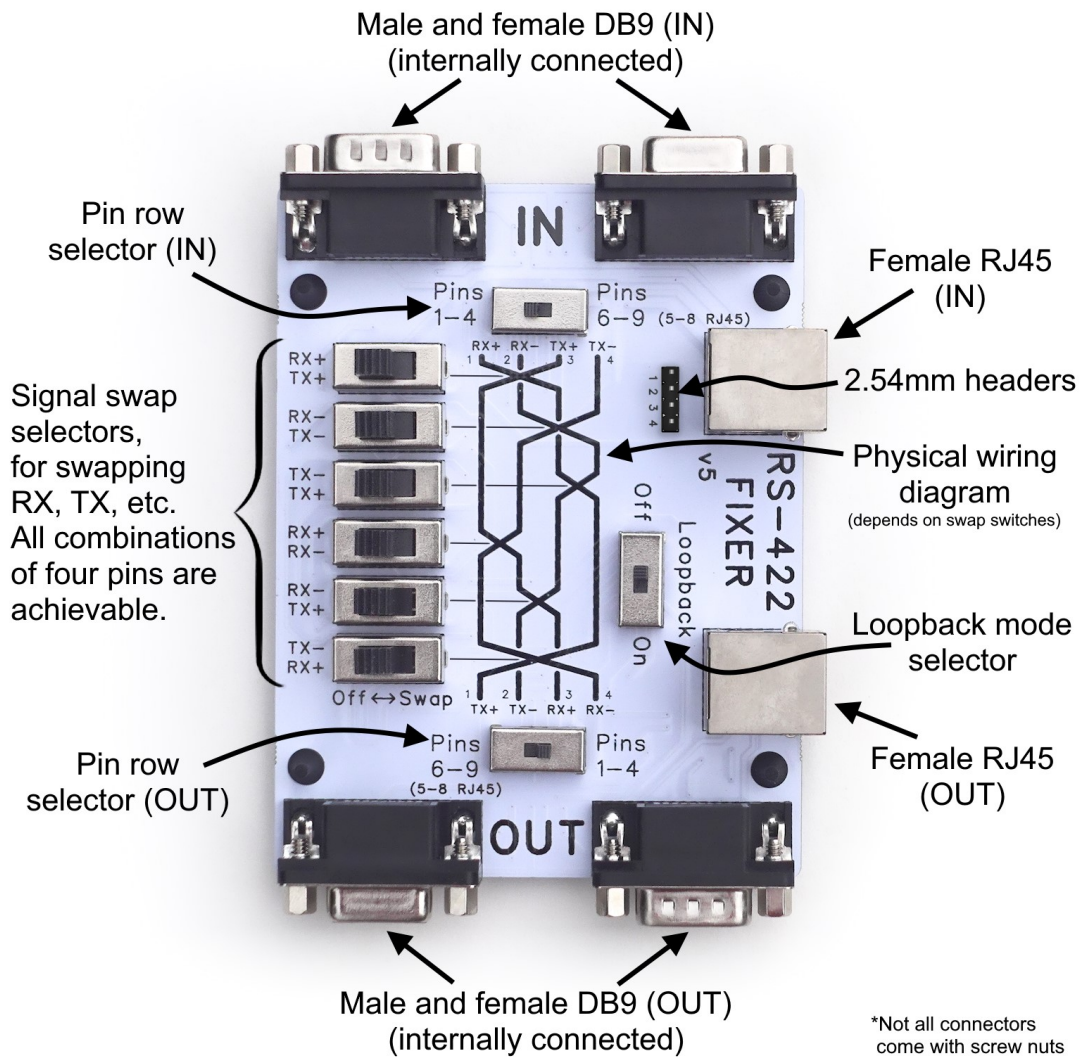


HOW TO USE THE RS-422 FIXER

Wiring issues begone!

