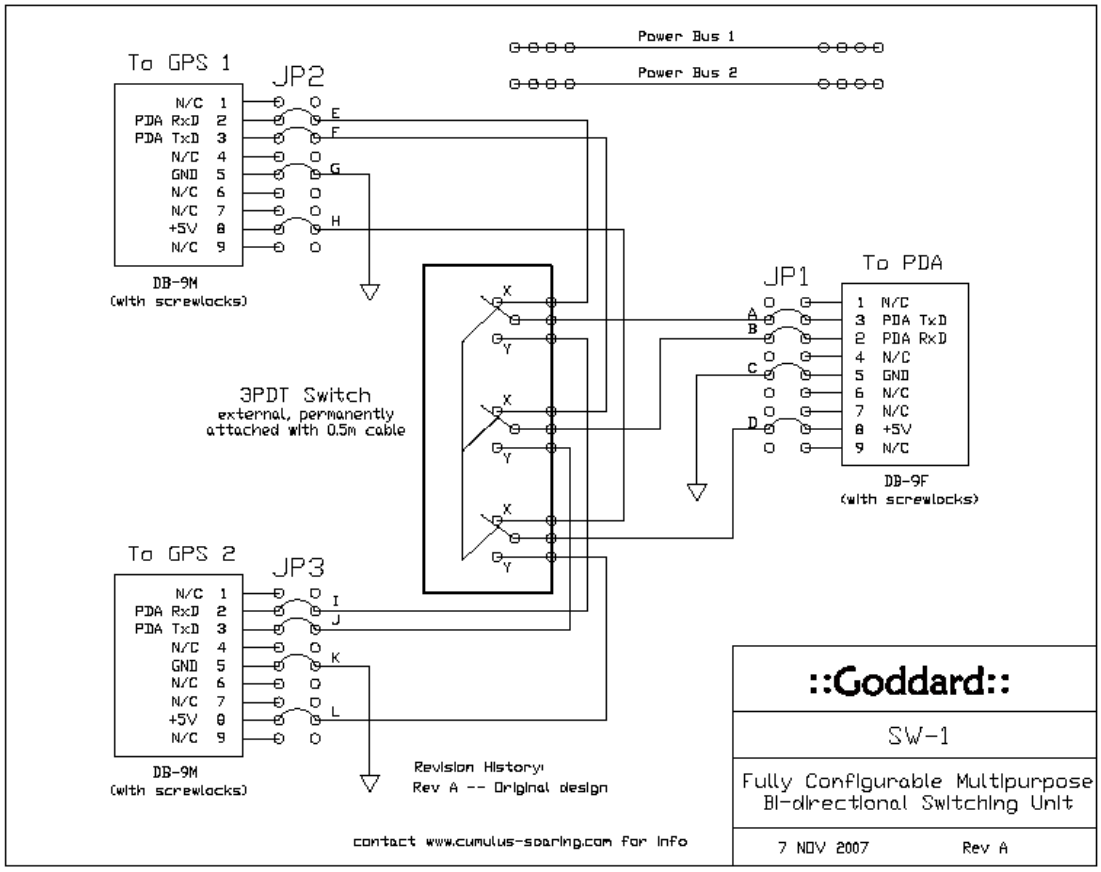
Manual

Revision 1.0

Introduction

The SW-1 is a fully configurable, multi-purpose, bi-directional switching unit that allows you to switch between 2 source (or destination) units to a third unit. The initial design use of the unit was to switch receive, transmit and power from a PDA to each of two GPS units. Therefore, in essence, this unit is a 3 pole double throw switch. It incorporates ferrite interference filtration technology in each of the connectors.

