

Historic Motor Pinouts

Wiring Diagrams

Reference

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Note:

This information is compiled from old Newport manuals. It is best to use caution when mixing old and new hardware, as there may be other information on connecting hardware that is not fully captured in the wiring diagrams.

While some of the information is tied to a particular hardware, the general pinout is consistent thru connectors with similar pin count. See the included manual page from Model 4006 controller for cross reference for 25 pin connector, for example.

Motor Interface Connector (25-Pin D-Sub)

This connector interfaces to the motion device. Depending on the type of driver and motor, some pins have different meanings. If not otherwise specified, this description is valid for all cases.

Stepper Motors			DC Motors		
Pin #	UE16PP	UE16PPSC	UE31PP, UE41PP, UE41UP UE62PP, UE63PP	UE16CC, UE17CC, UE31CC, UE33CC, UE35CC, UE404S, UE404S2, UE511S	UE404CC, UE511CC, UE611CC
1	+ Phase 1	+ Phase 1	+ Phase 1	N.C.	+ Tacho Generator
2	N.C.	N.C.	+ Phase 1	N.C.	+ Tacho Generator
3	– Phase 1	– Phase 1	– Phase 1	N.C.	– Tacho Generator
4	N.C.	N.C.	– Phase 1	N.C.	– Tacho Generator
5	+ Phase 2	+ Phase 2	+ Phase 2	+ Motor	+ Motor
6	N.C.	N.C.	+ Phase 2	+ Motor	+ Motor
7	– Phase 2	– Phase 2	– Phase 2	– Motor	– Motor
8	N.C.	N.C.	– Phase 2	– Motor	– Motor
9	N.C.	N.C.	Middle Point ⁽³⁾ Phase 1	N.C.	N.C.
10	N.C.	N.C.	N.C.	N.C.	N.C.
11	N.C.	N.C.	Middle Point ⁽³⁾ Phase 2	N.C.	N.C.
12	N.C.	N.C.	N.C.	N.C.	N.C.
13	Mechanical Zero	Mechanical Zero	Mechanical Zero	Mechanical Zero	Mechanical Zero
14	Shield Ground	Shield Ground	Shield Ground	Shield Ground	Shield Ground
15	Index Pulse I Forcing (Level 1)	Index Pulse I Forcing (Level 1)	Index Pulse I	Index Pulse I ⁽¹⁾	Index Pulse I
16	0 V Logic	0 V Logic	0 V Logic	0 V Logic	0 V Logic
17	+ End-of-Run	N.C.	+ End-of-Run	+ End-of-Run	+ End-of-Run
18	– End-of-Run	N.C.	– End-of-Run	– End-of-Run	– End-of-Run
19	Encoder Phase A	N.C.	Encoder Phase A	Encoder Phase A	Encoder Phase A
20	Encoder Phase B	N.C.	Encoder Phase B	Encoder Phase B	Encoder Phase B
21	+5 V Encoder	N.C.	+5 V Encoder	+5 V Encoder	+5 V Encoder
22	0 V Encoder	N.C.	0 V Encoder	0 V Encoder	0 V Encoder
23	Encoder Phase \overline{A}	N.C.	Encoder Phase \overline{A}	Encoder Phase \overline{A}	Encoder Phase \overline{A}
24	Encoder Phase \overline{B}	N.C.	Encoder Phase \overline{B}	Encoder Phase \overline{B}	Encoder Phase \overline{B}
25	Index Pulse \overline{I} Forcing (Level 0)	Index Pulse \overline{I} Forcing (Level 0)	Index Pulse \overline{I}	Index Pulse \overline{I} ⁽²⁾	Index Pulse \overline{I}

¹⁾ For UE16CC and UE17CC motors, the pin #15 is connected: Index Pulse I Forcing (Level 1).

