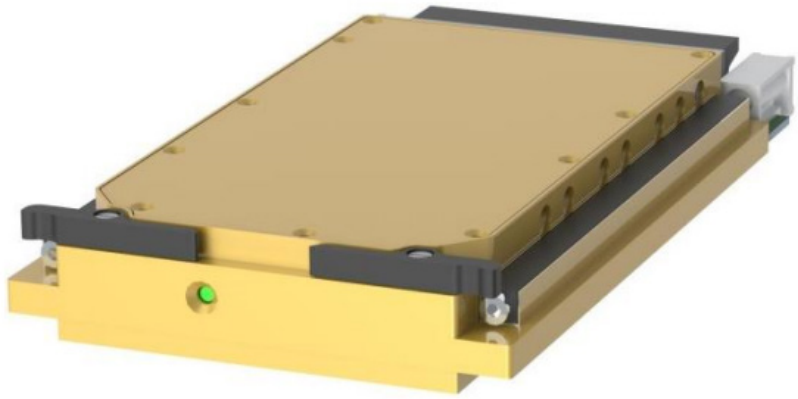
Amphenol
MILITARY HIGH SPEED

M4071 Series
3-PHASE AC/DC POWER SUPPLY



APPLICATIONS
Military (Airborne, ground-fix, shipboard), Ruggedized, Telecom, Industrial Power Supply

FEATURES

- 1.0 Pitch, 3U IAW VITA 62
- High efficiency
- Input / Output isolation
- EMI filters included
- Fixed switching frequency
- Remote Inhibit
- Remote Enable
- Non-latching protections:
  - o Short-circuit/overload
  - oOutput over-voltage
  - o Over temperature

HOW TO ORDER

Part number	Input		VS1		3.3V_Aux	
	Voltage range	Frequency	Voltage	Current	Voltage	Current
CF-02EM4071-1	3-phase, 100 to125 VAC	400 Hz	28 V_{DC}	30 A	3.3 V_{DC}	0.4 A
CF-02EM4071-2	3-phase, 100 to 125 VAC	400 Hz	28 V_{DC}	30 A	3.3 V_{DC}	0.4 A

Jared Sibrava | +1 (607) 643-1845 | jsibrava@amphenol-aao.com
amphenol-aerospace.com

PRODUCT SPECIFICATIONS:

Electrical Specifications			
AC Input	103 to 125 $V_{phase-Neutral}$ 400 Hz Three-Phase		
	No damage (may shut down) if exposed to normal/abnormal transients IAW MIL-STD-704A/F & DO160G		
Output voltage regulation	±1% or better (no load to full load, low line to high line, –40°C to +71°C at card edges).		
Ripple and Noise	Less than 100 mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.		
DC Outputs (standard version)	VS1	28 V_{DC}	30 A
	3.3V_Aux	3.3 V_{DC}	0.4 A
	VS1 capable of 1150 W @ 71°C		
Efficiency	Typical 90% (Nominal line, nominal load, room temperature)		
Output Under-and overshoot	Output impedance at load step of 50%-100% is 30 to 120 mΩ (depending on output voltage). Output resumes steady-state within 300-500 µs.		
Isolation	Input to Output:	1000 V_{DC}	
	Input to Case:	1000 V_{DC}	
	Output to Case:	200 V_{DC}	
EMC	Internal EMI filter included. Compliance with MIL-STD-461F CE102, CS101, CS114, CS115 & CS116 possible with external filter.		

Protections (Thresholds and protections can be modified / removed – please consult factory).		
Input	Inrush Current Limiter	
	Under Voltage Lock-Out	Unit shuts down when input voltage is below 90 Vac.
Output	Active Over-Voltage	Threshold set at 110% ± 5% of nominal voltage.
	Passive Over-Voltage	Threshold selected at 120% ± 10% of nominal voltage.
	Overload / Short-Cicuit	Protected against indefinite short circuit by a hiccup mechanism (periodical off/on until short is removed). Threshold set at 120% ± 10% of maximum current.
General	Over-Temperature Protection:	Shutdown if temperature exceeds +105 ± 5°C. Automatic re-covery upon cooldown to below +90 ± 5°C.

