U-Chassis

Size: 6.00 x 4.00 x 1.50 in

U-Chassis with Vented Top Cover

Size: 6.00 x 4.00 x 1.57 in

Enclosed with End-Side Built-in Fan

Size: 7.01 x 4.00 x 1.60 in

Enclosed with Top-Side Built-in Fan

Size: 6.00 x 4.00 x 2.15 in

FEATURES

- RoHS Compliant
- High Quality & Reliable Component Usage
- Variable Fan Speed & Low Acoustical Noise
- 90~264VAC Full Range Input
- 1U Height Power Density: 11.11 Watts /cu in
- Single Outputs Ranging from 12VDC to 60VDC
- Active Power Factor Corrected to EN61000-3-2 Class D
- Built-in Remote On/Off, Power Good, and Fan Fail Alarm Functions
- Peak Power 700W within 500µs Duty Duration
- 220 Watts with Convection Cooling and 400 Watts with Forced Airflow
- Short Circuit, Over Power, Over Voltage, and Over Temperature Protection
- MTBF: 100,000 Hours (MIL-HDBK-217F)
- UL1950, CSA C22.2 No. 950-95, EN60950, and CB Safety Approvals
- Four Mechanical Options Available

DESCRIPTION

The PSPRL0602N series of AC/DC switching power supplies offers 220 Watts of output power with convection cooling and 400 Watts with forced airflow. This series consists of single output models ranging from 12VDC to 60VDC. These models have a 90~264VAC input voltage range, active PFC corrected to EN61000-3-2 Class D, and built-in remote on/off, power good, and fan fail alarm functions. These supplies are also protected against short circuit, over voltage, over power, and over temperature conditions. Models are available in U-chassis (Type U), U-chassis with vented top cover (Type C), enclosed with end-side built-in fan (Type E), and enclosed with top-side built-in fan (Type F) designs. This series is RoHS compliant and has UL1950, CSA C22.2 No. 950-95, EN60950, and CB safety approvals.

MODEL SELECTION TABLE

Model Number (1)	Input Voltage	Output Voltage (2)		Output Current (3)		Regulation (6)	Output Power (3)		Ripple & Noise (5) (6)
		Range	Preset	Convection	Forced Air		Convection	Forced Air	
PSPRL0602Nx-12	90 - 264 VAC	10 ~ 13.8 VDC	12 VDC	18.33A	33.33A	±1%	220W	400W	1%
PSPRL0602Nx-15		14 ~ 15.5 VDC	15 VDC	14.67A	26.67A	±1%	220W	400W	1%
PSPRL0602Nx-18		16 ~ 20 VDC	18 VDC	12.22A	22.22A	±1%	220W	400W	1%
PSPRL0602Nx-24		21 ~ 26 VDC	24 VDC	9.17A	16.67A	±1%	220W	400W	1%
PSPRL0602Nx-28		27 ~ 34 VDC	28 VDC	7.86A	14.29A	±1%	220W	400W	1%
PSPRL0602Nx-36		35 ~ 42 VDC	36 VDC	6.11A	11.11A	±1%	220W	400W	1%
PSPRL0602Nx-48		43 ~ 50 VDC	48 VDC	4.58A	8.33A	±1%	220W	400W	1%
PSPRL0602Nx-54		51 ~ 60 VDC	54 VDC	4.07A	7.41A	±1%	220W	400W	1%

NOTES

1. The "**x**" in the model number can be "**U**" for U-chassis type, "**C**" for U-chassis with vented top cover type, "**E**" for enclosed with end-side built-in fan, or "**F**" for enclosed with top-side built-in fan.
2. All output ranges are covered by agency certifications and the preset voltage will be set as standard models if nothing different is requested. If desired preset output does not appear, please contact factory.
3. **PSPRL0602NU-XX Models** (U-chassis): 220W max. with convection cooling and 400W max. with 26.84CFM minimum forced airflow.
   PSPRL0602NC-XX Models (U-chassis with vented top cover): 220W max. with convection cooling.
   PSPRL0602NE-XX Models (Enclosed with end-side built-in fan): 400W max. with built-in fan airflow.
   PSPRL0602NF-XX Models (Enclosed with top-side built-in fan): 400W max. with built-in fan airflow.
4. Provides peak power to 700W within 500µs for all models; for longer duty duration please contact manufacturer.
5. Ripple and noise are measured from 10kHz to 20MHz bandwidth and with a 0.1µF ceramic capacitor and a 22µF electrolytic capacitor in parallel across the output.
6. 1% minimum load is required to maintain the ripple and regulation specifications.
7. Output is fully isolated.
8. This product is Listed to applicable standards and requirements by UL.

