Amphenol
MILITARY HIGH SPEED

M7318 SERIES
DC/DC POWER SUPPLY

DESCRIPTION

The M7318 military power supply is a rugged DC to DC converter which accepts an 18 - 48VDC input voltage range and provides a single DC output from 3.3 to 50V at up to 200W. Custom outputs available upon request and the unit is Designed to meet military standards, MIL-STD-704, MIL-STD-1275, MIL-STD-810, MIL-STD-461.

FEATURES

- Wide input range
- Input / Output isolation
- High efficiency – up to 90%
- Over 40dB ripple rejection
- EMI filters included
- Remote sense compensation
- Current sharing available
- Redundancy connection
- Fixed switching frequency (250 kHz)
- External synchronization capability
- Fixed switching freq. (250 kHz)
- External sync. capability
- Remote inhibit (on/off)
- Non-latching protections:
  - o Overload / short-circuit
  - o Input OV/UV lockout
  - o Output over-voltage
  - o Over temperature

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HOW TO ORDER

PART NUMBER	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE / CURRENT
CF-	18 to 48 VDC	5 VDC / 18 A
CF-	18 to 48 VDC	12 VDC / 16 A
CF-	18 to 48 VDC	15 VDC / 13A
CF-	18 to 48 VDC	24 VDC / 8 A
CF-	18 to 48 VDC	28 VDC / 7 A
CF-	18 to 48 VDC	48 VDC / 4 A

ELECTRICAL SPECIFICATIONS

DC Input: 18 to 48 VDC **Turn on Transient:** No overshoot.	**DC Output:** Voltage range: 3.3 to 50 VDC Current range: 0 to 18 A Power range: 0 to 200 W	**Isolation:** Input to Output: 200 VDC Input to Case: 200 VDC Output to Case: 100 VDC
Transient protection: IAW MIL-STD-1275A, M-STD-704A (no operation, no damage)	**Efficiency:** Typical: 84% (at 28VDC output, nominal input, full load, room temperature)	**EMC:** Designed to meet MIL-STD-461F* CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103
Output Voltage Regulation: Up to ±1% (no load to full load, –55°C to +85°C, and over input voltage range).	**Transient Over-and-under-shoot:** Output change at load transient of 10 to 100% with Tr & Tf of max 30 µs is less than 5% of output voltage. Output recovers to steady stated within less 0.1 ms, typically.	**Ripple and Noise:** Less than 100 mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.

PROTECTIONS

Input	Output	General
Under-Voltage Lock-Out: Unit shuts down below 16V ± 1.5V.	**Active Over-Voltage (Hiccup):** Secondary control circuit takes over if output voltage exceeds 110% ± 5% of nominal voltage. The output voltage go hiccup	**Over Temperature Protection:** Output shuts down if base plate temperature exceeds +105°C ± 5°C. Automatic recovery when base-plate temperature returns to below +95°C ± 5°C.
Over-Voltage Lock-Out: Unit shuts down above 52V ± 2V.	**Passive Over-Voltage:** Zener diode installed on output terminals, selected at 120% ± 10% of nominal voltage.	
	Other forms of protection CV/CC, foldback	

ENVIRONMENTAL CONDITIONS

Temperature: Operating: –55 °C to +85 °C (at baseplate) Storage: –55 °C to +125 °C	**Altitude:** Method 500.4 Procedures I & II Up to 70,000 ft. Operational	**Salt Fog:** Method 509.4
Humidity: Method 507.4 Procedure I Up to 95% RH	**Vibration (random):** Method 514.5 Category 24 – General minimum integrity exposure IAW Figure 514.5C-17 1 hour per axis.	**Shock:** Method 516.5 Procedure I – Functional shock Saw-tooth, 20 g peak, 11 ms

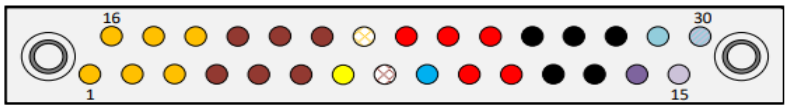
PIN ASSIGNMENT

Connector: RM272-030-322-2900 or eq.
Mating connector options:
Solder cup sockets: RM242-030-241-5900 or eq.
Removable crimp sockets: RM242-030-571-5900 or eq.

