Abbott TECHNOLOGIES®

WHEN RELIABILITY IS IMPERATIVE™

LDC200

200 WATT DC TO DC POWER FOR RUGGED ENVIRONMENTS

HIGH EFFICIENCY, PRECISE REGULATION, FAST RESPONSE.

The LDC200 series is a 200 W isolated, single-output DC-DC power system for the MIL-STD-704 28 VDC bus. Input filtering designed to meet MIL-STD-461 CE101 and CE102, continued operation through 80 VDC transients, and short-circuit, over-voltage, and over-temperature protection are integral to one sealed unit with a single DB-25 and no third-party module inside. Fast transient response and precise regulation hold the output steady through full load steps from processors, FPGAs, and pulsed RF, and keep it quiet enough for many noise-sensitive analog rails.

- **Load transient specified both directions,** no load to full load and full load to no load.
- **Unlimited output capacitance, no minimum load.**
- **±0.1% line regulation,** 91% min efficiency on the 28 V model.
- **Factory configurable both electrically and mechanically.**



SPECIFICATIONS

DC INPUT
MIL-STD-704 28 VDC (18 to 36 V), Normal, Abnormal, and Emergency steady state. Under-voltage continued operation with holdup (H) option.

ELECTROMAGNETIC COMPATIBILITY
Integral input filtering designed to meet MIL-STD-461G CE101 and CE102.

ISOLATION (DWV)
Input to output: 200 VDC
Input to case: 200 VDC
Output to case: 200 VDC

TEMPERATURE
Operating: –40 °C to +85 °C baseplate, full power, no derating
Storage: –50 °C to +100 °C

OVER-TEMPERATURE
Shutdown at +110 °C ±5 °C, typical.

REMOTE SENSING
Compensates for voltage drop up to the limits of input power. Operates at nominal voltage with sense lines disconnected.

CIRCUIT PROTECTION
Protected against short circuit or overload of any duration. Current limit nominally 120% of full load, automatic recovery when the fault is removed.
Output over-voltage protection.

INPUT PROTECTION
Continued operation through 80 VDC transients per MIL-STD-704A. Under-voltage shutdown.

CONTROL AND STATUS
ENABLE (J1-22): open for on; pull to SIGNAL RTN (J1-21) for off.
DC OK (J1-9): high when the output is in regulation.
SIGNAL RTN (J1-21): dedicated control ground.



MECHANICAL
3.50 × 6.85 × 1.125 in, 2.0 lb max
Sealed, IP65
Single DB-25 for power, sense, and control

CAPACITIVE LOADING
Output capacitance unlimited. No minimum load.

PARALLEL OPERATION
LOAD SHARE (J1-20): units of the same model in parallel share load within ±2% of full-load current, each at its full rated current. N+1 redundancy with external ORing.

ENVIRONMENTAL, MIL-STD-810F
Shock: 516.6 (MIL-STD-810G), Proc. IV
Vibration: 514.5
Humidity: 507.4, to 95% RH non-condensing; conformal coated
Altitude: 500.4, Proc. I and II
Salt Fog: 509.4
High Temp: 501.4, Proc. I and II
Low Temp: 502.4, Proc. I and II
Acceleration: 513.5, Proc. I and II

MODEL	LDC200S3.3	LDC200S5	LDC200S12	LDC200S13.6	LDC200S15	LDC200S24	LDC200S28
OUTPUT VOLTAGE (VDC)	3.3	5.0	12.0	13.6	15.0	24.0	28.0
OUTPUT CURRENT (A)	16.67	16.67	16.67	14.71	13.33	8.33	7.14
OUTPUT POWER (W)	55	83	200	200	200	200	200
LINE REGULATION (%)	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1
LOAD REGULATION (%)	±0.3	±0.2	±0.1	±0.1	±0.1	±0.1	±0.1
RIPPLE AND NOISE, PARD (%)	±2.0	±1.0	±0.5	±0.5	±0.3	±0.3	±0.3
LOAD TRANSIENT (%)	<2.0	<2.0	<2.0	<1.0	<1.0	<0.5	<0.5
TURN-ON OVERSHOOT (%)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
EFFICIENCY, MIN. (%)	75	80	88	88	89	90	91 (93 TYP.)

Load transient: no load to full load and full load to no load, 100 µs load rise and fall, 28 VDC input. Ripple and noise (PARD) measured with 20 MHz bandwidth. Efficiency at full load.
Specifications subject to change without notice.

