



56WS1-01

- 3 Phase AC/DC Converter
- 1,500 Watts, +28vdc Output



Features

- High Power Density, Low Profile Packaging
- Full Output Power at +80°C Temperature
- ATR Style Case
- Designed with component derating Per (NAVSO P3641)
- EMI Filtering Designed to MIL-STD-461E
- Transient Protection per MIL-STD-704A
- Remote Sensing
- BIT Indicator
- Elapsed Time Meter
- 1,500 Watt continuous, 3,000 Watt Peak power

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Description

NAI's **56WS1-01** is a 1,500 watt continuous, 3,000 watt peak AC/DC power supply which converts 3 phase, Mil-Std 704 aircraft power into a single +28vdc output used by system components.

Electrical Specifications

Input Characteristics:

Input	115Vac L-N, 3Ø, 400Hz Per Mil-Std 704A
EMI/RFI Characteristics	Designed to meet MIL-STD-461E – CE102, CS101, RE101, RE102 (10Khz to 18Ghz), RS101, RS103 (2Mhz to 18Ghz). Performance assumes good EMI practices are implemented at end installation.
Input Transient Protection	Per MIL-STD-704A
Input Leakage Current	3.5mA per phase
Inrush Current	Limited to 75 Amps on any phase
Power Factor	0.90

DC Output Characteristics:

Output Power	1,500 Watts continuous, 3,000 Watts peak
Output Voltage	+28Vdc
Efficiency	80% minimum

DC Output Characteristics (Continued):

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)	200 mV p-p max; Measurements made with a 20 MHz bandwidth instrument connected on the load, with wires <5 inches from the power supply and terminated with a 1uF capacitor
Load Transient Recovery	Output voltage returns to regulation limits within 0.5 msec (typical), half to full load
Load Transient Under/Overshoot	2 Volt peak excursion when the load is switched from 10A to 105A
Short Circuit Protection	Continuous Short circuit protection, with automatic recovery
Current Limiting	Limited to 205% to 235%
OverVoltage Protection	Automatic electronic shutdown if voltage exceeds 125% \pm 10%
Remote Error Sensing	Compensates for up to 2 volt drop on output leads
Isolation Voltage	1000 VDC input to output and input to case; 200 VDC output to case
Insulation Resistance	50 Megohm at 50 VDC; Input and Output to case
Enable (Power Command)	Application of 28Vdc per Mil-Std 704A steady state limits will activate the +28Vdc output

Physical/Environmental Specifications

Temperature Range	Operating: -40°C to +80°C at 100% load (Baseplate requires approximately 44CFM of 55°C max forced air at ambient pressure); Storage -55°C to +125°C
Temperature Coefficient	0.02% per °C
Shock	30 G's each axis, per MIL-STD-810C
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)	500,000 hours, ground benign, at 50°C baseplate
Humidity	95% at 71°C per MIL-STD-810C, Method 507.1 (non-condensing)
Altitude	50,000 feet per MIL-STD-810C, Method 504.1, Category 6 Equipment
Dimensions	See Mechanical Outline; page 5
Salt & Fog	Per MIL-STD-810C, Method 509.1
Sand/Dust/Fungus	Per MIL-STD-810C
Enclosure	Chassis: Aluminum alloy AMS-4218 (ASTM A356); Cover Aluminum alloy 5052-H32
Finish	Lusterless Grey, Color No. 36251 per FED STD-595
ETM	4 digit time totalizing meter
BIT Indicator	Provides a visual indication of built-in test pas/fail status. Indicator self tests at power up. Failure is indicated by mechanically latching visual device.
Interface	Connectors and pin-outs per Tables 1 & 2
Weight	17.5 lbs. max