Pin #	Function
1	OUTPUT
2	OUTPUT
3	OUTPUT
4	OUTPUT RTN
5	OUTPUT RTN
6	OUTPUT RTN
7	CURRENT SHARE
8	SENSE RTN
9	POWER GOOD
10	INPUT

Pin #	Function
11	INPUT
12	INPUT RTN
13	INPUT RTN
14	SYNC OUT
15	SYNC IN
16	OUTPUT
17	OUTPUT
18	OUTPUT
19	OUTPUT RTN
20	OUTPUT RTN

Pin #	Function
21	OUTPUT RTN
22	+SENSE
23	INPUT
24	INPUT
25	INPUT
26	INPUT RTN
27	INPUT RTN
28	INPUT RTN
29	INHIBIT
30	SIGNAL RTN



FUNCTIONS AND SIGNALS

INHIBIT

The INHIBIT signal is used to turn the power supply ON and OFF.
To turn the power supply OFF, apply a TTL “0” signal or SHORT to SIGNAL RTN.
To turn the power supply ON, apply a TTL “1” signal or leave this pin OPEN.
If not used (always ON), leave this pin OPEN.
This signal is referenced to SIGNAL RTN.

SYNC IN

The SYNC IN signal is used to allow the power supply frequency to sync with the system frequency.
The system frequency should be 250 kHz ± 10 kHz.
When not connected the power supply will work at 250 kHz ± 10 kHz.
This signal is referenced to SIGNAL RTN.

SYNC OUT

The SYNC OUT signal can be used to synchronize the system to the power supply’s clock.
This signal is referenced to SIGNAL RTN.

SIGNAL RTN

The SIGNAL RTN is referenced to IN RETURN.
This is used as grounding for SYNC IN, INHIBIT and SYN OUT signals.

SENSE

The SENSE is used to achieve accurate load regulations at load terminals (this is done by connecting the pins directly to
the load's terminals).
For output voltage above 8V, the use of remote sense has a max limit of 0.25V voltage dropout between converter's
output and load terminals.
For output voltage below 8V, the use of remote sense has a max limit of 0.5V voltage dropout between converter's output and load terminals.
When not used connect SENSE to OUT and SENSE RTN to OUT RTN.

CURRENT SHARE (Pin #7)

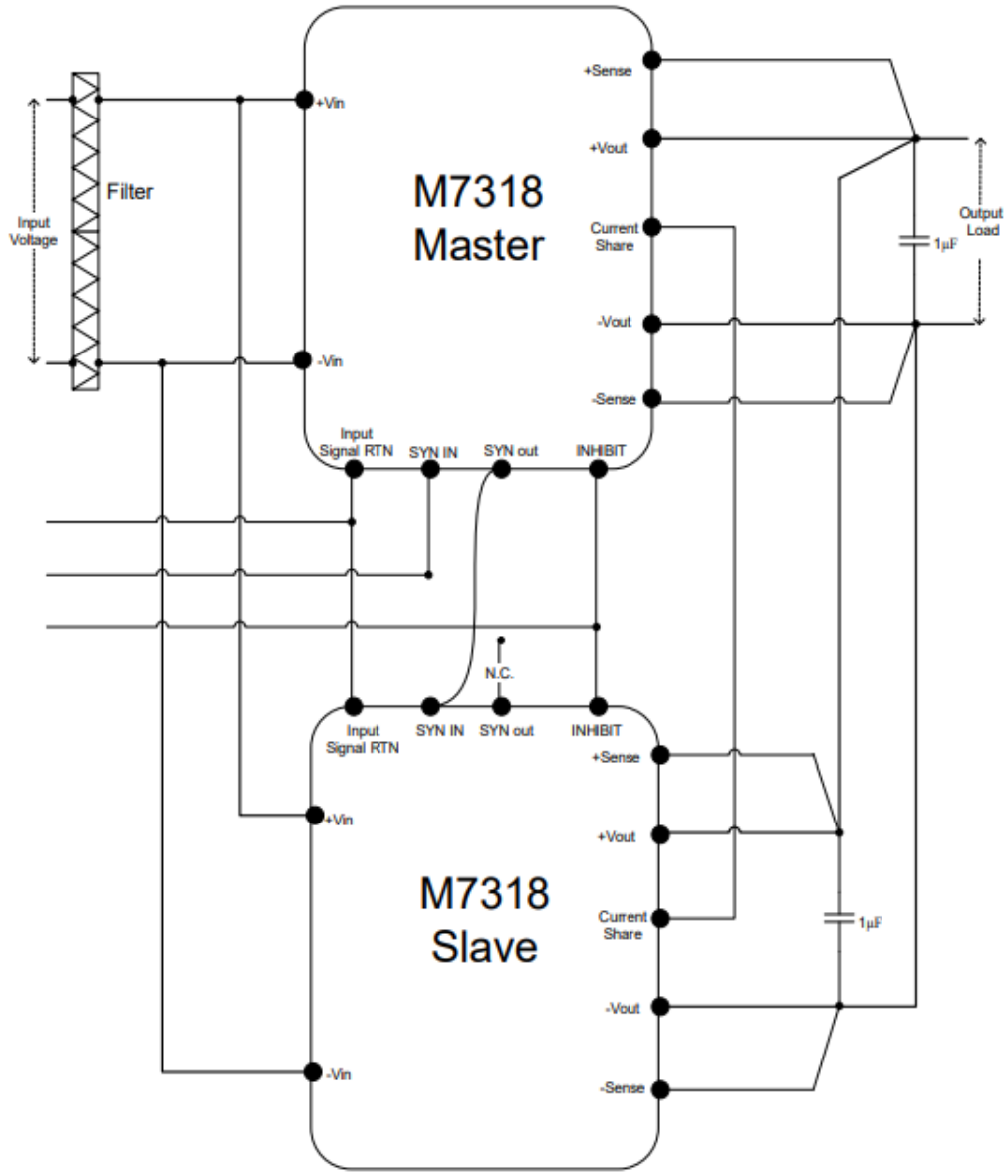
The CURRENT SHARE signal is used to connect the power supply in parallel to other power supplies and have them divide
equally the power between one another.
Connect all CURRENT SHARE signals of all paralleled power supplies together.
This signal is referenced to SENSE RTN (pin #8).

