

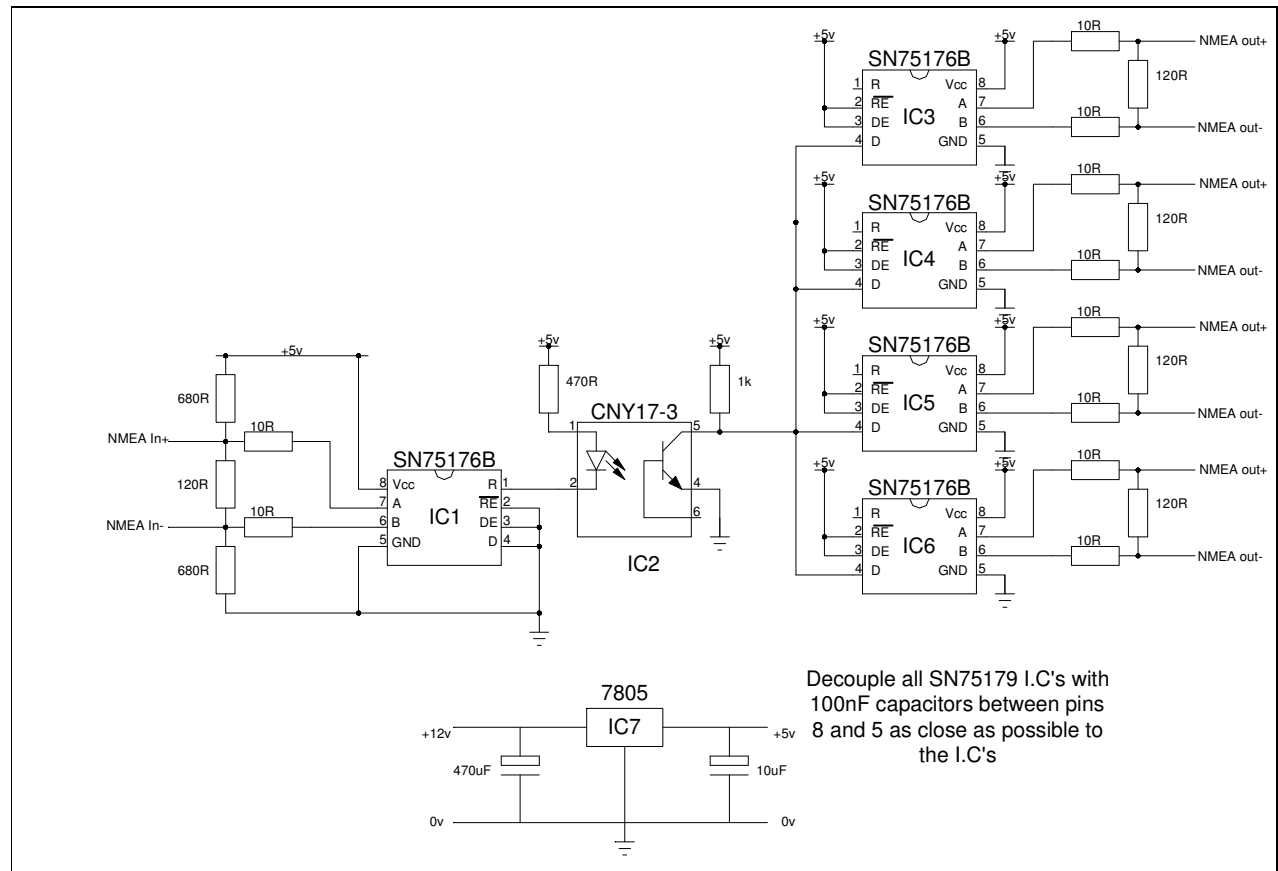
# NMEA (RS422) Amplifier

## Circuit Description

IC1 converts the RS422 input into 5volt logic data. The opto-isolator (IC2) ensures that there is no physical connection between the input and output equipment, thus providing some degree of protection to the connected equipment. IC's 3-6 convert the logic level data back to balanced RS422 with sufficient current capability to drive the attached NMEA listeners.

As all the I.C's work on a +5v and 0v supply a suitable power supply is required. A 7805 voltage regulator will suffice – preferably one rated at 1A or 2A to avoid too much heat dissipation. A couple of capacitors across the input and output voltage lines as shown should be adequate to smooth any supply ripple. The manufactures data sheet for the SN75179 I.C's recommends placing decoupling capacitors (100nF) across the supply lines to the IC's (pins 8 and 5) as close as possible to the I.C's. These are omitted from the circuit diagram for the sake of clarity.

## Circuit Diagram



## Component List

Qty	Description	Maplin Electronics - <a href="http://www.maplin.co.uk">www.maplin.co.uk</a>		
		Code	Cost Ea	Total Cost
5	SN75176B I.C	AE09K	£ 0.99	£ 4.95
1	CNY17-3 Opto-Isolator	RA57M	£ 0.59	£ 0.59
10	10R Resistor	G10R	£ 0.01	£ 0.10
5	120R Resistor	G120R	£ 0.01	£ 0.05
1	470R Resistor	G470R	£ 0.01	£ 0.01
2	680R Resistor	G680R	£ 0.01	£ 0.02
1	1k Resistor	G1K	£ 0.01	£ 0.01
1	7805 Volatage Regulator	UJ54	£ 0.59	£ 0.59
1	470uF Capacitor (16v)	VH46A	£ 0.19	£ 0.19
1	10uF Capacitor (16V)	AT98G	£ 0.09	£ 0.09
5	100nF Capacitor	YR75S	£ 0.05	£ 0.25
5	8 Pin IC Socket	FZ45Y	£ 0.29	£ 1.45
1	6 Pin IC Socket	FZ43W	£ 0.24	£ 0.24
	<b>TOTAL</b>			<b>£ 8.54</b>

Also required will be some stripboard and a suitable box

I should point out that the one I built seems to work fine, but I can offer no guarantee that this circuit will work and will not damage your equipment – it is to be built entirely at your own risk

Alex Lyne