TROUBLESHOOTING

- **LEDs:**
  - *POWER* .... *120VAC power is applied*
  - *STEP* .... *Flashes green with each step pulse.*
  - *OVER TEMP* .... *Max. drive temp limit (131°F, 55°C) exceeded.*
  - *MOTOR FAULT* ..... *Short circuit in motor windings, motor cable is disconnected or shorted, or INTERLOCK jumper is disconnected or extended.*

- *Status information (see command descriptions in 6000 Series Software Reference):*
  - *General status information* .... `TASF,TSSF,TSTAT`
  - *Limits (end-of-travel, home)* .... `TASF,TLIM`
  - *P-CUT input* .... `TINO` *(bit #6)*
  - *Programmable inputs and TRG-A/B* ...... `TIN,INFNC`
  - *Programmable outputs and OUT-A* .... `TOUT,OUTFNC`
  - *Motor fault* .... `TASXF` *(bit #1)*
  - *Low voltage fault* .... `TASXF` *(bit #2)*
  - *Over temperature fault* .... `TASXF` *(bit #3)*

- *V_I/O must be connected to 5-24VDC for the P-CUT, HOM, NEG, POS, & TRG-A/B inputs to work.*
- *NEG & POS inputs must be grounded to GND terminal to allow motion (or disable with* `LH0` *command).*
- *P-CUT input must be grounded to GND terminal to allow motion.*
- *To help prevent electrical noise, shield all connections at one end only.*
- *Error messages while programming or executing programs – see 6000 Series Programmer's Guide.*

CE

Product Type: OEMZL6104 Step Motor Drive/Controller

The above product is in compliance with the requirements of directives
- **72/23/EEC Low Voltage Directive**
- **93/68/EEC CE Marking Directive**

Additional Information:

For complete user documentation, please refer to the Compumotor web site (www.compumotor.com) where User Guides can be found on-line or hard copies requested.

For questions, please contact:
Technical Assistance, Applications Engineering Department (e-mail tech_help@compumotor.com or call 800-358-9070 North America, 707-584-7558 International).

The following table describes which User Guides are applicable to the OEMZL6104:

| Part Number	Title
88-014027-01	<u>ZETA4 User Guide</u> Note: All information contained within this user guide is applicable with the exception of the Active Damping feature. All references to this feature should be ignored.
88-015920-01	<u>ZETA4 Drive and ZETA6104 Indexer/Driver User Guide Addendum LVD Installation Instructions</u> Note: All information contained within this document is applicable to the OEMZL6104.
88-015436-01	<u>EMC Installation Guide</u> Note: Refer to the Step Motor Drives section of this document for applicable information

Quick Reference Guide
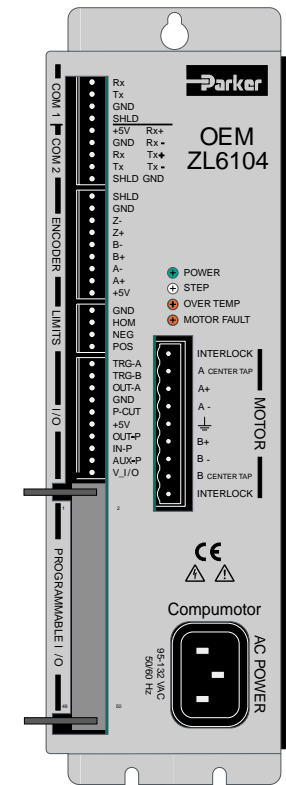
OEMZL6104 Drive/Controller

DIP SWITCH SETTINGS

Access through the top of the chassis (loosen screws, move cover plate)

Phase Balance | Phase A Offset | Phase B Offset

off ↑ (switches 1-12)
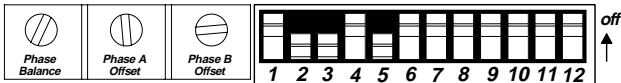
Motor matching

Motor Current

Amps	1	2	3	4	5
0.14	off	off	off	off	off
0.26	off	off	off	off	on
0.39	off	off	off	on	off
0.51	off	off	off	on	on
0.64	off	off	on	off	off
0.76	off	off	on	off	on
0.89	off	off	on	on	off
1.01	off	off	on	on	on
1.14	off	on	off	off	off
ES21BS 1.26	off	on	off	off	on
1.38	off	on	off	on	off
ES22BS 1.51	off	on	off	on	on
1.63	off	on	on	off	off
ES23BS 1.76	off	on	on	off	on
1.88	off	on	on	on	off
2.01	off	on	on	on	on
2.14	on	off	off	off	off
ES31BS 2.26	on	off	off	off	on
ES21BP 2.38	on	off	off	on	off
2.51	on	off	off	on	on
2.63	on	off	on	off	off
2.76	on	off	on	off	on
ES32BS 2.88	on	off	on	on	off
3.01	on	off	on	on	on
ES21BS 3.13	on	on	off	off	off
3.26	on	on	off	off	on
3.38	on	on	off	on	off
ES23BP 3.50	on	on	off	on	on
3.63	on	on	on	off	off
3.75	on	on	on	off	on
3.88	on	on	on	on	off
ES31BP, ES32BP, ES33BP 4.00	on	on	on	on	on