The unit is fully functional as shipped. Please consider the following schematic:



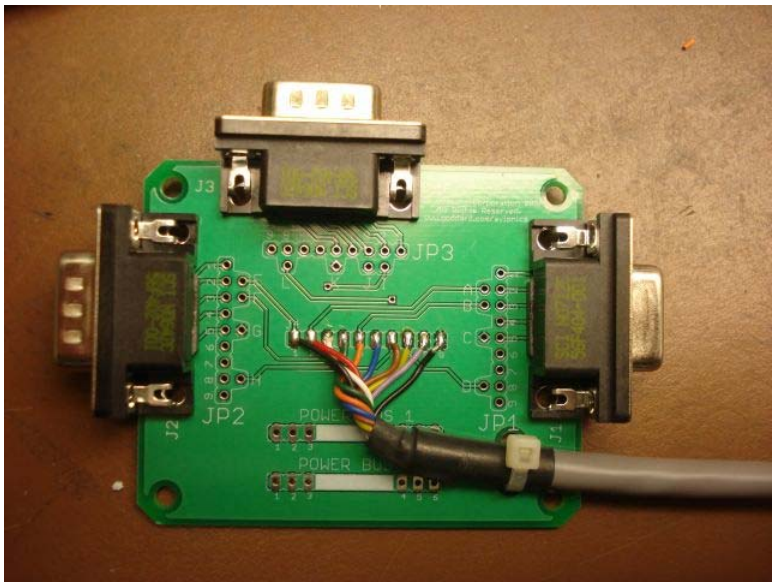
As you can see, with the existing 'as shipped' condition, the switching unit allow you to switch pins 2, 3, and 8 from two separate units on the left to the corresponding pins on the right.

Additionally, the ground pin (pin 5) on each of the units is grounded to the common ground.

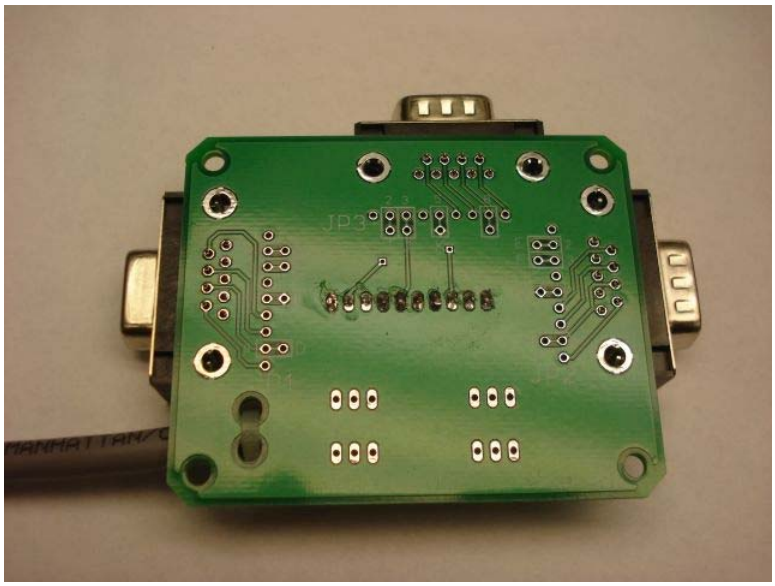
Changing the Configuration

The configuration can be changed by cutting traces and/or soldering jumper wires between the appropriate solder points.

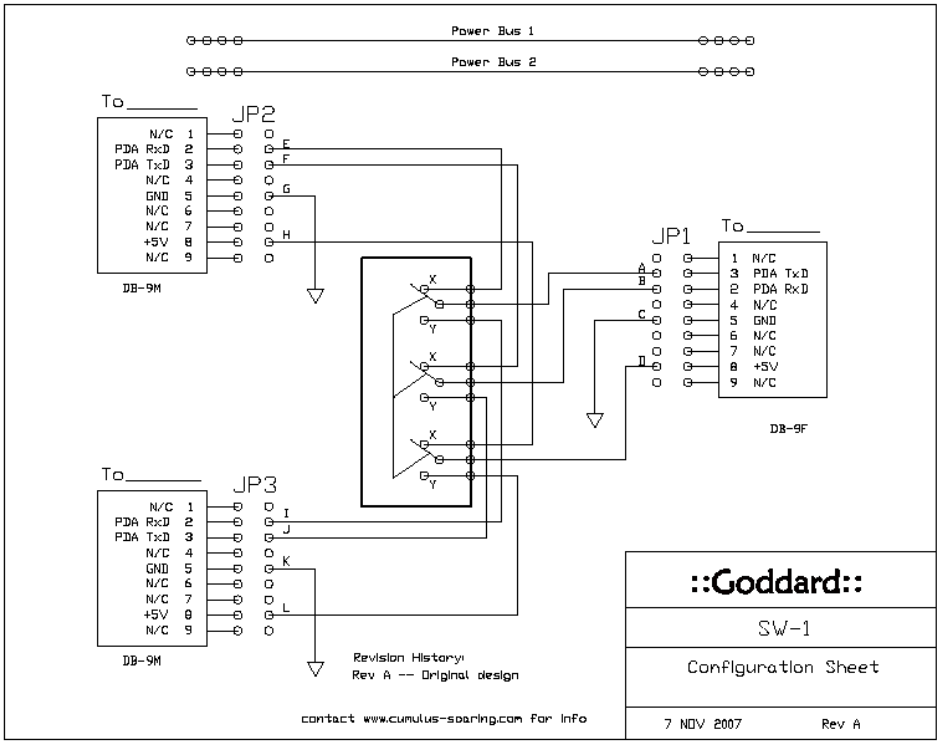
In this picture we see the top of the board.