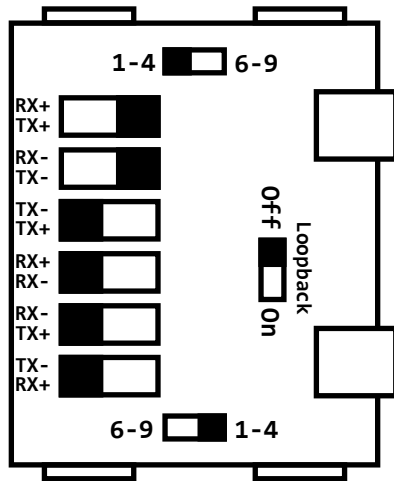


HOW TO FIX A CABLE

1. **Insert the RS-422 Fixer** between the connectors of the cable.
2. **Enable data transmission** between the two systems. Even if the pins are mismatched, this will not harm the device. (It will simply fail to communicate.)
3. **Flip the switches until it works.** The most common issue (RX and TX swap) can be mitigated by flipping the top two switches to the right. Otherwise, move the switches through all binary combinations.
4. Once communication is established, **follow the paths on the diagram** in the center of the Fixer corresponding to each switch. This diagram represents the physical connection between corresponding pins between the IN and OUT sides.
5. Celebrate the flow of data
6. **OPTIONAL—FIX THE CABLE:**
 - a. Unplug the cable on the IN side of the board. This cable must be reworked to match the behavior of the RS-422 Fixer in this configuration. If instead you wish to modify the cable on the OUT side, then flip the Fixer around and repeat these steps starting from 1.
 - b. Disassemble the cable on the IN side of the RS-422 Fixer and swap the wires to match the diagram. For example, if only the top switch is to the right (enabled), then pin 3 (IN) is connected to pin 1 (OUT) and pin 1 (IN) is connected to pin 3 (OUT), which means pins 1 and 3 in the IN cable must be physically swapped.
 - c. Rework the cable
 - d. Plug the cables directly into each other without the RS-422 Fixer – they should work now.

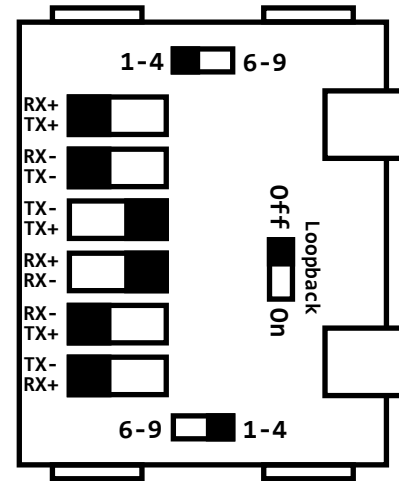
COMMON MISCONFIGURATION FIXES

Swap RX and TX



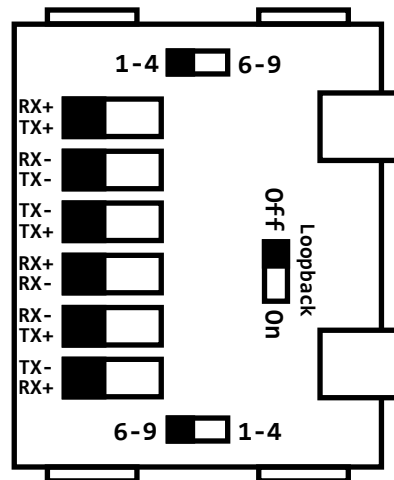
DB9 Pin IN		DB9 Pin OUT
1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9

Invert Polarity



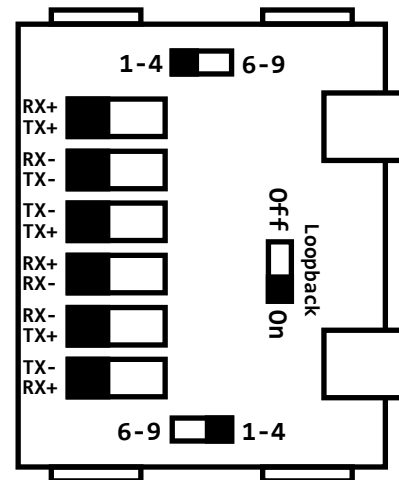
DB9 Pin IN		DB9 Pin OUT
1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9

Connect pins 1-4 to pins 6-9 (DB9) or 5-8 (RJ45)



DB9 Pin IN		DB9 Pin OUT
1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9

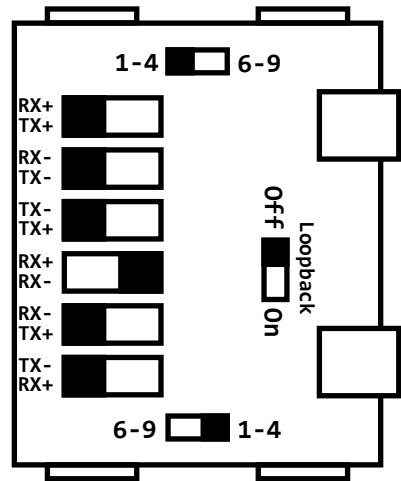
Loopback on all ports (assuming pins 1-4 are used)



