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E-DC Hardware Installation Guide

is available online in PDF format:
<http://www.compmotor.com>
 (part number 88-020714-01)

FAULT OUTPUT
 Optically isolated; open collector/emitter output.
 Normally active (output turns off on a fault condition).
 To clear fault; cycle power.
 maximum collector current: 10mA

GEAR SHIFT:
 minimum turn on current: 3.5mA
 When input is activated, the drive multiplies each step pulse it receives by a factor of 8.

NOTE: for zero current, short REMOTE and CURRENT
 REMOTE and CURRENT, as follows:
 $R_{remote} = 13,300 (3750 + R_{D1}/R_C - R_S)$, where
 R_C = resistor associated with operating current
 R_S = resistor associated with desired standby current

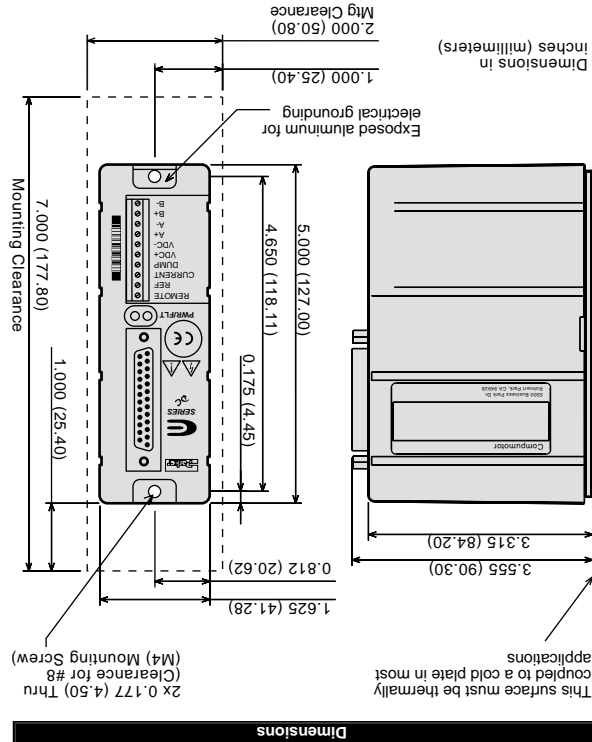
REMOTE:
 When input is activated, drive reduces motor current by ratio set by R_{remote} ; a resistor connected between REMOTE and CURRENT, as follows:
 $R_{remote} = 13,300 (3750 + R_{D1}/R_C - R_S)$, where
 R_C = resistor associated with operating current
 R_S = resistor associated with desired standby current

DIRECTION:
 minimum setup time: 200 microseconds
 minimum turn on current: 8mA

STEP:
 minimum pulse width: 200 nanoseconds
 maximum input frequency: 2MHz
 minimum turn on current: 6.5mA

INPUTS All inputs are optically isolated

Input/Output Specifications



Current & Resistor Selection

SW3-#7 Off/#8 Off	SW3-#7 On/#8 On	SW3-#7 Off/#8 Off	SW3-#7 On/#8 On
4.80	4.80	0	0
1.58	1.58	0	0
1.52	1.52	0	0
619	619	1.27	1.27
4.62	4.62	1.46	1.46
4.56	4.56	1.39	1.39
4.49	4.49	1.33	1.33
4.43	4.43	1.27	1.27
4.37	4.37	1.20	1.20
4.30	4.30	1.14	1.14
4.24	4.24	1.08	1.08
4.18	4.18	1.01	1.01
4.11	4.11	0.95	0.95
4.05	4.05	0.89	0.89
3.99	3.99	0.82	0.82
3.92	3.92	0.76	0.76
3.86	3.86	0.70	0.70
3.80	3.80	0.63	0.63
3.73	3.73	0.57	0.57
3.67	3.67	0.51	0.51
3.61	3.61	0.44	0.44
3.54	3.54		
3.48	3.48		
3.42	3.42		
3.35	3.35		
3.29	3.29		
3.23	3.23		
3.17	3.17		
3.10	3.10		
3.04	3.04		
2.98	2.98		
2.91	2.91		
2.85	2.85		
2.79	2.79		
2.72	2.72		
2.66	2.66		
2.60	2.60		
2.53	2.53		
2.47	2.47		
2.41	2.41		
2.34	2.34		
2.28	2.28		
2.22	2.22		
2.15	2.15		
2.09	2.09		
2.03	2.03		
1.96	1.96		
1.90	1.90		
1.84	1.84		
1.77	1.77		
1.71	1.71		
1.65	1.65		
1.58	1.58		