Environmental Designed to meet MIL-STD-810G		
Temperature	Operating:	–40°C to +85°C (at plug-in card edge, IAW VITA 62 CC3)
	Storage:	–55°C to +105°C
Humidity	Method 507.5 Up to RH 95%	
Altitude	Method 500.5, Procedure II (Operational)	
Vibration	Method 514.6 Procedure I Category 24 - General minimum integrity exposure	
Salt Fog	Method 509.5	
Shock	Method 516.6 Procedure I Saw-tooth, 20g peak, 11ms.	
Reliability At least 100,000 hours, calculated IAW MIL-HDBK-217F Notice 2 at +85°C at wedge lock edge, Ground Fix condition.		
Environmental Stress Screening (ESS) 100% of units are tested at minimum and maximum operational temperature, in addition to an ATP in room ambient. Random vibration and thermal cycles can be added if required. Please contact factory for details and a quote.		

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PIN ASSIGNMENT

CONNECTOR P0

CONNECTOR TYPE: TYCO 1-6450839-4 OR EQ.
MATING CONNECTOR TYPE: TYCO 2-6450869-7 OR EQ

Pin Number	Signal Name	Function
LP1	PHASE A	Input voltage phase A
LP3	PHASE B	Input voltage phase B
LP5	PHASE C	Input voltage phase C
LP7	NEUTRAL	N/C
LP9	HOLDUP_P	Positive output/input to/from holdup module
LP11	HOLDUP_N	Negative output/input to/from holdup module
LP13	CHASSIS	Chassis
A1	GA0*	N/C
A2	GA1*	N/C
A3	SYS_RESET*	N/C
B1	SM0	N/C
B2	SM1	N/C
B3	UD0	N/C
C1	UD1	N/C
C2	INHIBIT*	Output disable signal
C3	FAIL*	Failure indication signal
D1	SIGNAL_RTN	Return line for signals and 3.3V_AUX
D2	ENABLE*	Input enable signal
D3	3.3V_AUX	Auxiliary voltage, isolated from the main output
P1	OUTPUT	
P2	OUTPUT_RTN	

PART NUMBER	ROWS	POWER													SIGNAL			POWER	
		LP1	LP2	LP3	LP4	LP5	LP6	LP7	LP8	LP9	LP10	LP11	LP12	LP13	1	2	3	P1	P2
1-6450839-4	D	LM	-	LM	-	LM	-	LM	-	LM	-	LM	-	LM	J	J	J	TM	TM
	C														K	K	K		
	B														N	N	N		
	A														S	S	S		
13LP+12S+2P																			

