

Turbot Neurophysiology

Schematic															
#	EYES				MOTOR		Battery								
	Left	Right	Bottom	Top	Left	Right	open	running							
1	dark	light	dark	light	forward	off	5.52	5.37							
2	light	dark	dark	light	off	forward									
3	dark	light	light	dark	off	forward									
4	light	dark	light	dark	forward	off									
5	dark	light	dark	light	alternates	alternates	5.05	4.89	STALL CONDITION						
XOR (MM74HC86N Quad 2-input Exclusive-OR)															
	Gate 1		Gate 2		Gnd		Gate 3		Gate 4		Vcc				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1	-0.27	-0.32	0.00	5.33	0.00	5.32	0.00	5.31	0.00	5.31	0.00	5.31	4.09	5.30	
2	3.81	-0.30	5.14	5.13	5.13	0.00	0.00	0.00	5.13	5.13	5.13	0.00	3.95	5.13	
3	-0.29	5.56	5.14	5.14	5.14	0.00	0.00	0.00	5.13	5.13	5.13	0.00	3.95	5.12	
4	3.25	5.45	0.00	5.05	0.00	5.05	0.00	5.04	0.00	5.04	0.00	5.04	3.89	5.04	
5	-0.26	-0.29	0.00	0.00	0.00	0.00	0.00	4.23	4.24	4.23	4.23	0.00	0.00	4.21	
INV A (74AC240 Octal Inverting Buffer)															
	OE1	I0	O4	I1	O5	I2	O6	I3	O7	Gnd	I7	3.00	I6	O2	I5
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	5.28	0.02	0.00	0.02	5.28	0.00	5.25	5.27	0.00	0.00	*1	0.01	0.00	4.00	0.55
2	5.12	0.01	0.00	0.01	5.12	0.03	0.03	5.12	0.00	0.00	*1	0.01	0.00	3.94	0.33
3	5.11	0.01	0.00	0.01	5.10	0.01	5.09	5.10	0.00	0.00	*1	0.02	0.00	3.92	0.60
4	5.03	0.02	0.00	0.02	5.02	0.01	5.02	5.03	0.00	0.00	*1	0.01	0.00	3.88	0.70
5	0.00	*3	4.17	*3	0.00	*3	4.20	4.20	0.00	0.00	3.80	0.00	0.00	4.20	*3
INV B (74AC240 Octal Inverting Buffer)															
	OE1	I0	O4	I1	O5	I2	O6	I3	O7	Gnd	I7	3.00	I6	O2	I5
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	0.00	0.34	0.09	0.34	0.09	4.23	0.08	4.0 > 2.5	0.08	0.00	5.14	0.03	5.13	0.03	5.13
2	0.00	*2	0.09	*2	0.08	0.34	0.07	0.34	0.07	0.00	5.29	4.85	5.09	4.85	5.09
3	0.00	*2	0.09	*2	0.08	0.33	0.08	0.33	0.08	0.00	5.06	4.81	5.06	4.81	5.06
4	0.00	0.33	0.09	0.33	0.09	*4	0.08	*4	0.09	0.00	5.00	0.03	5.00	0.03	5.00
5	0.00	*3	*3	*3	3.80	*3	3.80	0.32	3.82	0.00	0.00	*3	0.00	*3	0.00
*1 Touching probe to pin causes RISE in voltage from borderline <i>high</i> ~3.08, to stall condition <i>high</i> ~4.75 & R motor to change to forward.															
*2 Touching probe to pin causes drop in voltage from <i>high</i> ~4v > low ~2.5v, L motor to run in reverse while R motor continues in reverse															
*3 Alternates <i>high</i> and <i>low</i> within variable range depending on pin															
*4 Touching probe to pin caused drop in voltae from borderline <i>high</i> ~3.45 to 2.44; L continues forward; R begins forward															