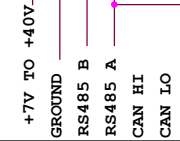


TO PC COM PORT OR USB
USE 9600 BAUD
8BIT, NO PARITY,
1 STOP, NO FLOW
CTRL.

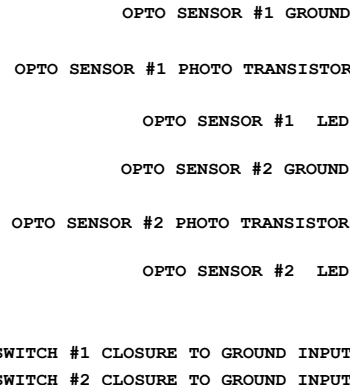
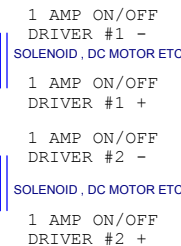
TO OTHER EZ SERVOS
OR EZ STEPPERS

DO NOT UNPLUG LOADS WHILE
POWER IS ON. BREAKING OF
CURRENT IN THE INDUCTANCE OF
THE MOTOR GENERATES A HIGH
VOLTAGE ARC, WHICH DAMAGES
THE DRIVE.

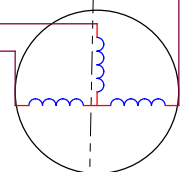


STATUS LED

LIFE LED



HALL A
HALL B
HALL C
5V HALL SENSOR POWER
HALL SENSOR GROUND
PHASE A POWER DRIVER
PHASE B POWER DRIVER
PHASE C POWER DRIVER



BLDC MOTOR



OPTIONAL ENCODER

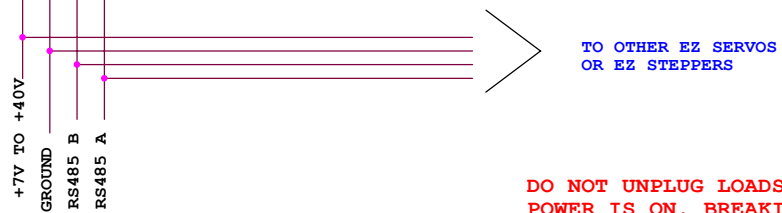
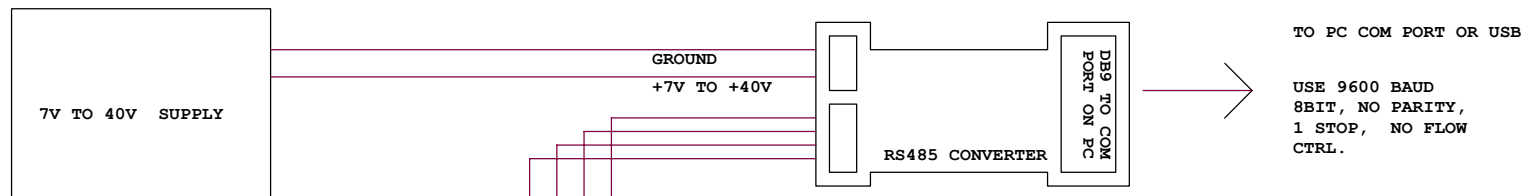
EZ SERVO EZSV17WV
WIRING DIAGRAM FOR
BLDC MOTOR

- 1) IF MOTOR EXHIBITS POSITIVE FEEDBACK, SWITCH ENCODER A,B WIRES
- 2) KEEP ENCODER / INPUTS AWAY FROM NOISEY MOTOR POWER WIRES.