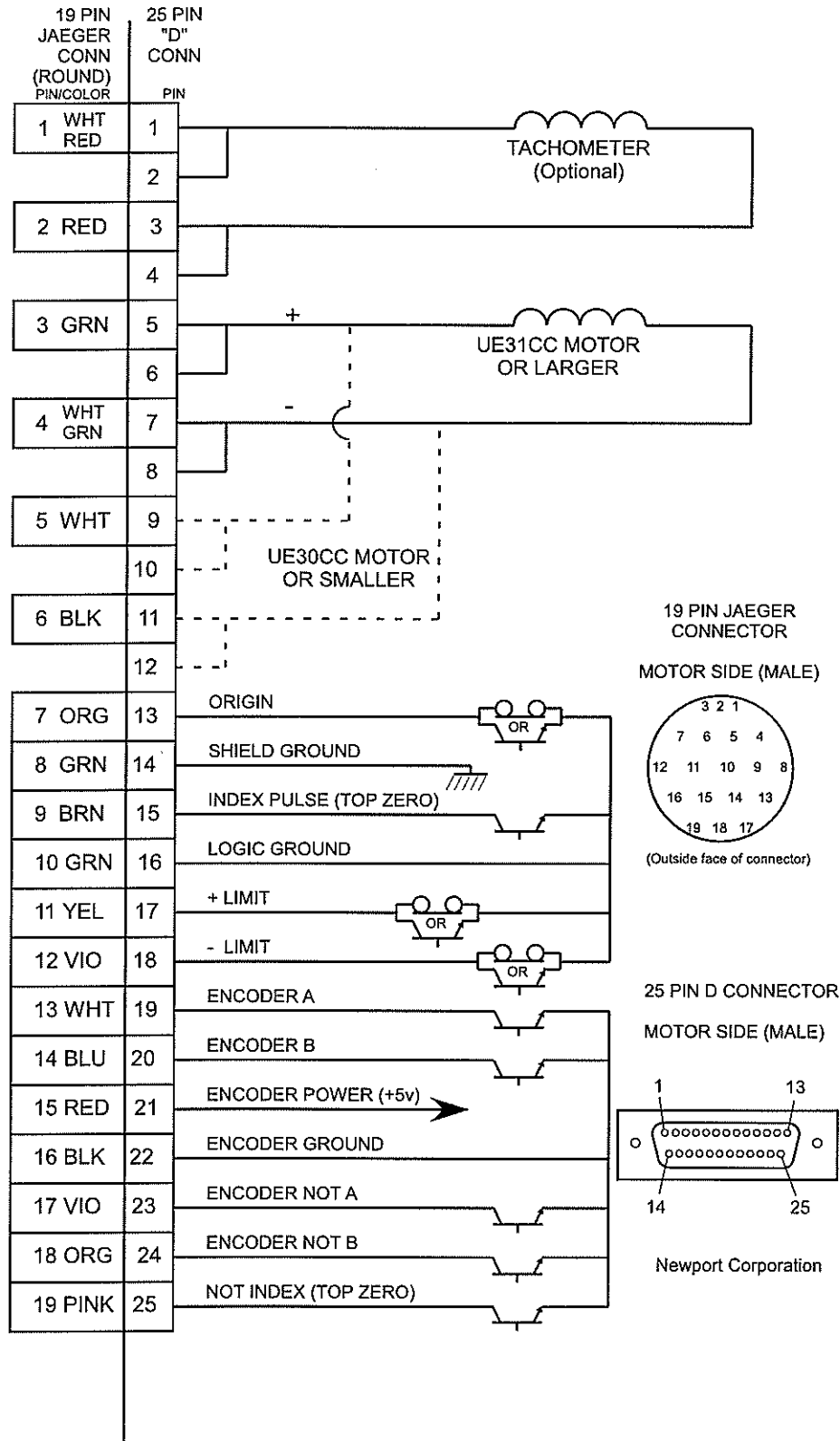
²⁾ For UE16CC and UE17CC motors, the pin #25 is connected: Index Pulse \overline{I} Forcing (Level 0).

³⁾ Except UE41UP motor: N.C.





Wiring Diagram and Pinout (for UEXXCC Servo Motor) (Except Holodrive units)



Section 5

Appendices

5.1 Hardware Pin Assignments

850/850A

Pin#	Name	Action	Comments
1	V+	Positive Supply	+15VDC @ 175mA
2	V-	Negative Supply	-15VDC @ 175mA
3	PH1	Encoder Phase 1	High = Positive Supply Low = Ground
4	AGND	Analog Ground	Control Circuitry
5	NEARL	Reverse Limit	Open Collector with a 4.7K Pull up resistor. (See TTL Operation)
6	AGND	Analog Ground	Motor Return.
7	CMVEL	Command Velocity	Forward = +0.5 to +10VDC Reverse = -0.5 to -10VDC Input Current = 20μA
8	PH2	Encoder Phase 2	Same as PH1 with 90 degree phase difference
9	FLIMIT	Forward Limit	Same as NEARL

9-Pin "D" Plug Pin Location (Viewed from front)

1 2 3 4 5
6 7 8 9

9-Pin "D" Plug Socket Location (Viewed from front)

5 4 3 2 1
9 8 7 6

Note

Older versions of 850 actuators, recognizable by their flat, black cables, although operationally compatible with this version use a different pin numbering system. If using the older version of actuator please consult the appropriate manual or call the factory for the pin numbering system used.

