

55J SERIES

- 28 Vin DC/DC Converter
- 50 Watt Single & Dual Outputs

Features

- High Power Density, Low Profile Packaging
- Full Output Power at +100°C Baseplate Temperature
- Switching Power Supply – Low Noise
- ESS Screening (Burn-In) and Temperature Cycling
- Designed and Manufactured Per NAVMAT Guidelines
- Full-Mil and COTS-Mil-Type Versions (form, fit, and function identical)
- EMI Filtering Designed to MIL-STD-461C
- Remote Error Sensing
- Remote Digital (TTL) Turn On/Off
- Transient Protection per MIL-STD-704D



Contents

Specifications.....	1
Electrical.....	1
Physical/Environmental.....	2
Output Power (Table 1).....	2
Pinout Designations (J1) (Table 2).....	2
Connector Specifications.....	2
Output Wiring Diagram.....	3
Mechanical Layout.....	3
Mechanical Dimensions (Table 3).....	4
Ordering Information.....	4

Description

Logitek's PS-55 Series is a family of high power density, low profile, 28 VIN DC/DC switch mode converters. This family extends from 25 Watt through 150 Watt in single, dual, and triple configurations. The PS-55 Series is ideally suited for airborne, shipboard, ground mobile and C³I applications. All Logitek DC/DC Converters and Power Supplies are designed and qualified to the most stringent performance and environmental requirements. Full-Mil units receive ESS Screening, including burn-in and temperature cycling.

Electrical Specifications

DC Input Characteristics:

Input	16 to 36 VDC; 40 VDC maximum with no damage (50 VDC maximum – Optional)
EMI/RFI Characteristics	Designed to meet the requirements of MIL-STD-461C
Input Transient Protection	Per MIL-STD-704D and MIL-STD-461C, CS06

DC Output Characteristics:

Output Power	50 Watts, See Table 1
Output Voltage	5 VDC to 28 VDC, See Table 1
Efficiency	72% minimum
Line Regulation	Within 0.1% for low to high line changes at constant load
Load Regulation	0.1% for 0 to 100% of rated load at nominal input line
PARD (Noise and Ripple)	50 mV p-p typical; 100 mV p-p maximum for 5V outputs (20 MHz bandwidth); 1% of the output voltage, with a maximum of 200 mV p-p, for all other outputs (20 MHz bandwidth)
Load Transient Recovery	Output voltage returns to regulation limits within 0.5 msec (typical), half to full load
Load Transient Under/Overshoot	0.35 Volt maximum from nominal output voltage set point for 3.3 V and 5.0 V outputs, all other outputs are 5%.

DC Output Characteristics (Continued):

Short Circuit Protection	Under any short circuit condition, output voltage drops to less than 1 volt, with automatic recovery
Current Limiting	120% ±10% typical
Over Voltage Protection	Automatic electronic shutdown if voltage exceeds 125% ±10% (Single Output); Dual output units protected against mis-wired sense lines.
Remote Error Sensing	Compensates for up to 0.5-volt drop on output leads
Remote Turn On/Off	TTL logic 1 inhibits (turns off) the output; a floating input acts as a logic 0 (output on)
Isolation Voltage	500 VDC input to output and input to case; 100 VDC output to case.
Insulation Resistance	50 Megohm at 50 VDC

Physical/Environmental Specifications

Temperature Range	Operating: -55°C to +100°C at 100% load (Temperature measured at baseplate; conduction via baseplate only); Storage: -55°C to +125°C
Temperature Coefficient	0.01% per °C
Shock	30 G's each axis, per MIL-STD-810C, Method 516.2, Procedure 1. Hammer shock per MIL-S-901C
Acceleration	6 G's per MIL-STD-810C, Method 513.2, Procedure 11, and 14 G's per Procedure 1
Vibration	Per MIL-STD-810C, Method 514.2, Procedure 1A
Reliability	(MTBF) 200,000 hours, ground benign, at 50°C baseplate
Humidity	95% at 71°C per MIL-STD-810C, Method 507.1 (non-condensing)
Altitude	40,000 feet per MIL-STD-810C, Method 504.1, Category 6 Equipment
Dimensions	See Table 3
Salt Fog	Per MIL-STD-810C, Method 509.1
Sand/Dust/Fungus	Per MIL-STD-810C
Enclosure	Aluminum housing to aluminum baseplate
Finish	Cover: Black anodized; Baseplate: chemfilm
Interface	Connections via a D-subminiature connector per Page 2 of this Data Sheet
Weight	Single Output = 9 ounces; Dual Output = 10 ounces

Table 1. Output Power

Single		Dual	
Volts	Amps	Volts	Amps
5.0	10.0	±5.0	5.0
6.5	7.6	±12.0	2.1
12.0	4.2	±15.0	1.7
15.0	3.4		
24.0	2.1		
28.0	1.8		