For additional motor information refer to Compumotor's website at www.compumotor.com

AutoBaud

		6	7
enabled		on	off
default → disabled		off	off

Address

		8	9	10	11	12
default → 0		off	off	off	off	off
1		off	off	off	off	on
2		off	off	off	on	off
3		off	off	off	on	on
4		off	off	on	off	off
5		off	off	on	off	on
...						
31		on	on	on	on	on

(Binary Weighted)

TIP: The ADDR command allows you to automatically establish addresses for multiple units in a daisy-chain or multi-drop. (ADDR address overrides the DIP switch setting).
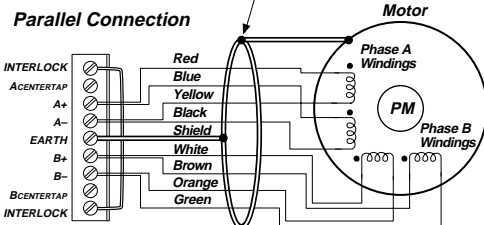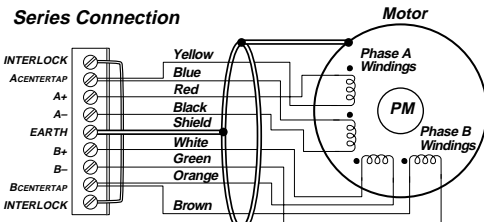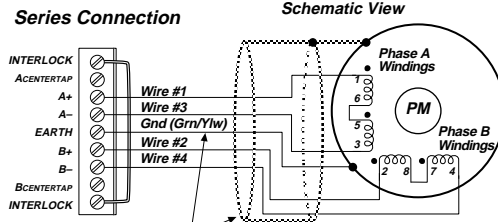
RS-232C CONNECTION

OEMZL6104

Tx — Rx
Rx — Tx
GND — GND
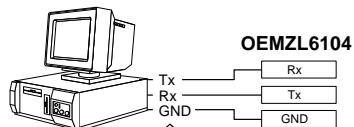
Serial Port Connection on PC

9-Pin COM Port:
Pin 2 (Rx) — Rx
Pin 3 (Tx) — Tx
Pin 5 (GND) — GND

25-Pin COM Port:
Pin 2 (Tx) — Rx
Pin 3 (Rx) — Tx
Pin 7 (GND) — GND
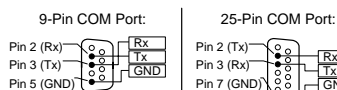
MOTOR CONNECTIONS

ES AND OS MOTORS

Series Connection

INTERLOCK, ACENTERTAP, A+, A−, EARTH, B+, B−, BCENTERTAP, INTERLOCK

Yellow, Blue, Red, Black, Shield, White, Green, Orange, Brown

Motor — Phase A Windings, PM, Phase B Windings

Shield is connected to the motor case and is internally connected to the ground pin on the drive's AC power connector.

Parallel Connection

INTERLOCK, ACENTERTAP, A+, A−, EARTH, B+, B−, BCENTERTAP, INTERLOCK

Red, Blue, Yellow, Black, Shield, White, Brown, Orange, Green

Motor — Phase A Windings, PM, Phase B Windings

RS AND TS MOTORS

Series Connection — Schematic View — End Cover Removed

INTERLOCK, ACENTERTAP, A+, A−, EARTH, B+, B−, BCENTERTAP, INTERLOCK

Wire #1, Wire #3, Gnd (Grn/Ylw), Wire #2, Wire #4

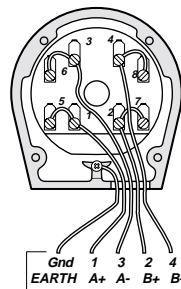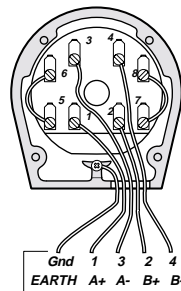Phase A Windings, PM, Phase B Windings

The green/yellow (Gnd) wire is for safety purposes. The shield connection to the motor case is for EMI purposes (the C10 cable kit provides hardware for the shield connection). C10 cable assembly instructions are provided in the C10 cable kit.