*Due to advances in technology, specifications subject to change without notice.

SPECIFICATIONS: PSPRL0602N SERIES

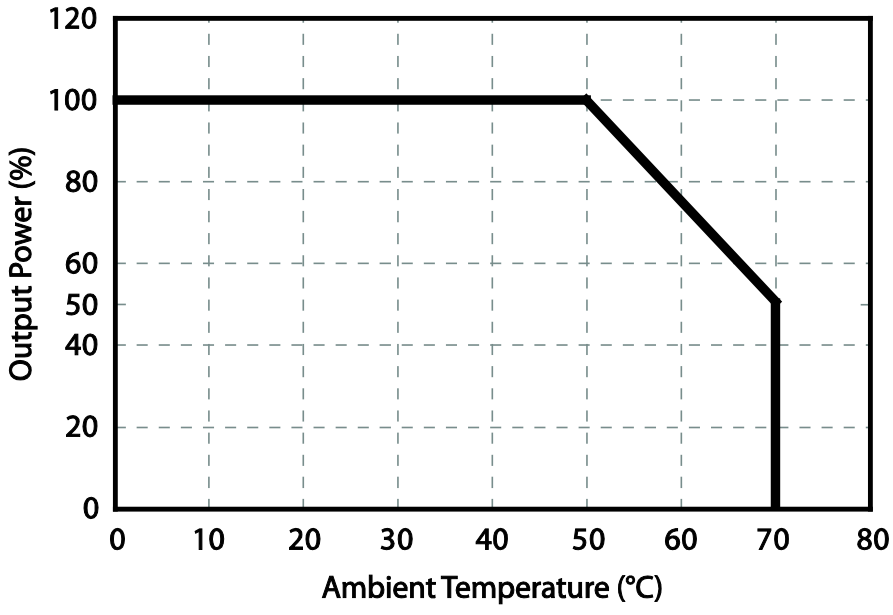
All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION		TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS							
Input Voltage Range				90		264	VAC
Input Frequency		AC input		47		63	Hz
Input Current		90VAC and full load			8		A
Inrush Current		115VAC and cold start			35		A
		230VAC and cold start			70		
Power Factor Correction		230VAC and full load		0.9			
Input Fusing Protection		Internal fuse in line and neutral		One T8A/250V fuse inserted in primary			
OUTPUT SPECIFICATIONS							
Output Voltage				See Table			
Output Adjustability				-5		+5	%
Regulation				-1		+1	%
Output Power				See Table			
Output Current				See Table			
Ripple & Noise		Measured from 10kHz to 20MHz bandwidth and with 0.1µF ceramic and 22µF electrolytic capacitors in parallel across the output.			1		%
DYNAMIC RESPONSE							
Peak Transient		50% load step change				5	%
Recovery Time		Recovery to within 1% Nominal Vo				2.5	ms
Overshoot	Turn On					5	%
	Turn Off					5	
Turn On Delay		120VAC				1.5	s
Hold Up Time		120VAC and 75% of full load		16			ms
PROTECTION							
Over Voltage Protection		Latch mode; recycle AC input to reset				130	% Vout
Over Power Protection		Automatic recovery		110		140	% Iout
Short Circuit Protection				Trip without damage and automatic recovery			
Over Temperature Protection		Automatic recovery		105	110	115	°C
GENERAL SPECIFICATIONS							
Efficiency		230VAC and full load		75			%
Switching Frequency	PFC				68		kHz
	PWM				55		
Withstand Voltage	Input Line to Chassis	10mA AC cut-off current; for 3 seconds		1500			VAC
	Primary to Secondary	For 3 seconds		3000			
	Primary to Core	For 3 seconds		1500			
Leakage Current		Standard	At 264VAC			3.5	mA
		Optional (Call factory for details)	At 120VAC			300	µA
			At 240VAC			500	µA
Grounding Test		Apply 25A from ground pin of the three prong plug to the far most earth. Max allowable resistance is 0.1Ω					
ENVIRONMENTAL SPECIFICATIONS							
Operating Ambient Temperature		Derating at 2.5% per degree from 50°C to 70°C		0		+70	°C
Storage Temperature Range				-20		+85	°C
Operating Humidity		Non-condensing		5		90	% RH
Storage Humidity		Non-condensing		5		95	% RH
Vibration				5~50Hz; acceleration ±7.35 m/s*s on X, Y, & Z axes			
Cooling		U & C Type Models		Free air convection			
		E & F Type Models		Internal fan is provided			
Burn-in				+45°C ±5°C for 1 hour at 230VAC and full load			
MTBF		MIL-HDBK-217F, Ta=30°C		100,000 hours			
PHYSICAL SPECIFICATIONS							
Weight		U-Chassis Models (Suffix “U”)		1.32 lbs (600g)			
		U-Chassis with Vented Top Cover Models (Suffix “C”)		1.43 lbs (650g)			
		Enclosed with End-side Built-in Fan Models (Suffix “E”)		1.65 lbs (750g)			
		Enclosed with Top-side Built-in Fan Models (Suffix “F”)		1.76 lbs (800g)			
Dimensions (L x W x H)		U-Chassis Models (Suffix “U”)		6.00 x 4.00 x 1.50 in (152.40 x 101.60 x 38.10 mm)			
		U-Chassis with Vented Top Cover Models (Suffix “C”)		6.00 x 4.00 x 1.57 in (152.40 x 101.60 x 39.90 mm)			
		Enclosed with End-side Built-in Fan Models (Suffix “E”)		7.01 x 4.00 x 1.60 in (177.80 x 101.60 x 40.64 mm)			
		Enclosed with Top-side Built-in Fan Models (Suffix “F”)		6.00 x 4.00 x 2.15 in (152.40 x 101.60 x 54.45 mm)			

