

# PS-55J01 SERIES

## 28 VIN DC/DC CONVERTERS - 50 Watt Single Output - 50 Watt Dual Output



### 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

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### 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 C<sup>3</sup>I 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% $\pm$ 10% typical
OverVoltage Protection	Automatic electronic shutdown if voltage exceeds 125% $\pm$ 10%
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	$\pm$ 5.0	5.0
6.5	7.6	$\pm$ 12.0	2.1
12.0	4.2	$\pm$ 15.0	1.7
15.0	3.4		
24.0	2.1		
28.0	1.8		

**Table 2. Pinout Designations (J1)**

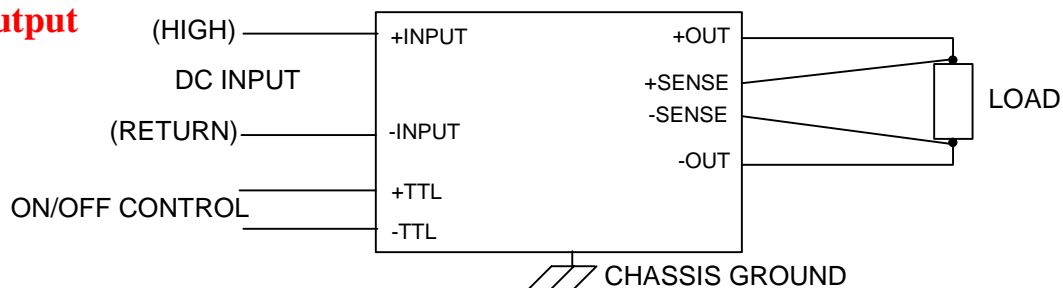
Pin	Single	Dual	Pin	Single	Dual
1	+INPUT	-INPUT	9	-INPUT	+INPUT
2	+INPUT	N/C	10	-INPUT	N/C
3	-TTL (ON/OFF)	-TTL (ON/OFF)	11	CHAS GND	CHAS GND
4	+TTL (ON/OFF)	+TTL (ON/OFF)	12	+SENSE	-SENSE 1
5	+OUTPUT	+SENSE 1	13	-SENSE	-OUTPUT 1
6	+OUTPUT	+OUTPUT 1	14	+OUTPUT	-SENSE 2
7	-OUTPUT	+SENSE 2	15	-OUTPUT	-OUTPUT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

## Connector Specifications

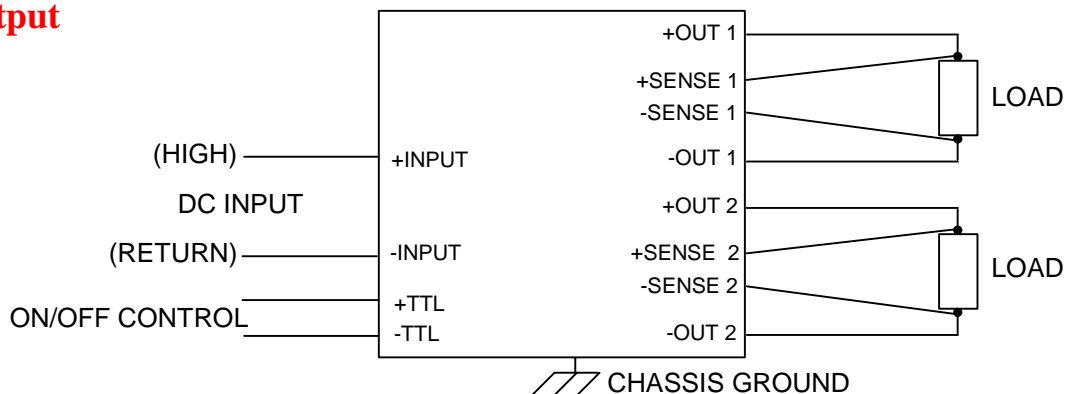
Connector	Part Number - Series
Unit Connector	DAMME15PR
Mating Connector	DAMM15S

## Output – Wiring Diagram

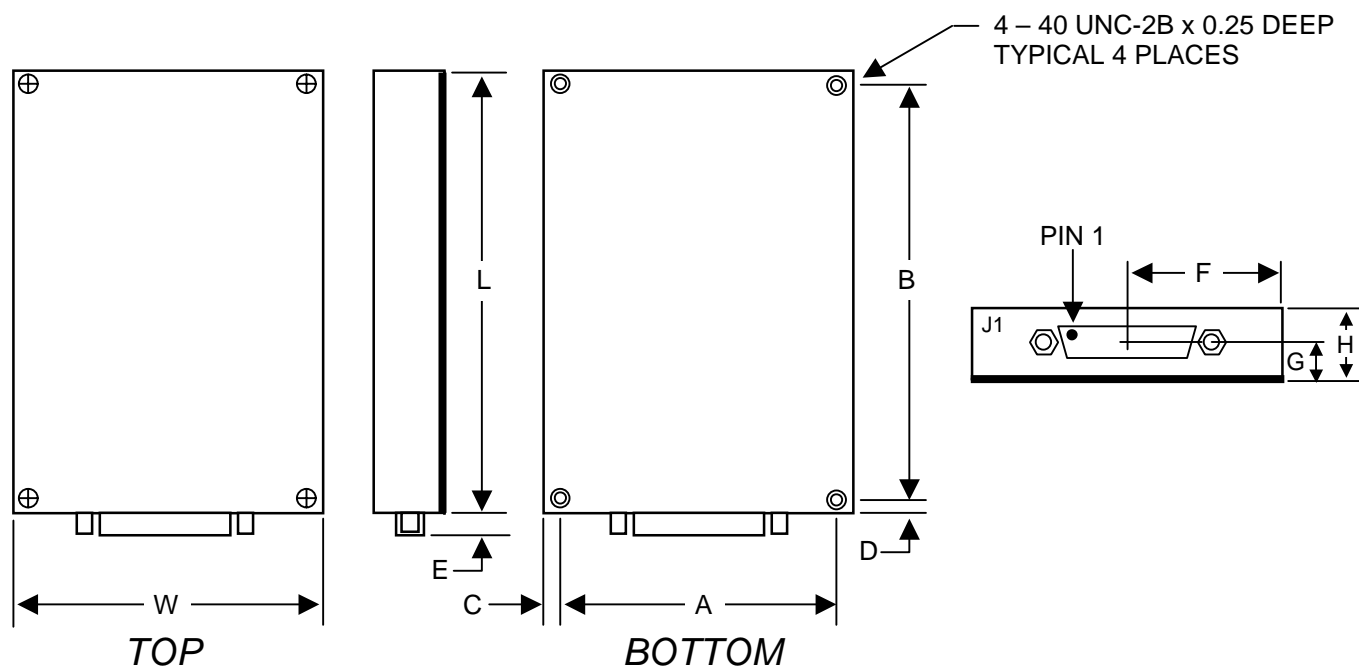
### Single Output



### 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 PS-55J01 Series (50 Watt DC/DC Converter)**

**55 J D1 - 005 H 0 - XX**

**CODE** (Used only for "Specials")

**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):**

<u>Single Output</u>	<u>Dual Output</u>	
005 = 5 V	005 = ±5 V	
006 = 6.5 V	012 = ±12 V	
012 = 12V	015 = ±15 V	
015 = 15 V		
024 = 14 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**

**Code Table for "Specials"**

**Code Table for Special Voltages (Where Applicable)**