And here is the bottom of the circuit board:

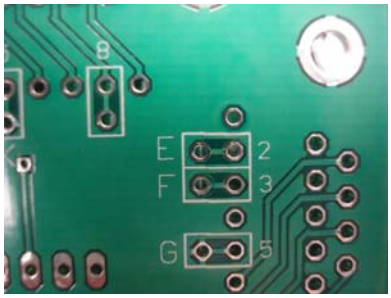


In order to re-configure the unit, first draw the schematic using the Configuration worksheet (a full-sized sheet is available as the last page of this document):

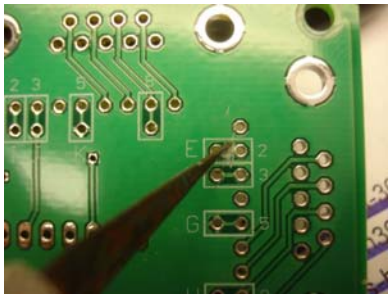


If you decide that you do not need the existing jumper connections A-L, you must cut them appropriately on the back of the board in Jumper Areas JP1-JP3.

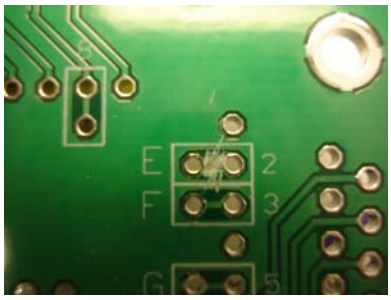
Using a razor blade or X-acto knife cut through the desired jumper trace on the back side of the board:



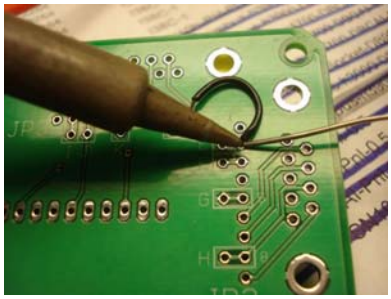
First, find the desired trace to cut.



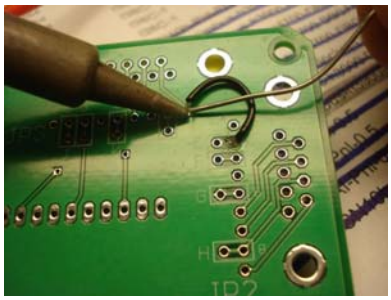
Using a razor or Xacto knife, cut through the desired trace interrupting the connection.

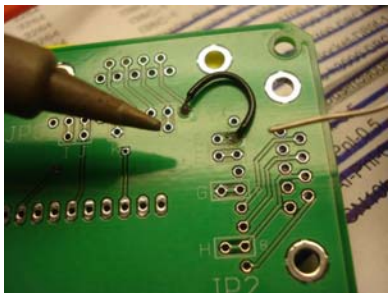


Be sure that the trace is completely broken by checking with a multimeter for continuity.