MADE IN THE USA

AS9100D

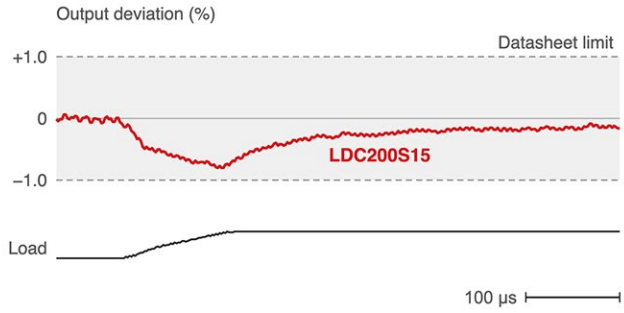
SBA WOSB Woman Owned Small Business

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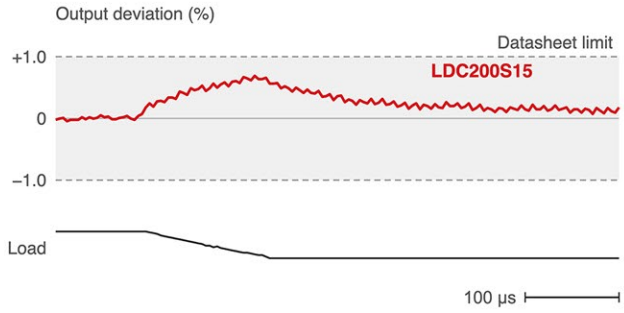
FAST, STABLE POWER FOR MISSION-CRITICAL LOADS

Low droop + fast recovery during high dI/dt load steps help keep downstream electronics in regulation (reset immunity, tighter voltage margin). The datasheet limit covers the full step in both directions, and the unit is stable into unlimited output capacitance, so the bulk bank can be sized to the load rather than to the converter.

LOAD APPLIED: NO LOAD TO FULL LOAD

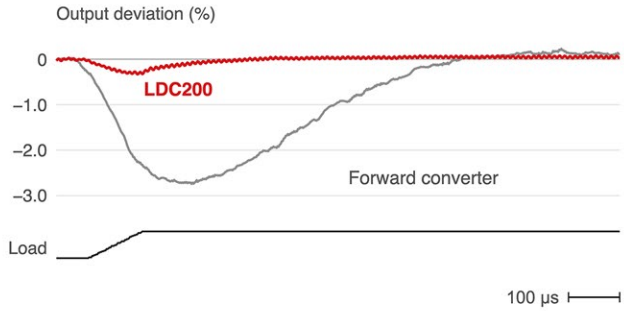


LOAD REMOVED: FULL LOAD TO NO LOAD



MODEL	INPUT	LOAD	LOAD EDGE	DATASHEET LIMIT
LDC200S15	28 VDC	Resistive, 0 to 13.33 A	100 µs rise and fall	<1.0%

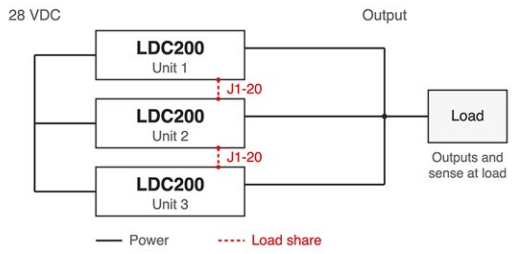
30 TO 100% LOAD STEP BESIDE A FORWARD CONVERTER



MODEL	LDC200, 20 V configuration
INPUT	28 VDC
LOAD	Resistive, 30 to 100% of 10.0 A
COMPARISON UNIT	Forward converter, as supplied
FIXTURE	Same for both units

Forward converters, a topology widely used in modular 28 V converters, are usually compensated to the application, with bulk capacitance added locally to hold a step like this. Used as supplied, this unit did not regulate stably below 30% load, so the step starts there. The LDC200 is not tuned to the application; its 20 V output is an optionally configured voltage.

PARALLEL OPERATION



Connect the outputs, sense lines, and LOAD SHARE (J1-20) of units with the same model number. Each unit delivers its full rated current, and with external ORing the same units form an N+1 redundant rail.

APPLICATIONS

Mission computers, communications, and displays: general platform electronics on the 28 VDC bus.

Mission and AI compute: an isolated 12 V intermediate bus for CPU, FPGA, and GPU nodes.

Pulsed RF and radios: radar and EW front ends, active antennas, T/R modules, and software-defined radios.

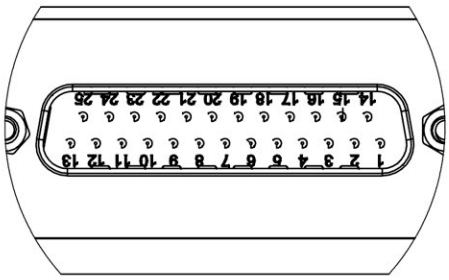
Sensors and analog rails: signal processing, receiver rails, bias supplies, and electro-optics.