Gnd 1 3 2 4
EARTH A+ A− B+ B−

Parallel Connection

INTERLOCK, ACENTERTAP, A+, A−, EARTH, B+, B−, BCENTERTAP, INTERLOCK

Wire #1, Wire #3, Gnd (Grn/Ylw), Wire #2, Wire #4

Phase A Windings, PM, Phase B Windings

Gnd 1 3 2 4
EARTH A+ A− B+ B−
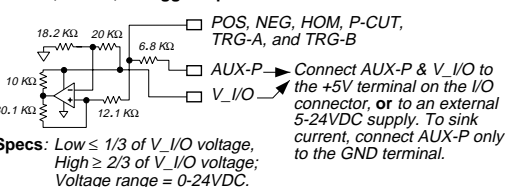
DO NOT LENGTHEN OR REMOVE INTERLOCK JUMPER
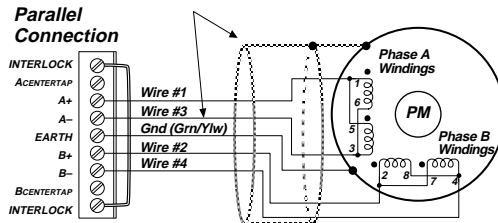
I/O SPECIFICATIONS & INTERNAL SCHEMATICS

**AC Input** .... *95-132VAC, 50/60Hz, single phase*

Serial Com .... *RS-232C 3-wire; RS-485 4-wire (change jumpers JU1-JU6 to position 1, set JU7 to position 3 if you need 2-wire, select termination resistors). Up to 99 units in a daisy chain or multi-drop. 9600 baud 8 data bits; 1 stop bit; no parity.*
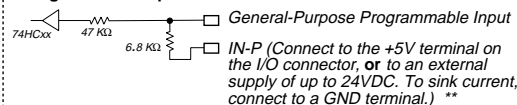
Limits, P-CUT, & Trigger Inputs

18.2 KΩ, 20 KΩ, 6.8 KΩ, 10 KΩ, 30.1 KΩ, 12.1 KΩ

POS, NEG, HOM, P-CUT, TRG-A, and TRG-B

AUX-P → *Connect AUX-P & V_I/O to the +5V terminal on the I/O connector, or to an external 5-24VDC supply. To sink current, connect AUX-P only to the GND terminal.*

V_I/O

Specs: *Low ≤ 1/3 of V_I/O voltage, High ≥ 2/3 of V_I/O voltage; Voltage range = 0-24VDC.*

Encoder Inputs

+5VDC, +1.8VDC, 22 KΩ, 22 KΩ
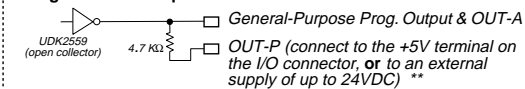
A−, B−, or Z−
A+, B+, or Z+
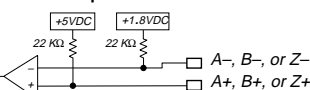
Specs: *Differential comparator. Use 2-phase quadrature encoders; max. frequency = 1.6 MHz; min. time between transitions = 625 ns. TTL levels (Low ≤ 0.4V, High ≥ 2.4V); range = 0-5VDC.*

Programmable Inputs

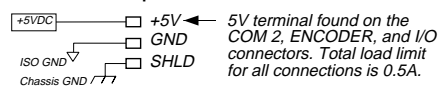74HCxx, 47 KΩ, 6.8 KΩ

General-Purpose Programmable Input

IN-P (Connect to the +5V terminal on the I/O connector, or to an external supply of up to 24VDC. To sink current, connect to a GND terminal.) **

Specs: *HCMOS-compatible*; voltage range = 0-24VDC.*

Programmable Outputs

UDK2559 (open collector), 4.7 KΩ

General-Purpose Prog. Output & OUT-A

OUT-P (connect to the +5V terminal on the I/O connector, or to an external supply of up to 24VDC) **

Specs: *Open collector output. Outputs will sink up to 300mA, or source up to 5mA at 5-24VDC.*

Terminals found on multiple connectors

+5VDC, ISO GND, Chassis GND

+5V, GND, SHLD

5V terminal found on the COM 2, ENCODER, and I/O connectors. Total load limit for all connections is 0.5A.

* HCMOS-compatible levels: Low ≤ 1.00V, High ≥ 3.25V.
** Disconnect from +5V terminal BEFORE connecting an external 5-24VDC supply.

PROGRAMMABLE I/O

Pin	Function
1	Input #16 (MSB of inputs)
3	Input #15
5	Input #14
7	Input #13
9	Input #12
11	Input #11
13	Input #10
15	Input #9
17	Output #8 (MSB of outputs)
19	Output #7
21	Output #6
23	Output #5
25	Input #8
27	Input #7
29	Input #6
31	Input #5
33	Output #4
35	Output #3
37	Output #2
39	Output #1 (LSB of outputs)
41	Input #4
43	Input #3
45	Input #2
47	Input #1 (LSB of inputs)
49	+5VDC

Even numbered pins connected to common logic ground.

STATUS LEDS

POWER	Green when power is on
STEP	Green when drive receives step; Green in auto test
OVER TEMP	Red indicates over temp fault
MOTOR FAULT	Red when drive detects short circuit in motor or motor cable; Red if interlock is open