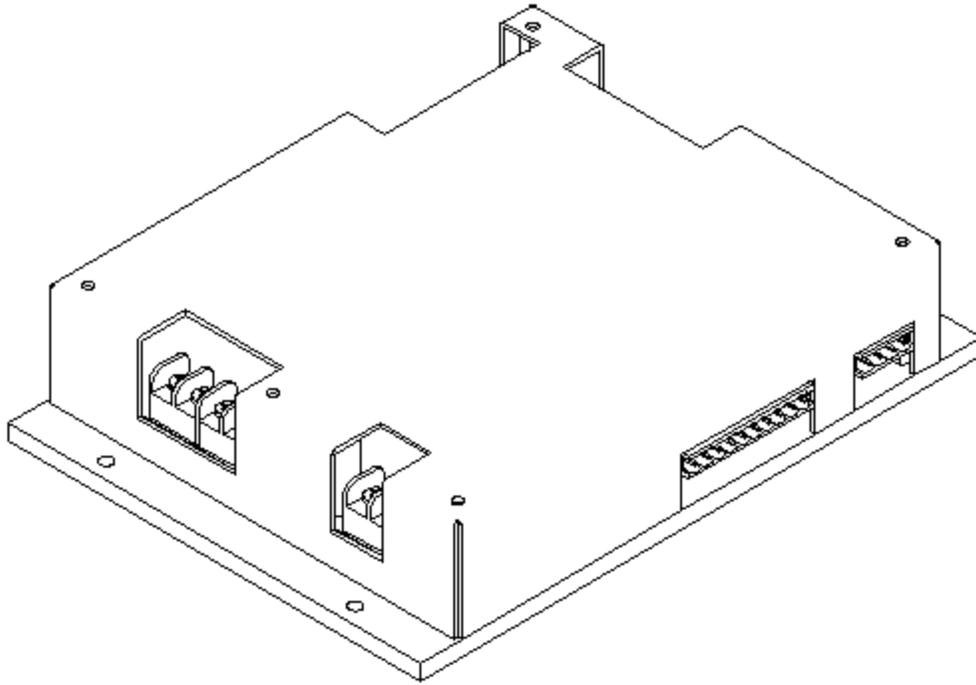# DCSINGLE Installation Guide
Revision 040803

The DCSINGLE is a single axis DC brush motor drive with an optional PLC section. This drive is aimed at fourth axis upgrades to existing three axis systems. The drive can be ordered as axis 1, 2, 3, or 4, but does not allow for 5 axis operation. An optional PLC section allows for single axis applications if necessary. The DCSINGLE uses technology from the SERVO3IO drive including the PLC and drive section fiber communications and available current ratings of 9, 12, and 15 amps. A unique feature of the drive is the fiber repeaters. The drive fibers from the motion control card (CPU7) run to the DCSINGLE and a short set of fibers run from the repeaters to the original drive.
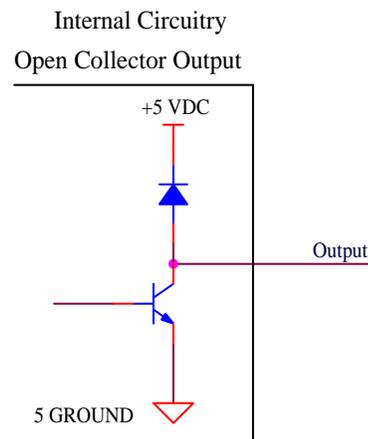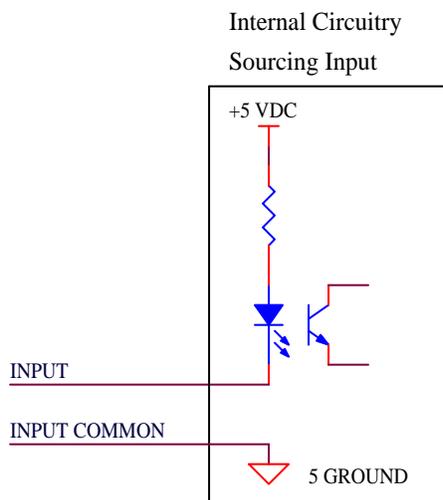
Fourth Axis Connection