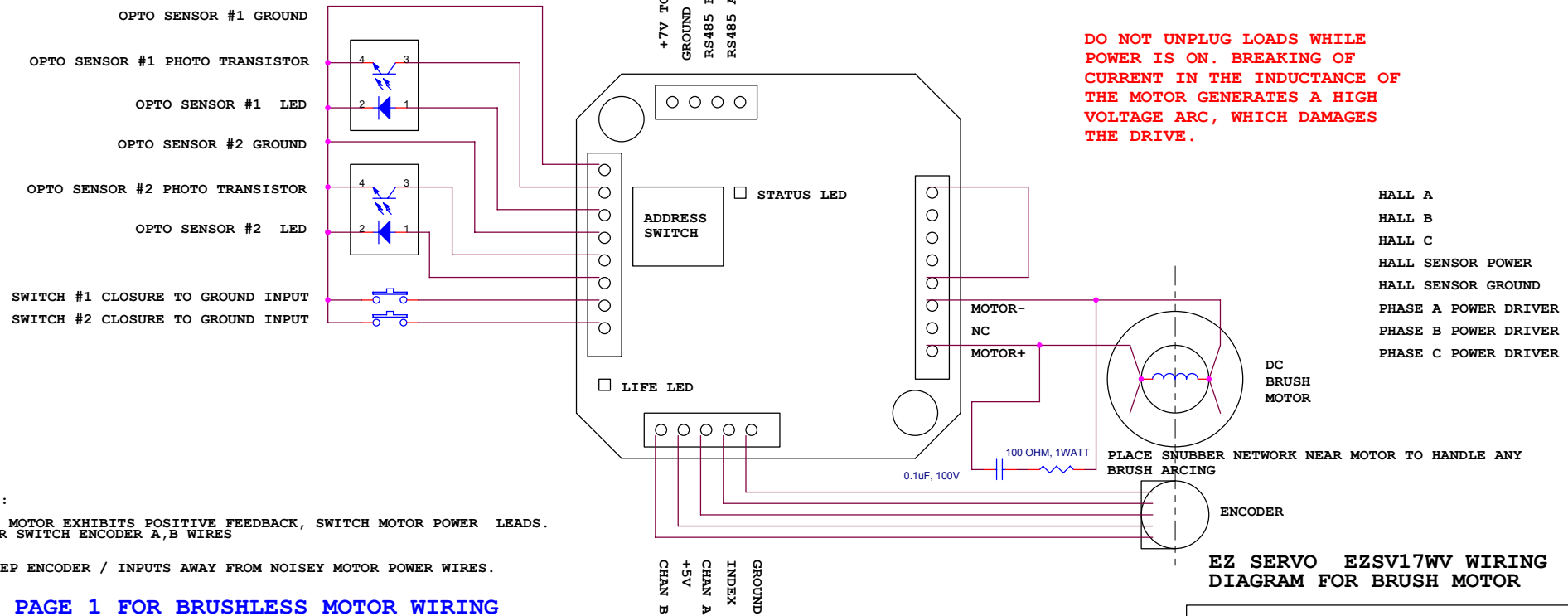
SEE PAGE 2 FOR BRUSH MOTOR WIRING
SEE PAGE 3 FOR MANUFACTURER
SPECIFIC BLDC MOTOR WIRING
EXAMPLES

NOTE: ENCODER SIGNALS MUST BE >4.5V HIGH LEVEL.
THIS MAY REQUIRE EXTERNAL PULLUPS.

Title ALLMOTION.COM EZSV17WV WIRING DIAGRAM		
Size B	Document Number	Rev A11
Date: Sunday, May 29, 2016	Sheet 1 of 5	



DO NOT UNPLUG LOADS WHILE
POWER IS ON. BREAKING OF
CURRENT IN THE INDUCTANCE OF
THE MOTOR GENERATES A HIGH
VOLTAGE ARC, WHICH DAMAGES
THE DRIVE.



- NOTES:
- 1) IF MOTOR EXHIBITS POSITIVE FEEDBACK, SWITCH MOTOR POWER LEADS.
OR SWITCH ENCODER A,B WIRES
 - 2) KEEP ENCODER / INPUTS AWAY FROM NOISEY MOTOR POWER WIRES.