Functions and Signals

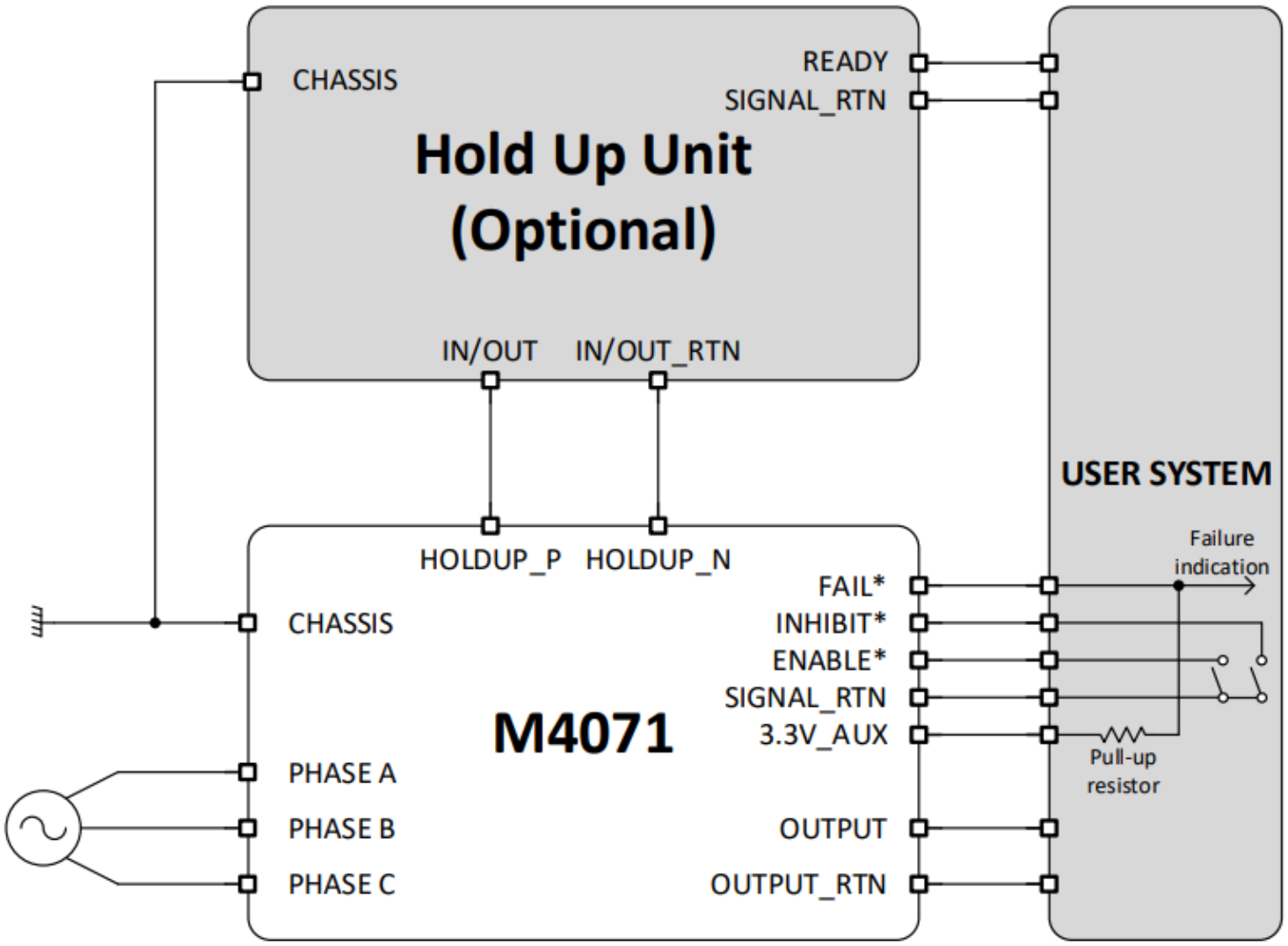
ENABLE* (pin D2)
This signal is used to enable the input power of the converter.
Connect this pin to **SIGNAL_RTN** (pin D1) to enable input power.
Leave open to disable input power.