Table 1 Pinout Designations

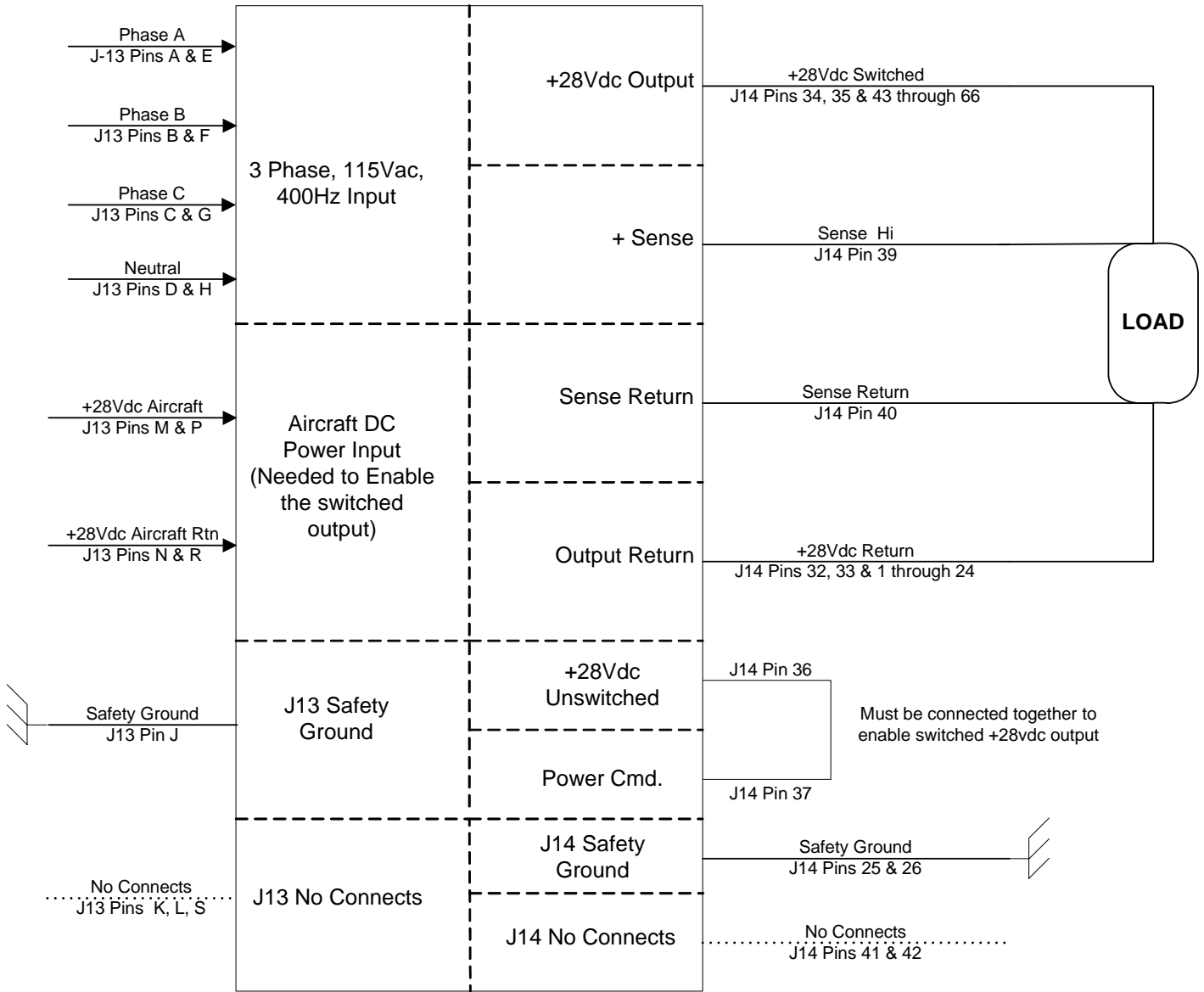
Input Connector	Pin(s)	Signal Name	Description
J13	A, E	Phase A	Phase A input from 115Vac, 400 Hz source
J13	B, F	Phase B	Phase B input from 115Vac, 400 Hz source
J13	C, G	Phase C	Phase C input from 115Vac, 400 Hz source
J13	D, H	Neutral	Neutral of 115Vac, 400 Hz source
J13	J	Safety Ground	Input side safety ground
J13	K, L, S	N/C	No Connection
J13	M, P	+28Vdc input	+28Vdc input provided from Aircraft source. This is needed for switched output to enable.
J13	N, R	+28Vdc input Rtn	Return line for +28Vdc Aircraft source power.
Output Connector	Pin(s)	Signal Name	Description
J14	34, 35 & 43 thru 66	+28vdc	+28Vdc Switched output
J14	32, 33 & 1 thru 24	+28Vdc Rtn	Return for switched +28Vdc output
J14	25, 26	Safety Ground	Output side safety ground
J14	36	+28Vdc Unswitched	Unswitched output which is tied to Power Cmd. signal (pin 37) and is used to enable switched +28Vd. Refer to wiring diagram on sheet 4.
J14	37	Power Cmd.	Signal which is tied to +28Vdc Unswitched output (pin 36) and is used to enable switched +28Vdc. Refer to wiring diagram on sheet 4.
J14	39	Sense Hi	Output Remote sense which is connected to positive side of load along with output leads to compensate for up to 2.0Vdc drop in output leads. Refer to wiring diagram on sheet 4.
J14	40	Sense Low	Output Remote sense which is connected to negative side of load along with output leads to compensate for up to 2.0Vdc drop in output leads. Refer to wiring diagram on sheet 4.
J14	41, 42	N/C	No Connection