Table 2. Pinout Designations (J1)

Pin	Single	Dual	Pin	Single	Dual
1	+INPUT	-INPUT	9	-INPUT	+INPUT
2	+INPUT	N/C	10	-INPUT	N/C
3	-TTL (ON/OFF)	-TTL (ON/OFF)	11	CHAS GND	CHAS GND
4	+TTL (ON/OFF)	+TTL (ON/OFF)	12	+SENSE	-SENSE 1*
5	+OUTPUT	+SENSE 1*	13	-SENSE	-OUTPUT 1*
6	+OUTPUT	+OUTPUT 1*	14	+OUTPUT	-SENSE 2*
7	-OUTPUT	+SENSE 2*	15	-OUTPUT	-OUTPUT 2*
8	-OUTPUT	+OUTPUT 2*			

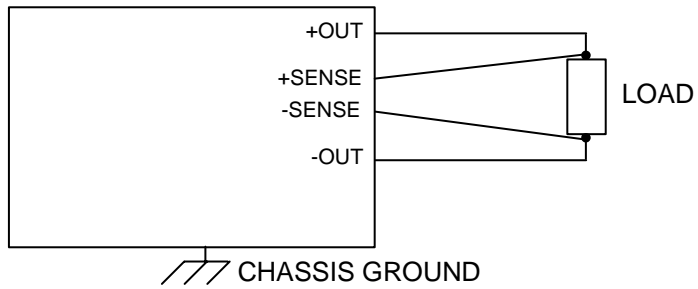
*note: for dual output versions refer to specific code on the code table for description of which output is # 1 and which is # 2

Connector Specifications

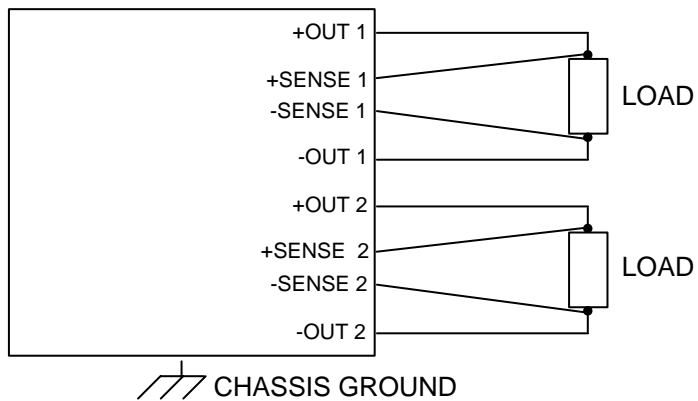
Connector	Part Number - Series
Unit Connector	DAMME15PR
Mating Connector	DAMM15S