SEE PAGE 1 FOR BRUSHLESS MOTOR WIRING

SEE PAGE 3 FOR MANUFACTURER SPECIFIC
BLDC MOTOR WIRING EXAMPLES

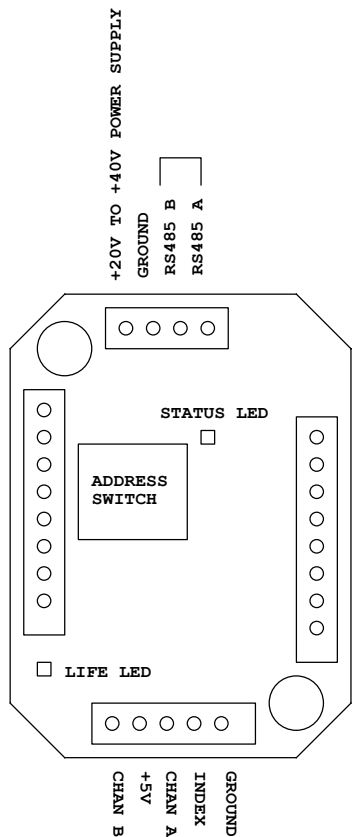
NOTE: ENCODER SIGNALS MUST BE >4.5V HIGH LEVEL.
THIS MAY REQUIRE EXTERNAL PULLUPS.

COPYRIGHT ALLMOTION.COM

EZ SERVO EZSV17WV WIRING DIAGRAM FOR BRUSH MOTOR

Title		
ALLMOTION.COM EZSV17WV WIRING DIAGRAM		
Size	Document Number	Rev
B		A11
Date:	Sunday, May 29, 2016	Sheet 2 of 5

POWER INPUT AND COMMUNICATION



SIZE: 1.6" X 1.6" x 0.6" THICK

POPULAR MANUFACTURER WIRE COLORS

MOTOR CONNECTION	PITTMAN	MAXON	EAD OPTICAL HALL	FROM OPTICAL ENCODER + HALL	EAD MAGNETIC HALL	FAULHARBER	ANAHEIM AUTOMATION	HARMONIC DRIVES RSF8B	PORTESCAPE NUVODISC 32BF	MAXON EC-max	
HALL A	WHITE	BLUE			BROWN	YELLOW	GREEN	WHITE	YELLOW	SENSOR1	GREY
HALL B	GREY	GREY			WHITE	GREEN	BLUE	BLUE	BROWN	SENSOR3	BROWN
HALL C	BLUE	VIOLET			GREEN	GREY	GREY	GREEN	RED	SENSOR2	YELLOW
+15V HALL SENSOR POWER	PURPLE	YELLOW	NC		ORANGE	RED	RED	WHITE (PINK)	VDD		GREEN
HALL SENSOR GROUND	BLACK	GREEN	NC		BLACK	BLACK	BLACK	BLACK	GROUND		BLUE
PHASE A POWER DRIVER	BROWN	ORANGE	BROWN		BROWN	BROWN	BLACK (M)	BLACK (M)	PHASE 3		BLACK
PHASE B POWER DRIVER	RED	RED	WHITE		WHITE	ORANGE	YELLOW (M)	RED (M)	PHASE 2		RED
PHASE C POWER DRIVER	ORANGE	BROWN	BLUE		BLUE	YELLOW	RED (M)	WHITE (M)	PHASE 1		WHITE
									DO NOT CONNECT ORANGE BLUE GREEN		
			GROUND	BLACK							
			INDEX	ORANGE							
			CHAN A	YELLOW							
			+5V	RED							
			CHAN B	BLUE							

ENCODER CONNECTION

NOTE: ENCODER SIGNALS MUST BE >4.5V HIGH LEVEL.
THIS MAY REQUIRE EXTERNAL PULLUPS.

EZ SERVO WIRING DIAGRAM

PLEASE NOTE: FOR OTHER MOTORS,
ALLMOTION WILL BE PLEASED TO WORK
OUT THE WIRING FOR NO CHARGE.