Table 2 Connectors

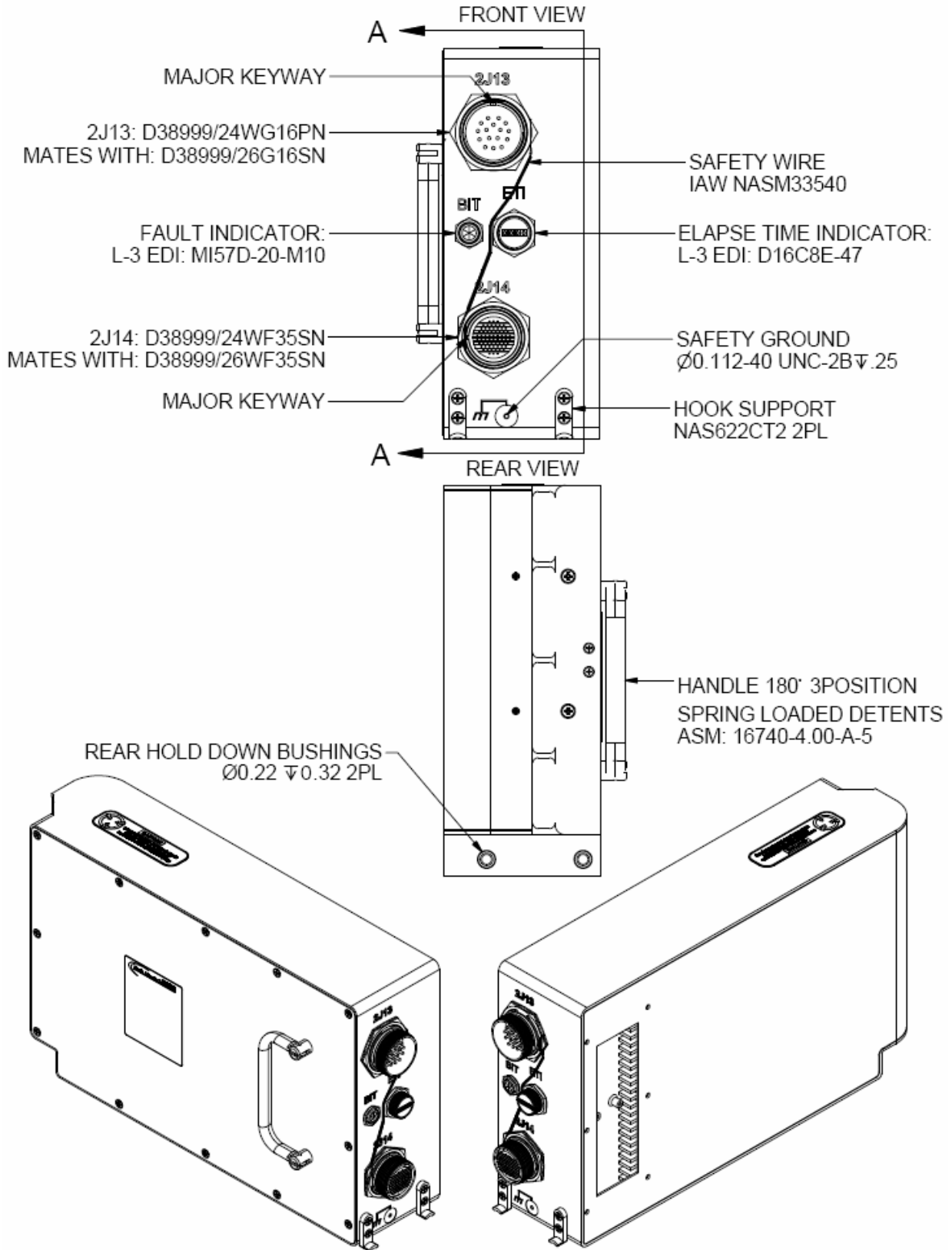
Connector	Part Number – Series
J13, Input Connector	D38999/24WG16PN
J14, Output Connector	D38999/24WF35SN