POWER GOOD (Pin #9)

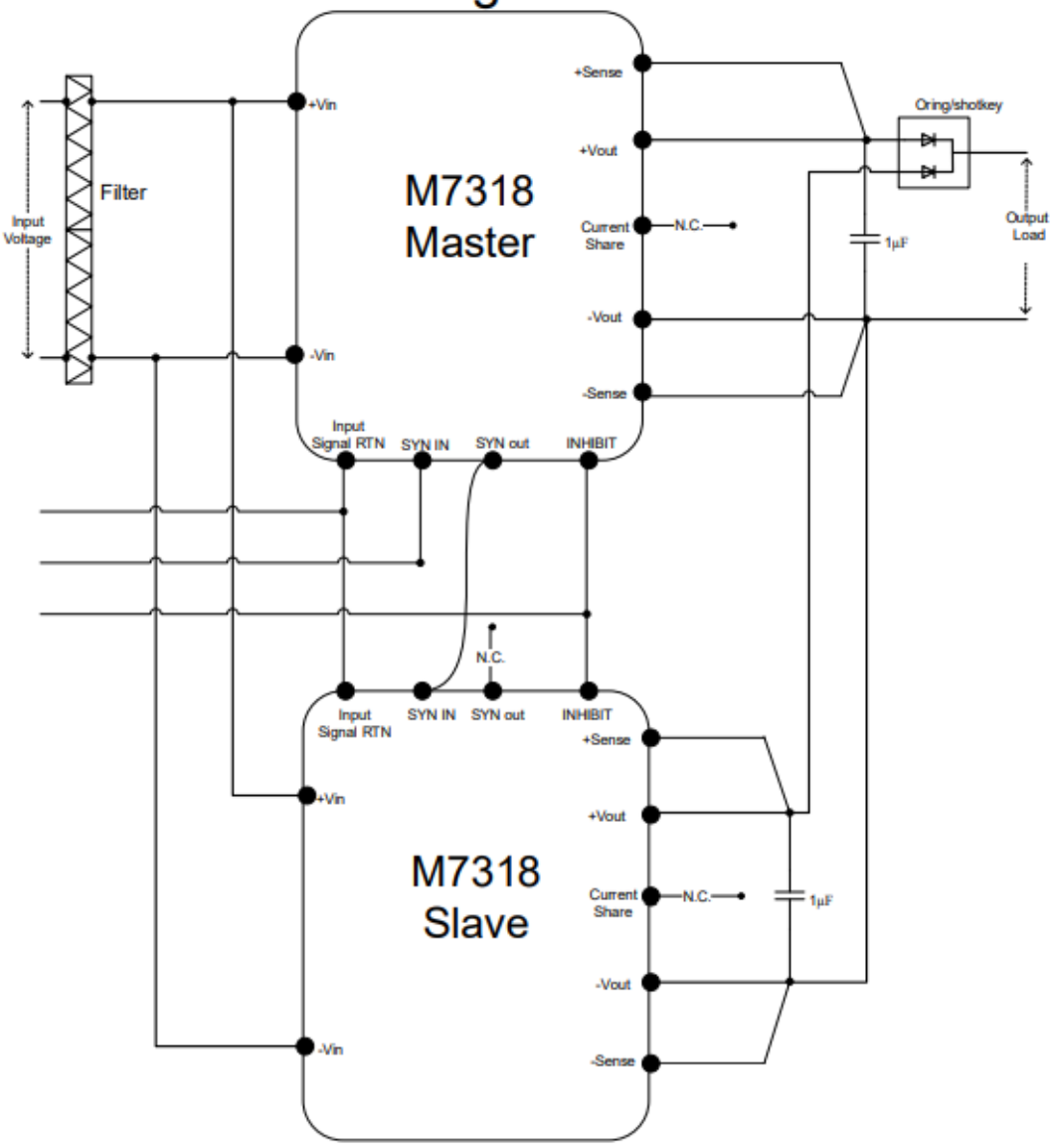
The VOLTS GOOD TTL signal is used to indicate if the output voltage is within the calibrated tolerances (typical 5%).
TTL "1"- output is within the required tolerances.
TTL "0" - output is not within the required tolerances.
This signal is referenced to SENSE RTN (pin #8).