COPYRIGHT ALLMOTION.COM

Title			ALLMOTION.COM EZSV17WV WIRING DIAGRAM		
Size	Document Number				Rev
B					A11
Date:		Sunday, May 29, 2016		Sheet	3 of 5
				E	

EZSV17WV ACESSORIES AND OTHER ELECTRICAL NOTES

MATING CONNECTORS:

AMP MTA 100 SERIES

4PIN 22 GA DIGIKEY P/N A31108 (INPUT CONNECTOR)

8PIN 22 GA DIGIKEY P/N A31111 (NEMA23 MOTOR)

8PIN 24 GA DIGIKEY P/N A31023 (NEMA17 MOTOR)

8PIN 26 GA DIGIKEY P/N A31030 (FOR OPTOS)

5PIN 26 GA DIGIKEY P/N A31027 (FOR ENCODER)

T HANDLE CRIMP TOOL DIGIKEY P/N A9982

GUN STYLE TOOL A2031 + A1998

MOTORS:

1) THE EZ SERVO WILL DRIVE MOST SERVO MOTORS
2) FOR BEST PERFORMANCE SELECT A MOTOR THAT HAS A BACK EMF OF ABOUT 1/2 OF THE SUPPLY VOLTAGE, AT THE MAX SPEED DESIRED TO RUN AT. (Eg USE A 12V MOTOR WITH A 24V SUPPLY).

3) TYPICALLY A MOTOR THAT HAS AN INDUCTANCE OF AROUND 1mH AND A RESISTANCE OF AROUND 1 OHM WORKS WELL. BUT OTHER VALUES ARE ALSO OK. (0.1mH MINIMUM)

ENCODERLESS OPERATION:

1) THE EZSERVO CAN PERFORM VELOCITY MODE CONTROL OF A MOTOR THAT DOES NOT HAVE AN ENCODER BY USING THE HALL SENSORS AS A GAGE OF SPEED. (N=0 MODE)

2) IT IS POSSIBLE TO USE THE N=1 POSITION CONTROL MODE BY WIRING TWO OF THE HALL SENSOR LINES TO THE ENCODER A AND B INPUTS IN ADDITION. THIS ALLOWS A CRUDE POSITION CONTROL MODE. IN THIS MODE THE VELOCITY CONTROL IS SUPERIOR TO THE N=0 MODE. USE SMALL ACCELEARTIONS AND VELOCITIES IN THIS MODE. Eg TRY /1L1V10000P0R

OPTO HOME SWITCH:

- 1) "Z" OR HOME COMMAND RUNS MOTOR UNTIL OPTO #1 IS ON FLAG EDGE.
- 2) AN OPTO SWITCH PROVIDED WITH EACH STARTER KIT
- 3) USE TRANSISTOR OPTO THAT HAS $I_c > 1\text{mA}$ @ $I_F = 20\text{mA}$.
- 4) EXAMPLES OF ACCEPTABLE OPTOS ARE:

DIGIKEY P/N QVA11134

DIGIKEY P/N H21A1

HONEYWELL HOA1887-012 (IS PREWIRED)

HONEYWELL HOA1870-33 (IS PREWIRED)

OPTEK OPB830W11 (IS PREWIRED)

5) THE OPTO COUPLER LED PIN HAS 200 OHM TO 5V IN SERIES ON THE BOARD. THE 200 OHM CAN BE REMOVED IF DESIRED FOR RUNNING SENSORS THAT REQUIRE DIRECT ACCESS TO 5V. (OR USE ENCODER 5V POWER) THE COLLECTOR OF THE TRANSISTOR HAS A 10K PULLUP TO 5V.

6) ALL INPUTS WORK ON TTL LEVEL SIGNALS OR CAN BE USED AS ANALOG INPUTS

SEE NEXT PAGE FOR DIMENSIONAL INFO

COPYRIGHT ALLMOTION.COM

Title			
ALLMOTION.COM EZSV17WV WIRING DIAGRAM			
Size	Document Number		Rev
B			A11
Date:	Sunday, May 29, 2016	Sheet	4 of 5
E			