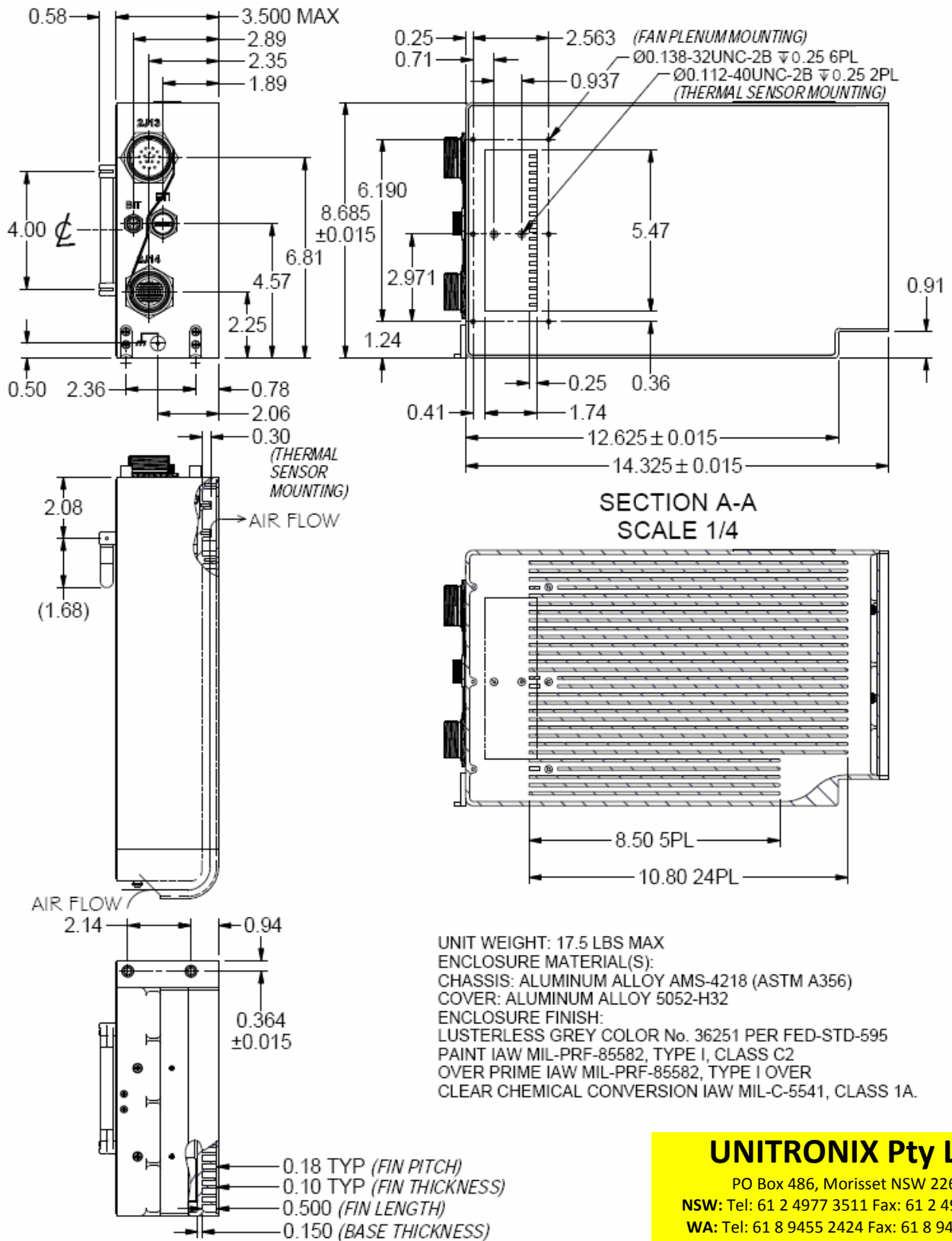
Wiring Diagram

56WS1-01 Wiring Diagram



Mechanical Layout





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