Solder a short piece of wire between the desired connecting points.

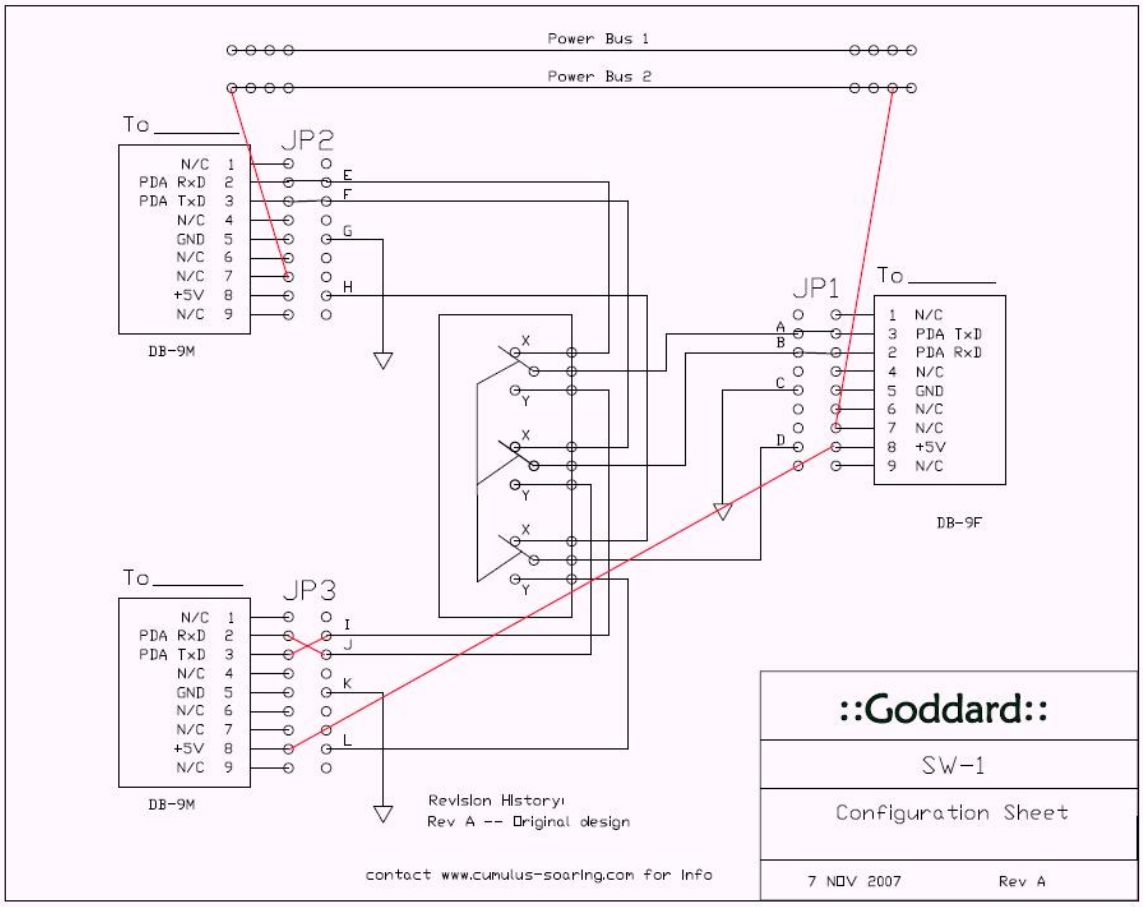


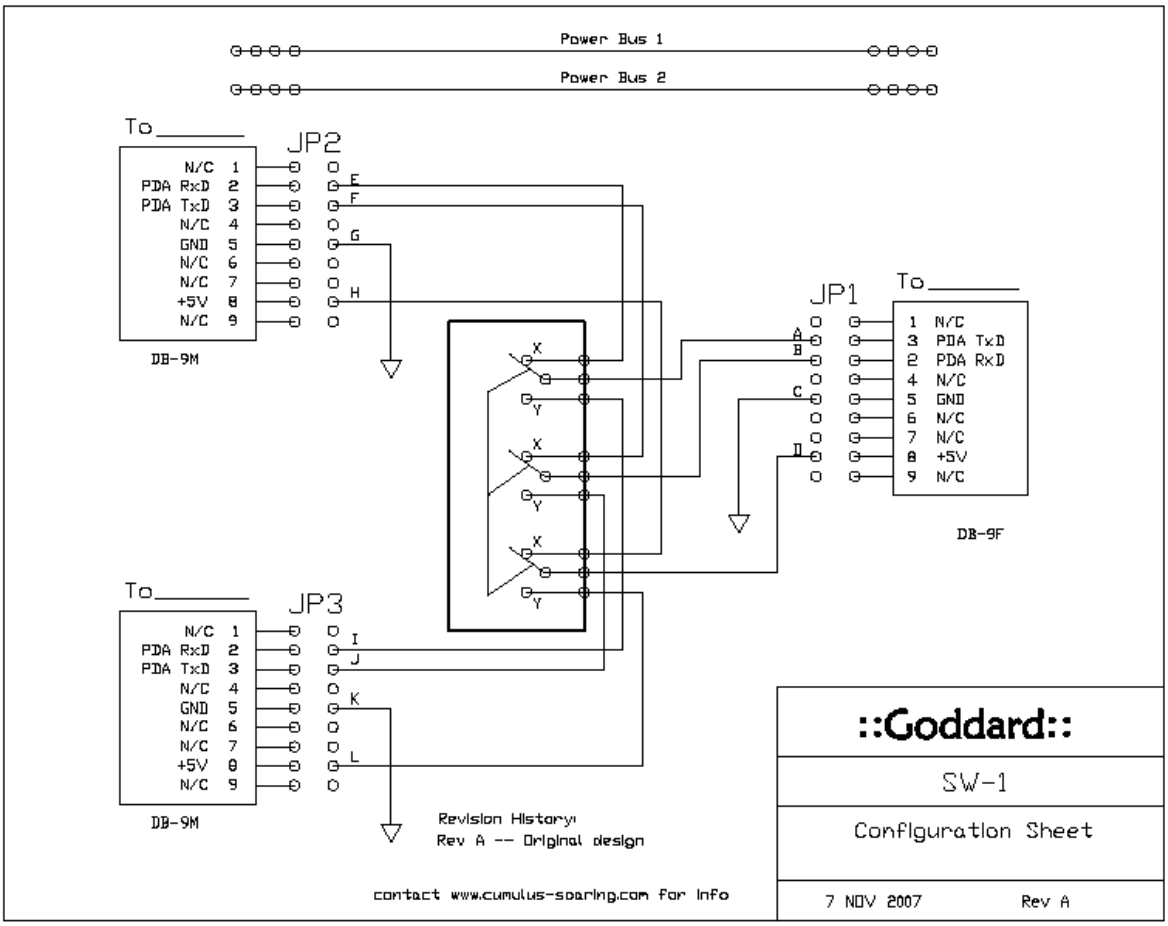


Repeat for each connection that you desire to make.

Example 1:

Consider the following scenario. You wish to power a 12V GPS from a PS-5a and have it powered all the time (no switching). You wish to power GPS 2 with 5 volts from the PS-5a. You want to switch between GPS1 and GPS2 with GPS2's communication lines flip-flopped.




Power Bus 1
Power Bus 2
To
JP2
N/C 1
PDA RxD 2
PDA TxD 3
N/C 4
GND 5
N/C 6
N/C 7
+5V 8
N/C 9
DB-9M
E
F
G
H
X
Y
X
Y
X
Y
JP1
To
1 N/C
3 PDA TxD
2 PDA RxD
4 N/C
5 GND
6 N/C
7 N/C
8 +5V
9 N/C
DB-9F
A
B
C
D
To
JP3
N/C 1
PDA RxD 2
PDA TxD 3
N/C 4
GND 5
N/C 6
N/C 7
+5V 8
N/C 9
DB-9M
I
J
K
L
Revision History:
Rev A -- Original design
contact www.cumulus-soaring.com for info
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SW-1
Configuration Sheet
7 NOV 2007
Rev A