Typical wiring of the DCSINGLE requires only logic power, motor power, motor, drive fault, and fiber optic connections. Fiber optics 4 and 5 receive data from the motion control card. Fiber repeaters 4RPT and 5RPT chain drive information to the original DC servo drive. Drive fault RLY1 and RLY2 connections are wired in series with the emergency stop power loop to cut motor power in the case of a fault. The drive fault signal is passed to the control from the original drive, since it runs off the DCSINGLE fiber repeaters. The limit defeaters are normally on for rotary axis use.

Open collector brake and drive fault outputs are available for special applications. The brake output can drive a 5 volt relay to release a motor brake when the axis is enabled. The drive fault open collector output may be wired to an external PLC to signal a fault condition.

Internal Circuitry
Drive Fault Relay Output

RLY1

RLY2
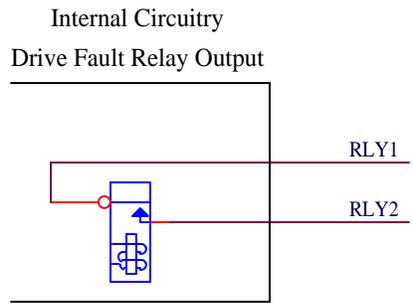
Optional PLC

The DCSINGLE can be equipped with a PLC section, allowing for single axis applications. Six inputs and six outputs are available for use on a PLC equipped DCSINGLE. All outputs are open collector types suitable for driving 5V relay coils. The PLC section requires a motion control card equipped with a CPU711 compatible (old style) PIC chip.

Internal Circuitry
Sourcing Input

+5 VDC

INPUT

INPUT COMMON

5 GROUND

Internal Circuitry
Open Collector Output

+5 VDC

Output

5 GROUND

DCSINGLE I/O MAP

PLC Input	Use	PLC Output	Use
1	General	1	General
2	General	2	General
3	General	3	General
4	General	4	General
5	General	5	General
6	General	6	General
7	X+ Limit	7	N/C
8	X- Limit	8	N/C
9	Y+ Limit	9	N/C
10	Y- Limit	10	N/C
11	Z+ Limit	11	N/C
12	Z- Limit	12	N/C
13	Drive Fault (internal)	13	N/C
14	W+ Limit	14	N/C
15	W- Limit	15	N/C
16	!OUT16 (internal)	16	OUT16 (internal)

DCSINGLE Specifications

Characteristic	Min.	Typ.	Max.	Unit
5 Volt Supply Current	1.0	-	-	A
12 Volt Supply Current	0.5	-	-	A
Input Pullup Voltage	-	5	-	V
Relay Output Current	0.01	-	10	A @ 125VAC
Open Collector Output Current	-	-	500	mA
Open Collector Output Voltage	-	5	-	V
Input Operating current	9	11	15	mA
Motor Output Current	6	12	15	A
Motor Supply Voltage	30	115	130	V
Size: 9 * 6.625 * 1.875 (W*D*H)				Inches

DCSINGLE Troubleshooting

Symptom	Possible Cause	Corrective Action
USV LED out	No motor voltage	Measure voltage at input terminals, check contactors, wiring, and fuses accordingly
	Insufficient motor voltage	Voltage should be over 30 VDC
Drive Online LED out	Motion control card hasn't booted up	Start software, wait for the main screen to load
	Logic power not applied	Measure +5V and +12V at the connector, correct wiring or supply problems
	"Servo Power Removed" due to fault	Restart system to reset runaway or other serious fault condition
	Fibers 4 and 5 connected incorrectly or faulty	Check connections one at a time, swap with a known good set of fibers
Secondary drive not working	Fiber repeaters 4 and 5 connected incorrectly or faulty	Check connections one at a time, swap with a known good set of fibers
LEDs on, but motor doesn't run	Fuse F1 blown	Check fuse with a meter, replace as necessary
	Limits tripped	Push down the limit defeat switches

DCSINGLE Connections