850B

Pin#	Name	Action	Comments
1	Motor High	Motor Drive	$\pm 0-12V @ 175mA$
2	Motor Return	—	—
3	(No Pin)		
4	Encoder Supply	—	+5VDC
5	PH1	Encoder Phase 1 (Ch A)	TTL
6	(No Pin)		
7	PH2	Encoder Phase 2 (Ch B)	TTL vs. Pin 9
8	(No Pin)		
9	DGND	Encoder Ground	—
10	(No Pin)		
11	(No Pin)		
12	(No Pin)		
13	(No Pin)		
14	AGND	Shield Ground	—
15	(No Pin)		

15-Pin "D" Plug Location

1	2	4	5	7
9				14

5.2 Options**5.2.1 Vacuum Compatibility**

850A actuators can be ordered to operate cleanly within a vacuum environment. The following describes the alterations that make the standard actuators vacuum compatible.

The high vacuum model of the 850-Series Linear Actuator comes with the following features:

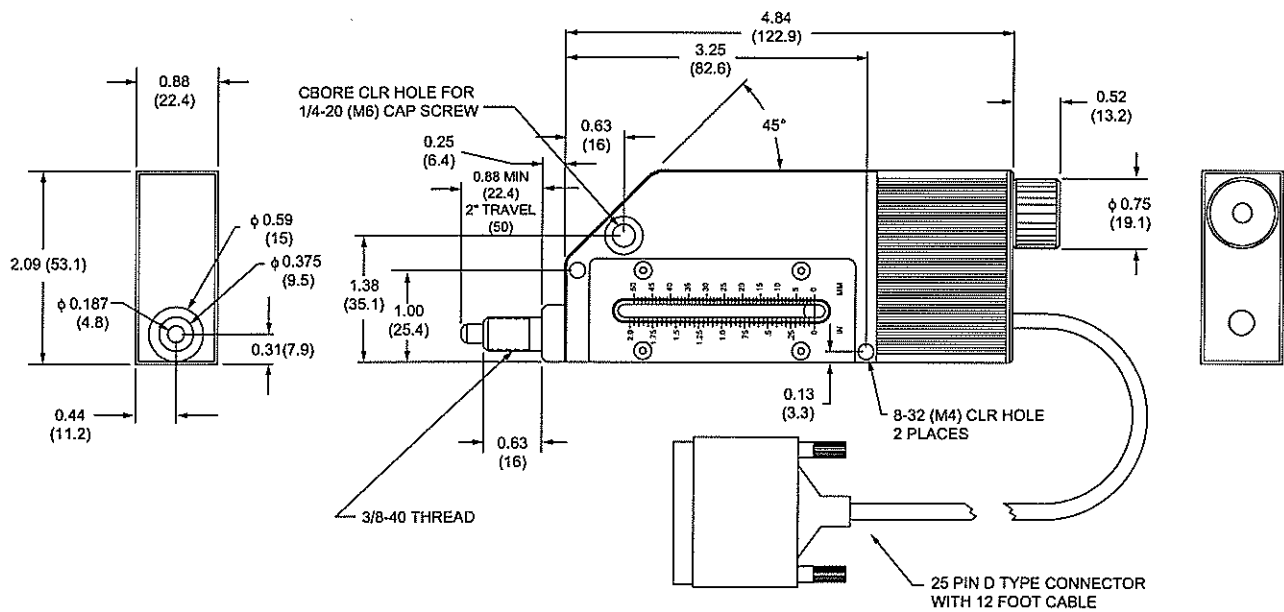
1. 24-inch teflon-coated cable from actuator to servo — can be cut for vacuum feedthrough.
2. Unanodized aluminum body without label.
3. No fastener sealing compound.
4. Unanodized metal end cap.
5. Special lubricant with vapor pressure of 10^{-6} torr at 39°C.
6. Vented motor/gearhead/encoder cavities.

5.0 Connector Pin Assignments

- 850F ACTUATOR

WIRE COLOR	PIN	CONNECTION
	NC	1
	NC	2
	NC	3
	NC	4
BLACK	5	MOTOR +
	6	
WHITE	7	MOTOR -
	8	
	NC	9
	NC	10
	NC	11
	NC	12
	NC	13
SHIELD GND	14	SHIELD GROUND
	NC	15
ORANGE	17	FORWARD LIMIT SWITCH
GRAY	18	REVERSE LIMIT SWITCH
YELLOW	19	CHANNEL A
GREEN	20	CHANNEL B
RED	21	+5 - +12V DC (5ma @ 5V DC)
BLUE	22	GROUND
	NC	23
	NC	24
	NC	25

6.0 Drawing



1.1 The 855C Controller

The 855C Programmable Controller is the nucleus of a system that automatically controls up to four Newport precision positioners and stages. Its large, easy-to-learn instruction set and standard RS-232C and IEEE-488 interface ports allow it to work closely with external computers and other data devices. Its programmability provides stand-alone automatic control of actuator motion, yet no knowledge of programming techniques is required. It also supports the optional 855K handheld Keypad/Display for convenient data entry, control and program editing.