DB9 Pin IN		DB9 Pin OUT
1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9

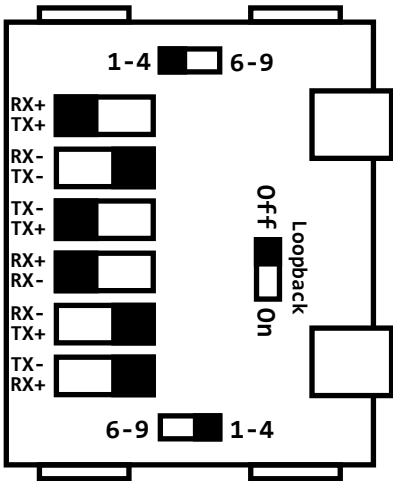
COMMON MISCONFIGURATIONS FIXES CONT.

Swap RX polarity



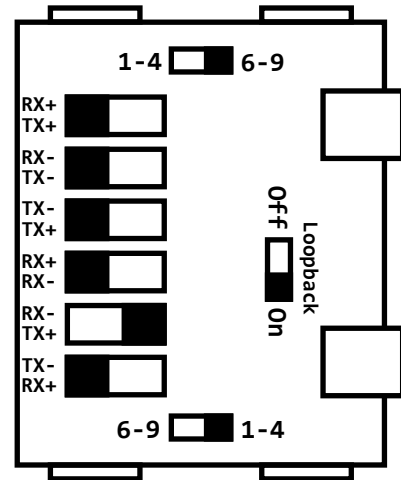
DB9 Pin IN	DB9 Pin OUT
1	2
2	1
3	3
4	4
5	5
6	6
7	7
8	8
9	9

Rotate pins down



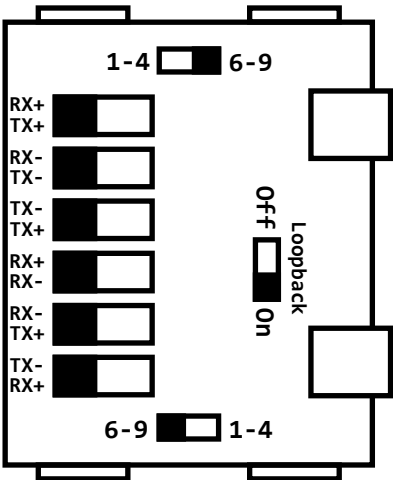
DB9 Pin IN	DB9 Pin OUT
1	2
2	1
3	3
4	4
5	5
6	6
7	7
8	8
9	9

Loopback on input pins 6-9 with RX- and TX+ swapped



DB9 Pin IN	DB9 Pin OUT
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

Loopback on all ports (assuming pins 6-9 are used)