Output – Wiring Diagram

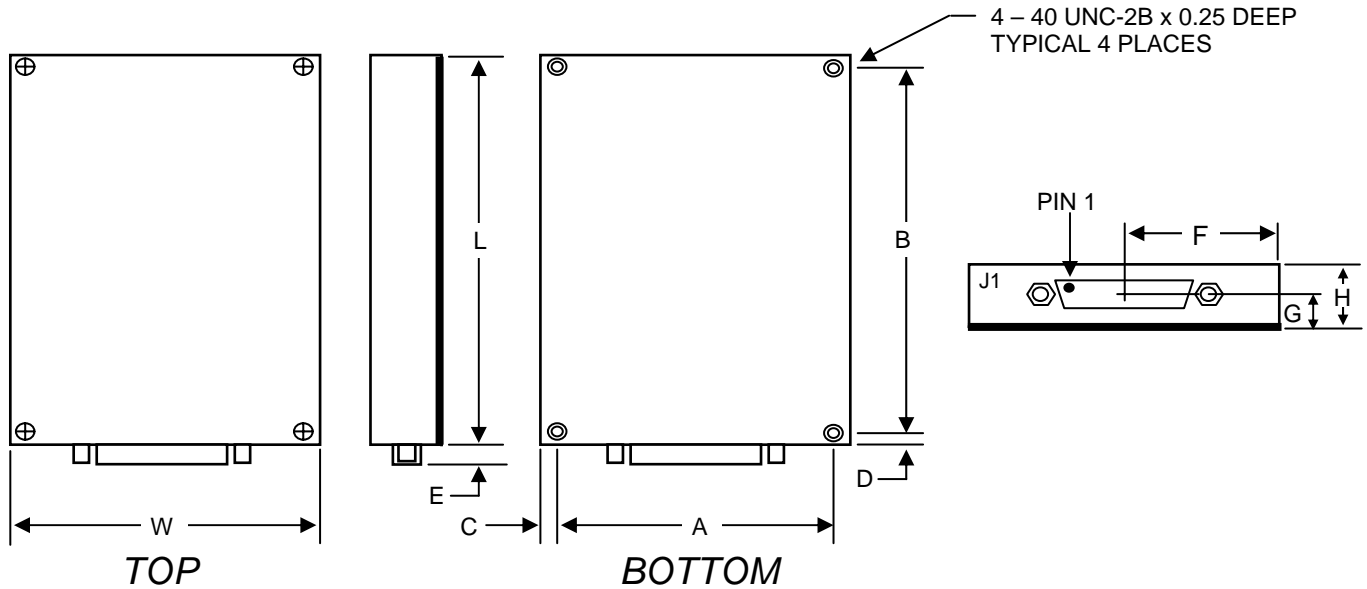
Single Output



Dual Output



Mechanical Layout



Mechanical Dimensions – See Table 3 (following)

Table 3. Mechanical Dimensions

Case*	Units	W	L	A	B	F
1	Inches	2.5	3.5	2.100	3.100	1.25
1	mm	63.5	88.9	53.34	78.74	31.8
2	Inches	3.00	3.85	2.600	3.450	1.50
2	mm	76.20	97.79	66.04	87.63	38.1

*Use Case 1 for Single Output Converter; Use Case 2 for Dual Output Converter

Notes

Dimensions C & D: 0.2" (5.1 mm)

Dimension E: 0.23" (5.84 mm)

Dimension G: 0.455" (11.56 mm)

Dimension H: 0.8" (20.3 mm)

Ordering Information for 55J01 Series (50 Watt DC/DC Converter)

55 J D1 - 005 H 0 - XX

CODE (Used only for "Specials") See Code Table Below

OPTIONS: 0 = Standard Testing (Includes ESS Temperature Cycling per NAVMAT)
1 = Standard Testing plus ESS Vibration Testing (per NAVMAT)

RELIABILITY:

H = Full-Mil: -55°C to +100°C, Hi-Rel Mil Grade Components, Designed to meet the requirements of MIL-STD-461C, Designed to meet the requirements of MIL-STD-810C, Designed per NAVMAT Guidelines.

M = COTS-Mil-Type: -55°C to +100°C, Mil-Type Components, Designed to meet the Requirements of MIL-STD-461C, Designed to meet the requirements of MIL-STD-810C, Designed per NAVMAT Guidelines.

OUTPUT VOLTAGE(s): Single Output Dual Output

005 = 5 V	005 = ±5 V
006 = 6.5 V	012 = ±12 V
012 = 12V	015 = ±15 V
015 = 15 V	
024 = 24 V	
028 = 28 V	

000 = Special Voltage –
See Code Table Below

OUTPUTS: S1 = Single
D1 = Dual

WATTAGE: J = 50 W

SERIES: 55 = DC/DC (Low Voltage)

Example: 55JS1-005H1 = DC/DC (Low Voltage); 50 Watt; Single Output; +5 V; Full-Mil-Type; ESS Vibration Testing
55JD1-012M0 = DC/DC (Low Voltage); 50 Watt; Dual Output; ±12 V; COTS-Mil-Type; Standard Testing

Consult Factory for Additional Options and/or Special Units

See Code Table next page

Code Table for “Specials”

Code	Code Description
01	Potted, Designed to meet Mil-Std-810C, Procedure 1, Category 6, 70,000 feet (Add 0.9 lbs to weight of unit)
02	<p style="text-align: center;">Model # 55JD1-000M0-02</p> <p style="text-align: center;">Dual Outputs as follows:</p> <p style="text-align: center;">Output # 1 = +12vdc @ 2.5amps</p> <p style="text-align: center;">Output # 2 = +5.2vdc @ 5amps</p>
03	<p style="text-align: center;">Model # 55JD1-000M0-03</p> <p style="text-align: center;">Dual Outputs as follows:</p> <p style="text-align: center;">Output # 1 = +12vdc @ 2.5amps</p> <p style="text-align: center;">Output # 2 = +5.0vdc @ 5amps</p>
04	55JS1-006M0 modified as follows: Output is +8vdc @ 6.25amps, potted with material to meet 1 meter immersion, 30 minutes, non-operating, 95% humidity. Configured with input/output cable per specified source control drawing. Cable is in lieu of “D” connector. Unit Part # is 55JS1-006M0-04
05	<p style="text-align: center;">55JD1-000H1-05</p> <p style="text-align: center;">Dual outputs as follows:</p> <p style="text-align: center;">Output # 1 = +28vdc @ 25 watts</p> <p style="text-align: center;">Output # 2 = +5vdc @ 25 watts</p> <p>Full Mil “H” version Potted, Designed to meet Mil-Std-901, Grade B shock and Mil-Std 167, Type I vibration (Add approx. 0.9 lbs to weight of unit). Optional 100% vibration screening performed and unit includes thermal pad.</p>