SAFETY & EMC		
Safety Approvals		UL1950[8], CSA C22.2 No. 950-95, EN60950, and CB
EMI (Conducted &Radiated)	EN55022	Class B
Harmonic Currents	EN55022	EN61000-3-2
Voltage Flicker	EN55022	EN61000-3-3
ESD	EN55024	EN61000-4-2
Radiated Immunity	EN55024	EN61000-4-3
Fast Transient	EN55024	EN61000-4-4
Surge	EN55024	EN61000-4-5
Conducted Immunity	EN55024	EN61000-4-6
Dip and Interruptions	EN55024	EN61000-4-11

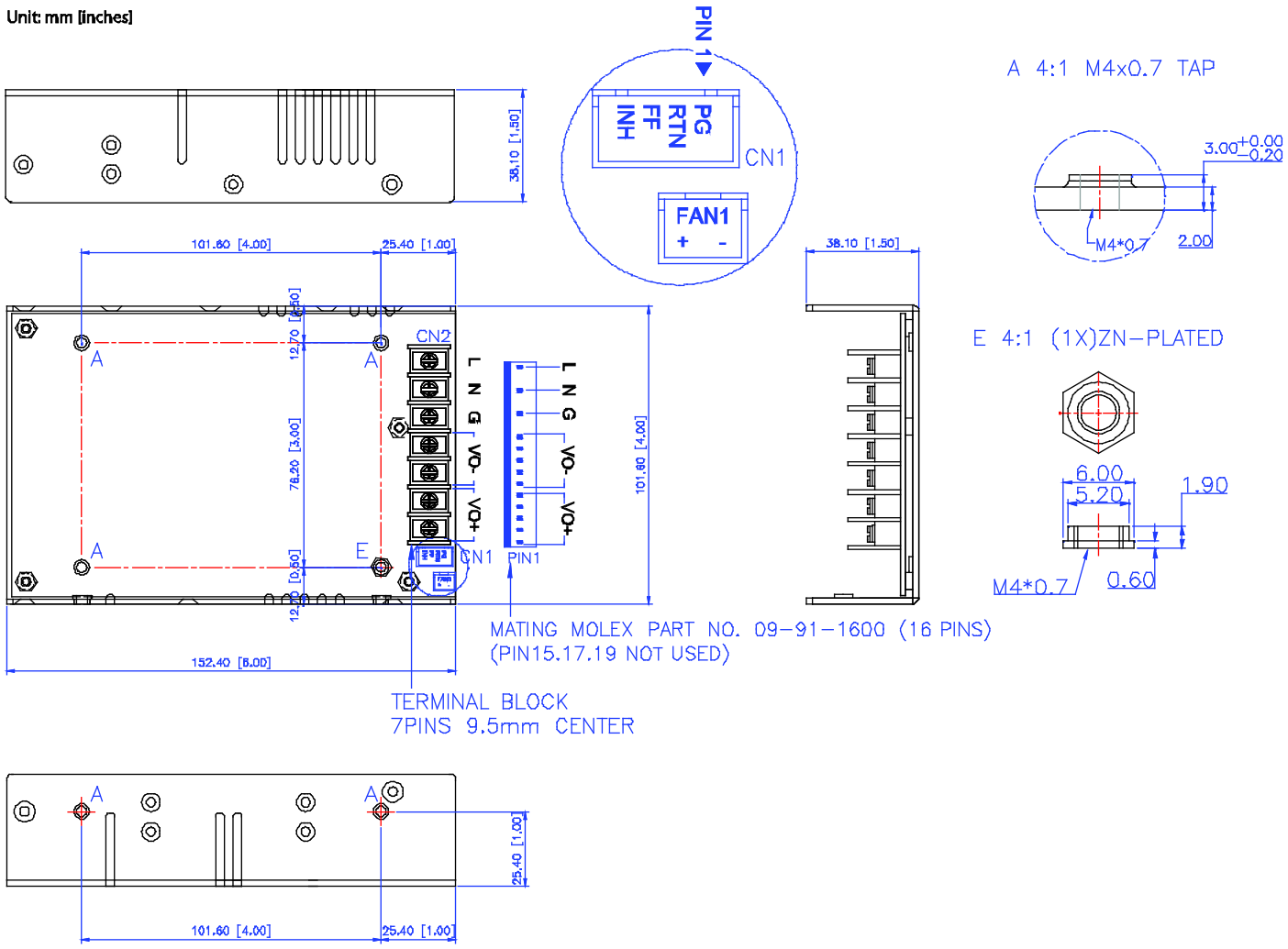
FUNCTIONS		
DESIGNATION	FUNCTION	DESCRIPTION
-	Fan Drive	12VDC/300mA is available to drive an external fan
FF	Fan Fail Alarm	Pin 3 of CN1. Two types of logic signals provided. Please call factory for more details.
INH	Remote ON/OFF	Pin 4 of CN1. Requires a low signal to inhibit output
LED1	Power Supply ON	Green LED on the PCB
PG	Power Good	Pin 1 on CN1. TTL high 100-500ms after DC regulation. It goes low at least 1ms before loss of regulation.

DERATING CURVE



MECHANICAL DRAWINGS

U-Chassis (Suffix "U")



I/O CONNECTOR PIN ASSIGNMENTS

Input and Output Connectors (CN2):
Terminal block – Howder Part No. HD-121-7P or Mating Molex Part No. 09-91-1600 (16 pins)
Molex - Mating JST VH series. Input 5 pin connector (3 pin used, pin 2 & pin 4 removed), PCB Labeling: L=Line; N=Neutral; G=Chassis Ground. Output 10 pin connector.

CN2 PIN CONNECTIONS	
Howder	
Pin	Assignment
1~2	V+
3~4	V-
5	GND
6	Neutral
7	Line

CN2 PIN CONNECTIONS	
Molex	
Pin	Assignment
1~5	V+
6~10	V-
12	GND
14	Neutral
16	Line