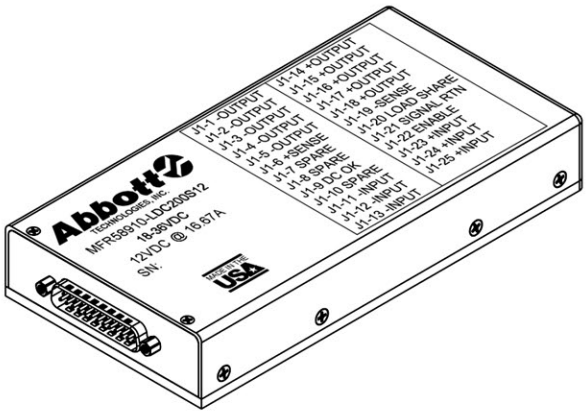
Ground mobile and shelter electronics: vehicle and shelter equipment on a conditioned 28 VDC bus.

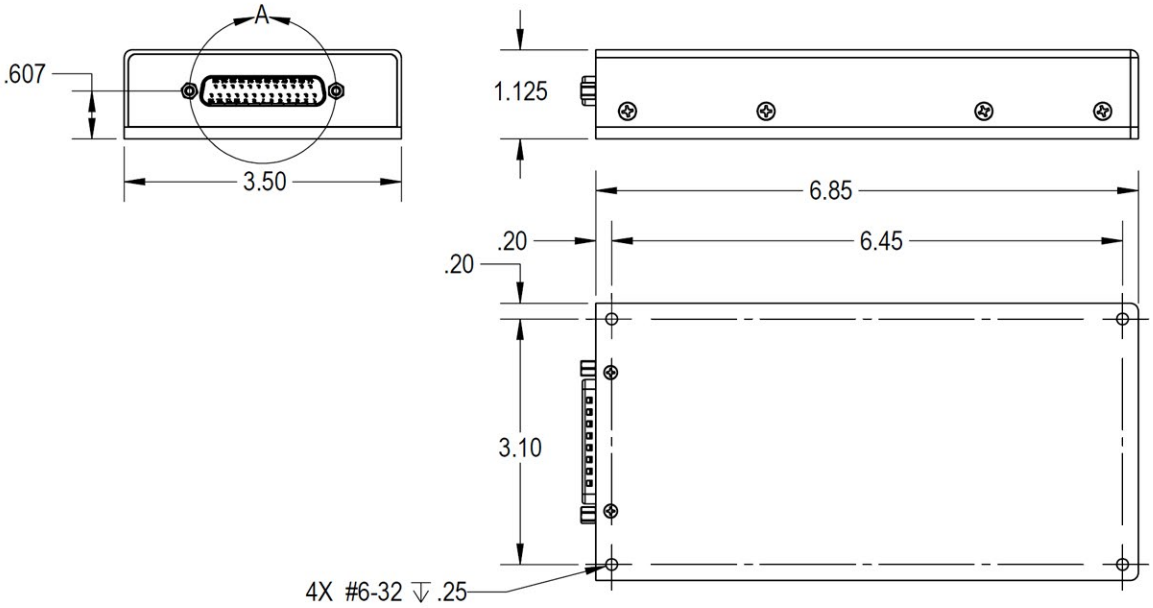
Test and depot equipment: rails switched and monitored through ENABLE and DC OK.

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MECHANICAL DRAWING







NOTES (UNLESS OTHERWISE SPECIFIED)

1. DIMENSIONS ARE IN INCHES
2. TOLERANCES ARE: .XX ±.03, .XXX ±.010, ANGLES ±2°
3. INPUT: 18-36 VDC
4. CONNECTOR (J1): DB-25 163A17549X, MATE: 164X11789X OR EQUIVALENT
5. CHASSIS GROUND THROUGH THE CONNECTOR SHELL AND MOUNTING
6. CONTROL AND STATUS SIGNALS REFERENCED TO SIGNAL RTN (J1-21), A DEDICATED CONTROL GROUND
7. LEAVE SPARE PINS UNCONNECTED
8. FINISH:
   - 8.1: COVER AND FRONT PANEL, OUTSIDE SURFACES: BLACK ANODIZE PER MIL-PRF-8625, TYPE II, CLASS 2
   - 8.2: COVER AND FRONT PANEL, INSIDE SURFACES AND EDGES, AND BASEPLATE: CHEMICAL FILM PER MIL-DTL-5541, TYPE II, CLASS 3, CLEAR
9. MATERIAL: ALUMINUM 6061-T6 OR EQUIVALENT

J1 · DB-25 · 163A17549X			
PIN	FUNCTION	PIN	FUNCTION
J1-1	–OUTPUT	J1-14	+OUTPUT
J1-2	–OUTPUT	J1-15	+OUTPUT
J1-3	–OUTPUT	J1-16	+OUTPUT
J1-4	–OUTPUT	J1-17	+OUTPUT
J1-5	–OUTPUT	J1-18	+OUTPUT
J1-6	+SENSE	J1-19	–SENSE
J1-7	SPARE	J1-20	LOAD SHARE
J1-8	SPARE	J1-21	SIGNAL RTN
J1-9	DC OK	J1-22	ENABLE
J1-10	SPARE	J1-23	+INPUT
J1-11	–INPUT	J1-24	+INPUT
J1-12	–INPUT	J1-25	+INPUT
J1-13	–INPUT		

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