TYPICAL CONNECTION DIAGRAM

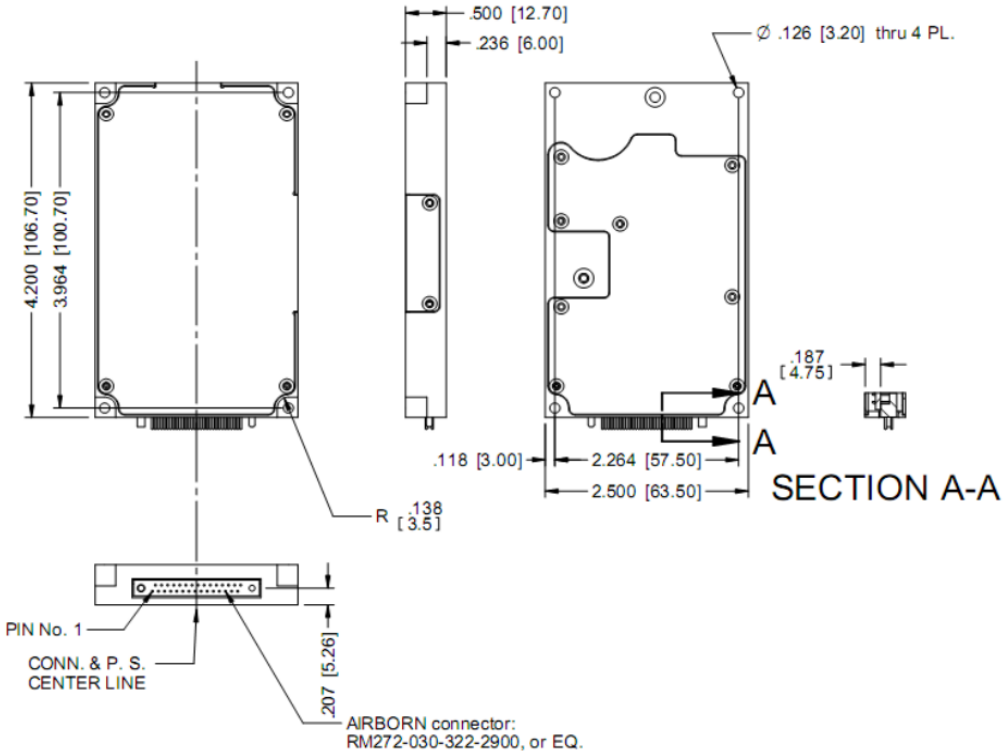
Parallel connection with current share



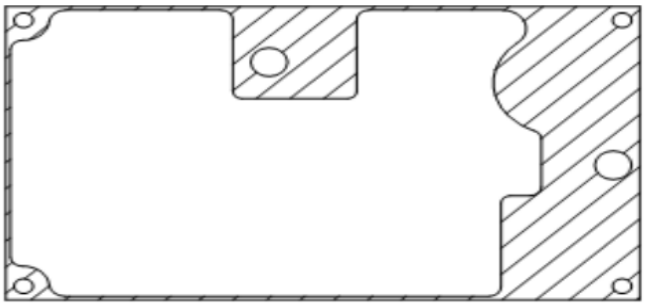
Redundancy connection with external oring diode



OUTLINE DRAWING



Heat Dissipation Surface



Dissipation Area
2.99 in²
(1930 mm²)

Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
   .XX ±.02 IN
   .XXX ±.01 IN
3. Weight: Approx. 150gr (5.3 Oz)

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