Settings for Computer Motors:

Motor	OS2HA	OS21A, 22A	VS12B, 13B	VS12B, 23B	VS22B	VS31B, 32B
3.0 S**	3.0 S**	4.8 S**	4.8 P**	4.8 P**	4.8 P**	4.8 P**
7.68 K	7.68 K	0	0	0	0	0
(amps)	(amps)	(amps)	(amps)	(amps)	(amps)	(amps)
3.0 S**	3.0 S**	4.8 S**	4.8 P**	4.8 P**	4.8 P**	4.8 P**
7.68 K	7.68 K	0	0	0	0	0
(amps)	(amps)	(amps)	(amps)	(amps)	(amps)	(amps)

Protective Circuits

Short Circuit Protection:
 • phase-to-phase motor short
 • phase-to-ground motor short
 Drive Overtemperature Protection
 • trips at 55°C (131°F) internally

Motor Performance Specifications

Accuracy: +/- 5 arcminutes typical (unloaded motor), bi-directional) with OS or VS Motors
 Repeatability: +/- 5 arcseconds typical (unloaded motor), less than 2 arcminutes—0.0334°
 Hysteresis: (unloaded motor, bi-directional motion)

Environmental Specifications

Operating Temperature: 0°C - 50°C (32°F - 122°F)
 Storage Temperature: -40°C - 80°C (-40°F - 176°F)
 Humidity: 0 - 95%, non-condensing
 Drive Weight: 0.8 pounds (0.4 kg)



E-DC Drive



Hardware Installation Guide
 available at: www.compmotor.com

Quick Reference Guide

Compmotor Division
 Parker Hannifin Corporation
 p/n 88-020592-01 A (effective May 22, 2002)

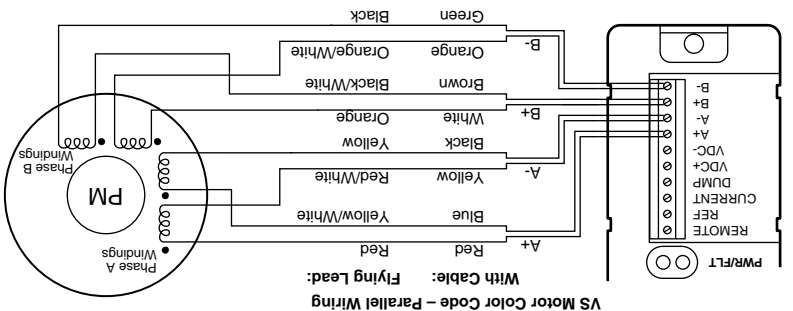




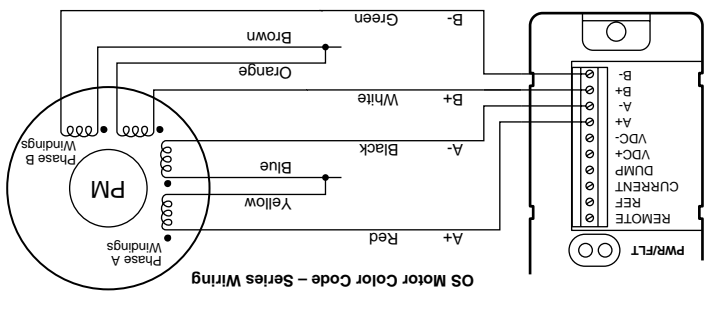
E-DC Hardware Installation Guide is available online in PDF format: <http://www.computor.com> (part number 88-020714-01)

Hardware Installation Guide

VS Motor Color Code – Parallel Wiring



VS Motor Color Code – Parallel Wiring
With Cable: Flying Lead:



OS Motor Color Code – Series Wiring

OS Motor Connections – Series Wiring

Automatic Test

Motor	Gain at 48VDC	OS2HA, 21A	OS22A	VS12B, 13B	VS12B	VS21B	VS22B, 23B, 31B	VS32B
1	on	off	off	off	off	off	off	off
2	on	off	off	off	off	off	off	off
3	on	off	off	off	off	off	off	off
4	on	off	off	off	off	off	off	off
5	on	off	off	off	off	off	off	off
6	on	off	off	off	off	off	off	off
7	on	off	off	off	off	off	off	off
8	on	off	off	off	off	off	off	off

Default Setting: 8 on on off

For Power Dump, connect a 50 ohm, 10W power resistor (e.g. Dale RH-10) between DUMP and VDC+.

• turns on at 85VDC VDC+.

• 100 joules maximum dissipation.

For Motor Current resistor between selection, connect a resistor between terminals. See back cover for values.

To use Remote Input to reduce motor current, connect a resistor between REMOTE and CURRENT. See back cover for equations.

Current Loop

Computer Gain at 48VDC
OS2HA, 21A 16
OS22A 32
VS12B, 13B 32
VS12B 16
VS21B 16
VS22B, 23B, 31B 16
VS32B 64

Automatic Standby

Default Setting	Full Current	75% Current	50% Current	25% Current	Automatic Test Disabled
1	on	off	off	off	on
2	on	off	off	off	on
3	on	off	off	off	on

Waveform

Resolution	50.800	50.000	30.000	25.600	25.400	25.000	21.600	20.000	18.000	12.800	10.000	5.000	2.000	1.000	400	200
1	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
2	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
3	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
4	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
5	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
6	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
7	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
8	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on

Anti-resonance

Anti-res. Disabled	on
1	on

Resolution (Steps per Revolution)

Resolution	50.800	50.000	30.000	25.600	25.400	25.000	21.600	20.000	18.000	12.800	10.000	5.000	2.000	1.000	400	200
1	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
2	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
3	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
4	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
5	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
6	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
7	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
8	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on

Waveform

Waveform	Pure Sine	-2% 3rd Harmonic	-4% 3rd Harmonic	-4% 3rd Harmonic	-6% 3rd Harmonic	-6% 3rd Harmonic	-8% 3rd Harmonic	-10% 3rd Harmonic
1	off	off	off	off	off	off	off	off
2	off	off	off	off	off	off	off	off
3	off	off	off	off	off	off	off	off
4	off	off	off	off	off	off	off	off
5	off	off	off	off	off	off	off	off
6	off	off	off	off	off	off	off	off
7	off	off	off	off	off	off	off	off
8	off	off	off	off	off	off	off	off

Automatic Test

Automatic Test	Default Setting	Automatic Test Disabled
1	on	off
2	on	off
3	on	off

Current Loop

Current Loop	Gain at 48VDC	OS2HA, 21A	OS22A	VS12B, 13B	VS12B	VS21B	VS22B, 23B, 31B	VS32B
1	on	off	off	off	off	off	off	off
2	on	off	off	off	off	off	off	off
3	on	off	off	off	off	off	off	off
4	on	off	off	off	off	off	off	off
5	on	off	off	off	off	off	off	off
6	on	off	off	off	off	off	off	off
7	on	off	off	off	off	off	off	off
8	on	off	off	off	off	off	off	off

Current Range

Current Range	Default Setting	1.58 – 4.80 amps	0.51 – 1.58 amps	0.44 – 1.27 amps	0.13 – 0.50 amps
1	off	on	off	off	on
2	off	on	off	off	on
3	off	on	off	off	on
4	off	on	off	off	on
5	off	on	off	off	on
6	off	on	off	off	on
7	off	on	off	off	on
8	off	on	off	off	on

Resolution (Steps per Revolution)

Resolution	50.800	50.000	30.000	25.600	25.400	25.000	21.600	20.000	18.000	12.800	10.000	5.000	2.000	1.000	400	200
1	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
2	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
3	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
4	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
5	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
6	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
7	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on
8	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on	on