Specifications

Actuator Control: Provides ± 15 VDC, 1.5 Amp power and ± 10 V velocity control signals for up to 4 Newport linear or rotary positioning devices. Receives and decodes dual output, 90° phase, ± 12.5 , -0.5 V encoder pulses and limit signals.

CPU: 8 bit 6809 high-performance microprocessor

RAM: 4 Kbytes

PROM: 24 Kbytes

EPROM: 2 Kbytes

I/O: RS-232C Serial Port
IEEE-488 Parallel Port

Power: 110-220 VAC, 50/60Hz (selectable)
850 mA with all actuators fully loaded

Dimensions: 5.25" high X 17" wide X 12" deep

1.1.3 Rear Panel

The 855C rear panel is shown in Fig. 3. The 855C can be used with 100, 120, 220, or 240 Volt, 50 or 60 Hz service and is supplied ready for operation at 120 volts. The combination line fuse, voltage selector and power connector is located on the upper right corner of the rear panel <<1>>.

Drive Connectors

One to four drives may be connected to the 9-pin miniature D-connectors <<2>>. These connectors mate to Newport's Series 850I-xx Cables (where xx is the cable length). The drives are numbered on the rear panel next to the connectors.

Interface Ports

The 855C's RS-232C port is provided at a female DB-25 connector <<3>> on the rear panel. This port is configured as DTE. See Section 3.4, "RS-232C Serial Port," for detailed discussion of the RS-232C port and protocol.

A standard IEEE-488 connector is shown at <<4>>. This port is discussed in Section 3.5, "IEEE-488 (HP-IB) Port."

A DIP switch <<5>>, labelled RS-232/IEEE-488, sets the IEEE-488 device address and the RS-232C baud rate. Next to it <<6>> is a reference table showing the switch setting options. Setting this switch is described in Section 3.0.