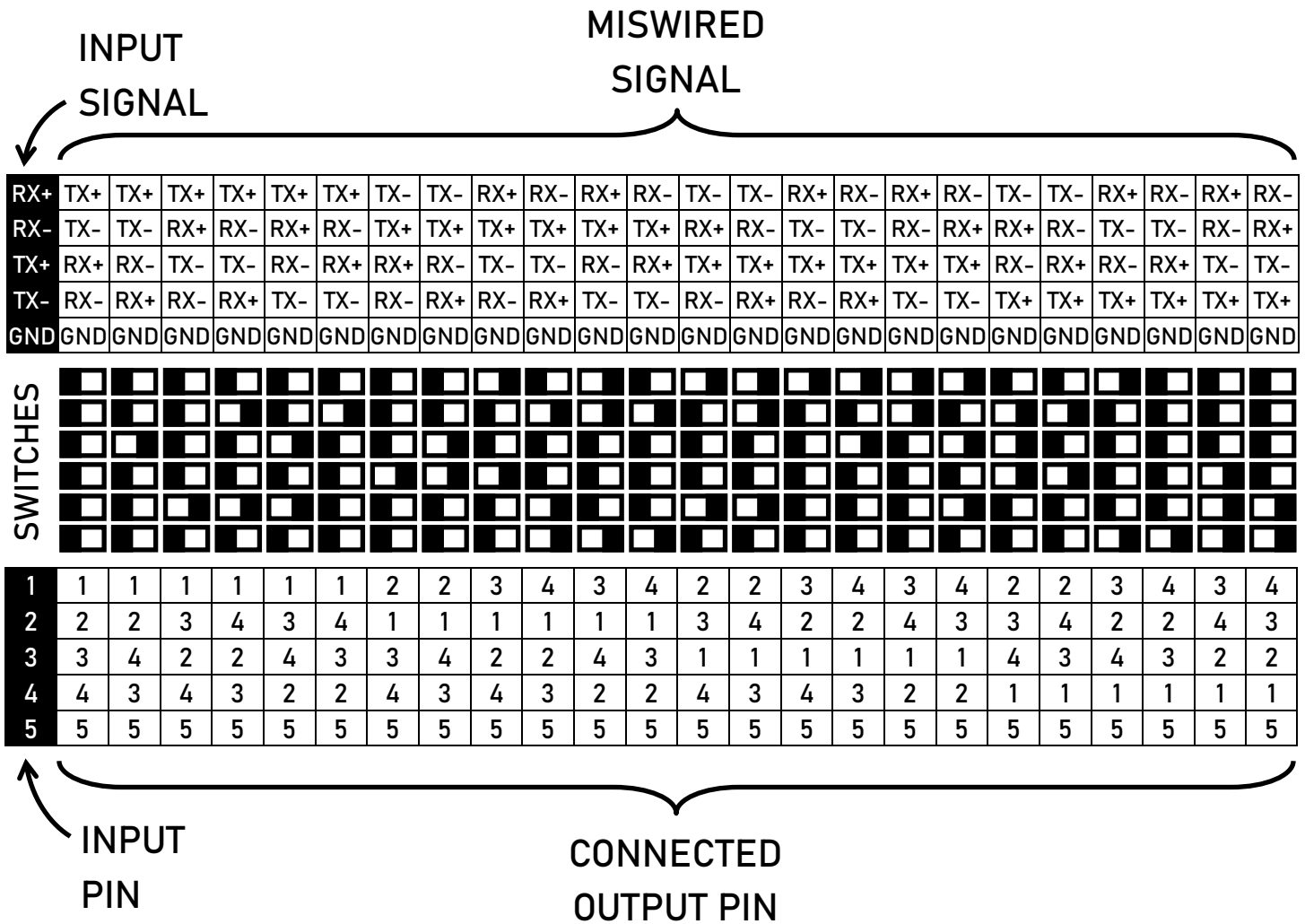


DB9 Pin IN	DB9 Pin OUT
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

CONFIGURATION TABLE

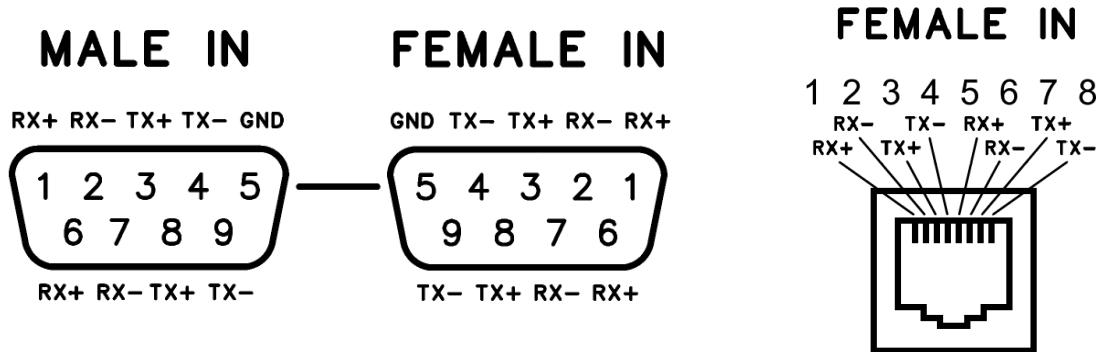
(for DB9 connectors)

This page assumes pins 1-4 are used and loopback is disabled.



ASSUMPTIONS

The RS-422 standard does not specify a physical connector nor a pin-out. The RS-422 Fixer's default configuration is as follows:



DB9 Pin IN	DB9 Pin OUT
1 RX+	1 TX+
2 RX-	2 TX-
3 TX+	3 RX+
4 TX-	4 RX-
5 GND	5 GND
6	6
7	7
8	8
9	9

RJ45 Pin IN	RJ45 Pin OUT
1 RX+	1 TX+
2 RX-	2 TX-
3 TX+	3 RX+
4 TX-	4 RX-
5	5
6	6
7	7
8	8

The RS-422 Fixer works when:

- Only four pins are used for data at a time on any one connector. (Ethernet for example, will not work.)
- Pin 5 on the DB9 is always ground. The RJ45 connectors do not have a ground pin.
- For **DB9**, pins **1-4** are used **OR** pins **6-9** are used.
- For **RJ45**, pins **1-4** are used **OR** pins **5-8** are used.

INTERNAL WIRING DIAGRAMS