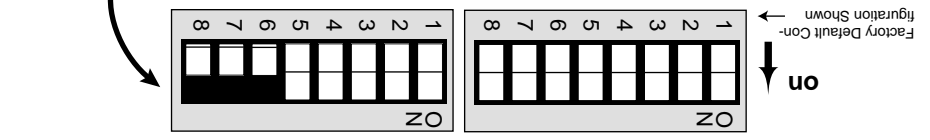
Anti-resonance

Anti-res. Disabled	on
1	on

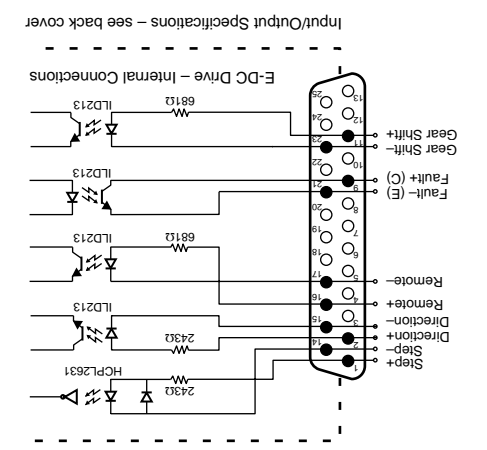
Waveform

Waveform	Pure Sine	-2% 3rd Harmonic	-4% 3rd Harmonic	-4% 3rd Harmonic	-6% 3rd Harmonic	-6% 3rd Harmonic	-8% 3rd Harmonic	-10% 3rd Harmonic
1	off	off	off	off	off	off	off	off
2	off	off	off	off	off	off	off	off
3	off	off	off	off	off	off	off	off
4	off	off	off	off	off	off	off	off
5	off	off	off	off	off	off	off	off
6	off	off	off	off	off	off	off	off
7	off	off	off	off	off	off	off	off
8	off	off	off	off	off	off	off	off

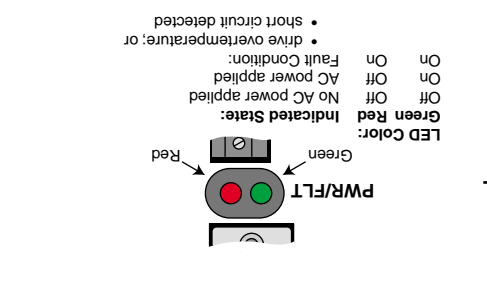
DIP Switch Settings



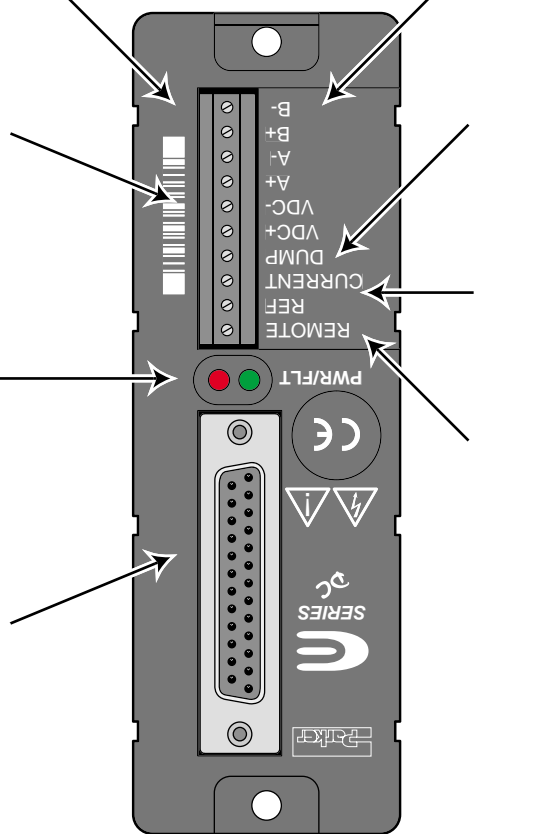
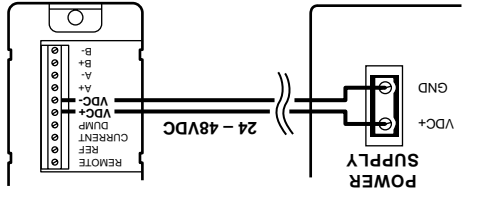
25 Pin D-Connector – Inputs and Outputs



LEDs



DC Input Connections



E-DC Drive



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