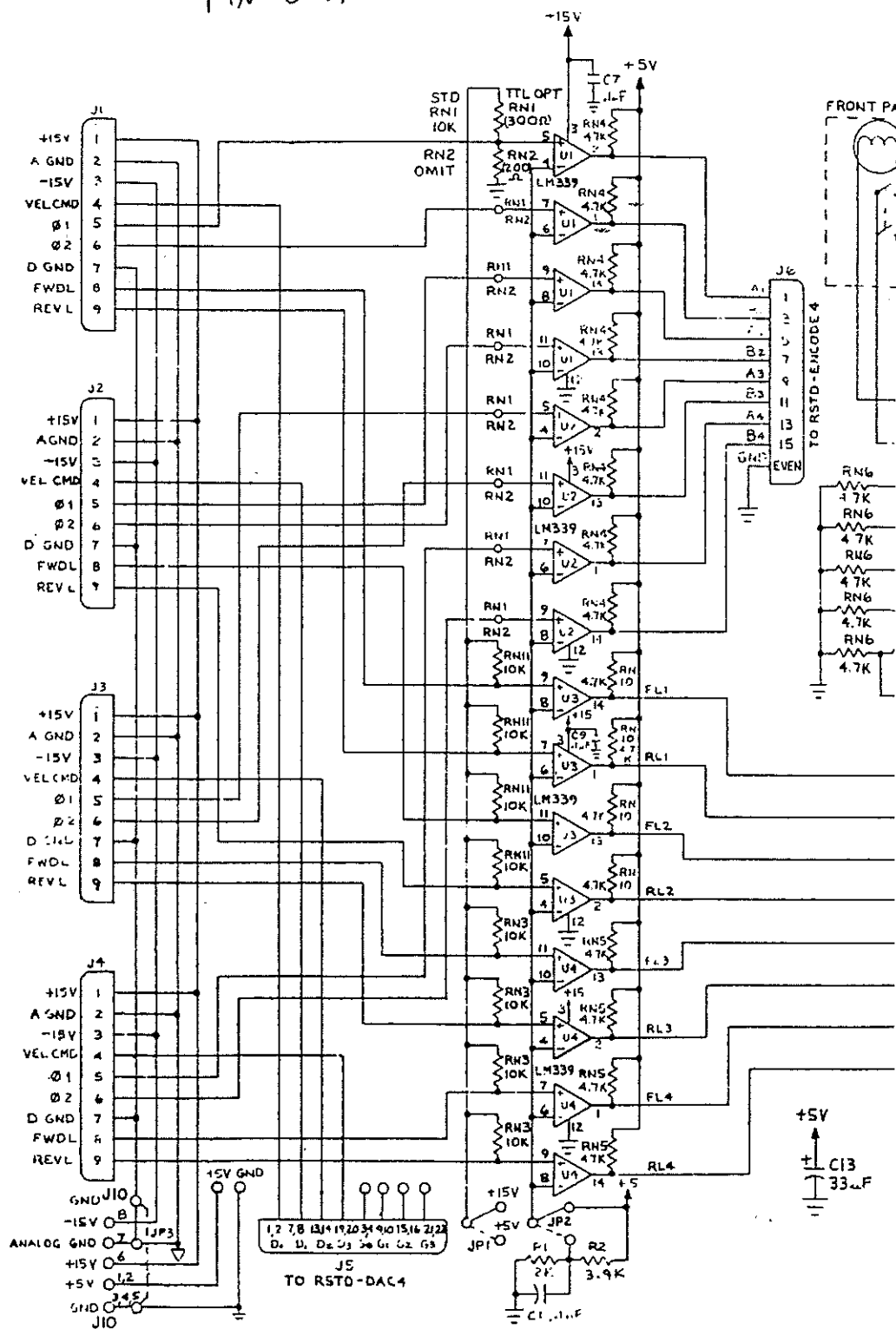
Changing the Supply Voltage

The voltage selector card is set at the factory for 120 Volt operation. If the 855C is to be used with other line voltages, the selector card position must be changed.

Disconnect the line cord and slide the clear plastic fuse cover to the left, exposing the fuse and the voltage selector card. Pull the FUSE/PULL lever out and to the left to extract the fuse and expose the voltage selector card. This small printed circuit card selects different line voltages when inserted in different ways. Insert it so the desired voltage, printed on the card, is visible. Swing the fuse extractor lever back into place.

Use a 2 Amp fuse for 100 or 120 Volt operation and a 1 Amp fuse for 220 or 240 Volt operation. Install the proper fuse, slide the clear plastic cover back into place, and reconnect the line cord.

855 MOTION CONTROLLER PIN-OUT



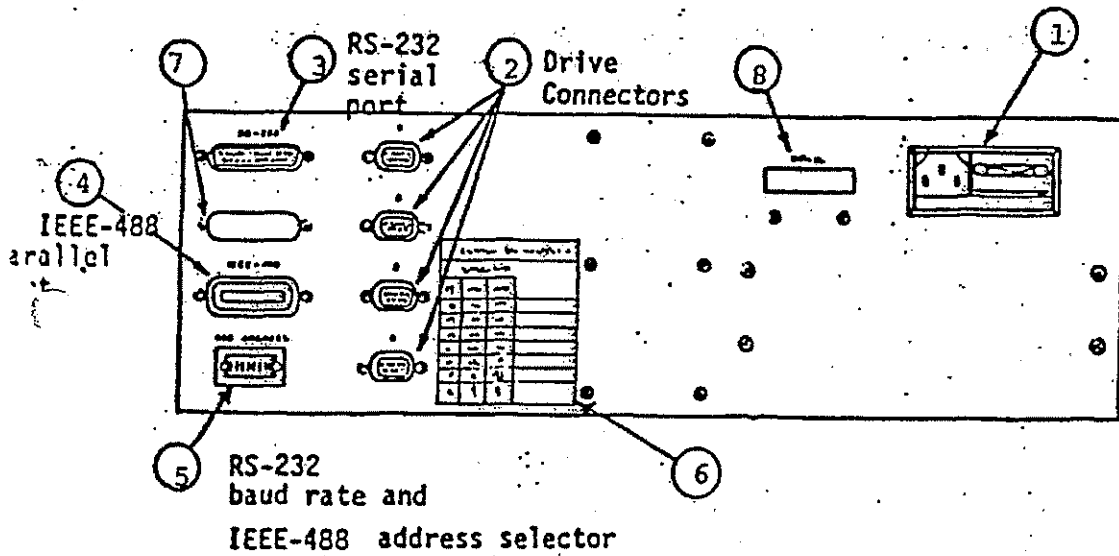


FIG. 3 - 855C REAR PANEL