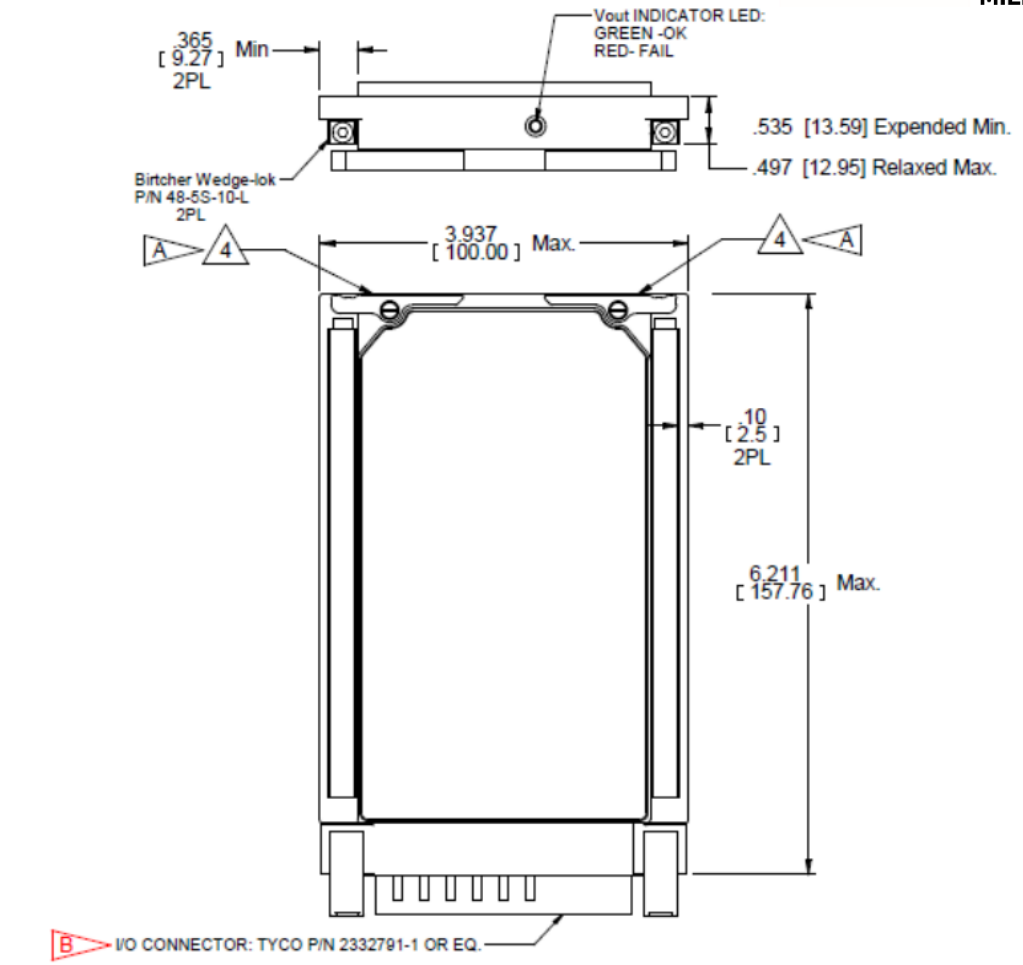
INHIBIT* (pin C2)
This signal is used to disable the main output of the converter.
Connect this pin to **SIGNAL_RTN** (pin D1) to disable the main output power.
Leave open to enable the main output power.

FAIL* (pin C3)
This signal indicates the status of the outputs.
If the any of the output voltages drop below 85% ± 5% the signal will go 'high'.
In case any of the output voltages rise above 90% ± 5%, the signal will be 'low'.
Typical hysteresis for main output (example is 28 V) is 2%.
Typical hysteresis for 3.3V_AUX is 0.5%.
Signal type: Open-drain (connect an external pull-up resistor to 3.3V_AUX for voltage indication).
This signal is referenced to **SIGNAL_RTN** (pins D1)

HOLDUP_P/HOLDUP_N (pin LP9/LP11)
These pins are connected to the internal DC bus of the converter (the rectified input voltage).
Connect these pins to the appropriate pins of the Hold up Module to add a holdup feature to the converter to provide a transparent ride-through during power interrupt events, IAW MIL-STD-704A-F.

TYPICAL CONNECTION DIAGRAM





NOTES :

1. WORKMANSHIP SHALL BE MIL-STD-454, REQT. 9
2. DRILL, TAP & COUNTERSINK PER MS 33537
3. MAIN BODY AND COVERS
   3.1 MTL. ALUMINIUM ALLOY 6061-T651& AL 5052-H32
   3.2 FINISH: CONVERSION COATING PER MIL -C-5541 TYPE 1, CL 1A
A 4.EJECTOR/INJECTOR
   4.1 MTL. ALUMINIUM ALLOY 6061-T651
   4.2 FINISH: BLACK ANODIZE PER MIL-A-8625, TYP II, CLASS 2

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Sidney, NY 13838
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