Mounting Inserts: 6 Places M4X0.7. Maximum penetration 4mm

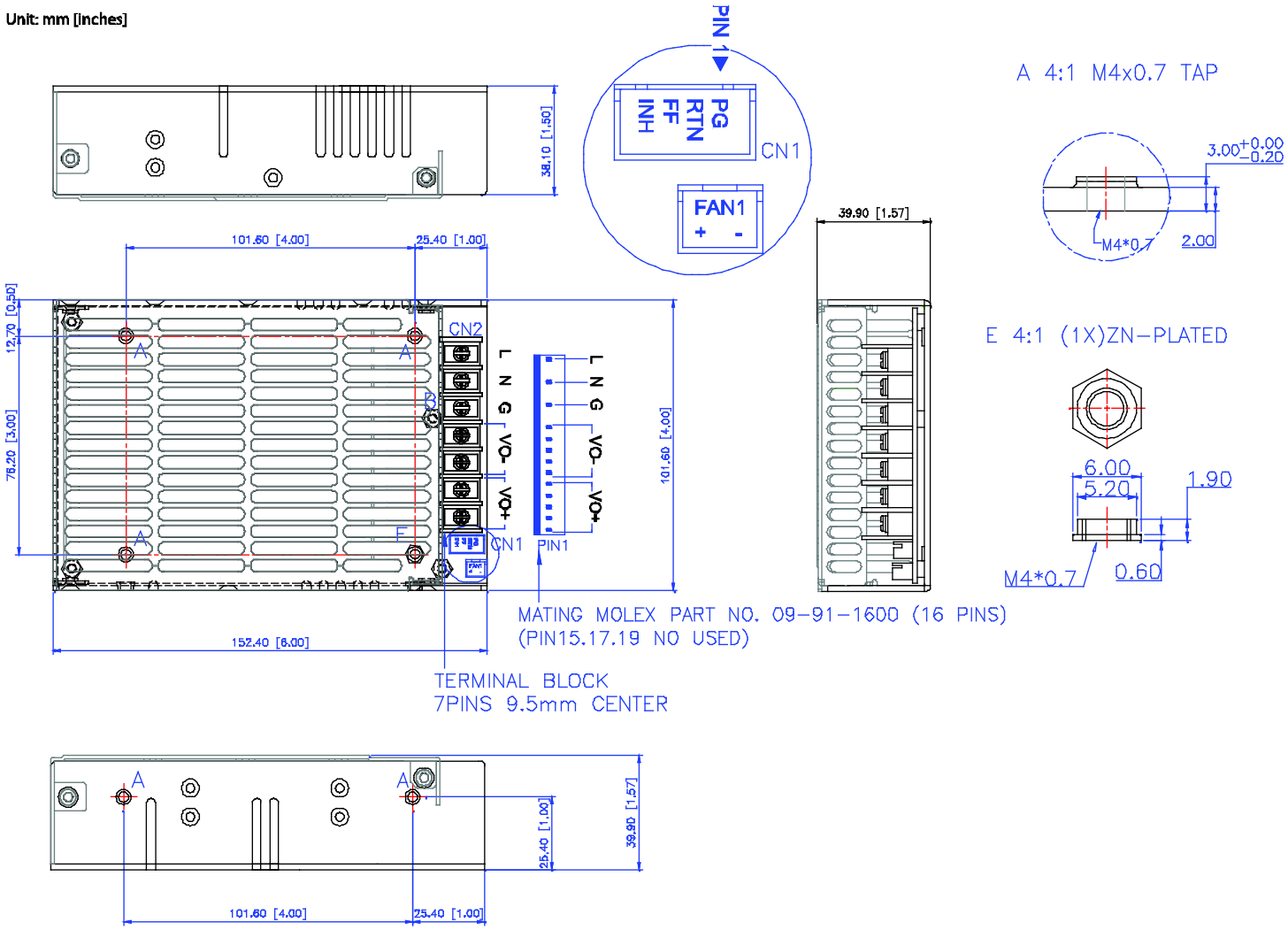
Logic Signal Connector (CN1):
Mating JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04);
Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26.

CN1 PIN CONNECTIONS	
Pin	Assignment
1	PG
2	RTN
3	FF
4	INH

Fan Driver Connector (FAN1):
12VDC/300mA is available to drive an external fan. Mating connector JST P/N XHP-2 (2 pins 0.98 pitch), equivalent (CHYAO SHIUNN JS-2001-02).

MECHANICAL DRAWINGS

U-Chassis With Vented Top Cover (Suffix "C")



I/O CONNECTOR PIN ASSIGNMENTS

Input and Output Connectors (CN2):

Terminal block – Howder Part No. HD-121-7P or Mating Molex Part No. 09-91-1600 (16 pins)

Molex - Mating JST VH series. Input 5 pin connector (3 pin used, pin 2 & pin 4 removed), PCB Labeling: L=Line; N=Neutral; G=Chassis Ground. Output 10 pin connector.

CN2 PIN CONNECTIONS	
Howder	
Pin	Assignment
1~2	V+
3~4	V-
5	GND
6	Neutral
7	Line

CN2 PIN CONNECTIONS	
Molex	
Pin	Assignment
1~5	V+
6~10	V-
12	GND
14	Neutral
16	Line

Mounting Inserts: 6 Places M4X0.7. Maximum penetration 4mm

Logic Signal Connector (CN1):

Mating JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04);
Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26.

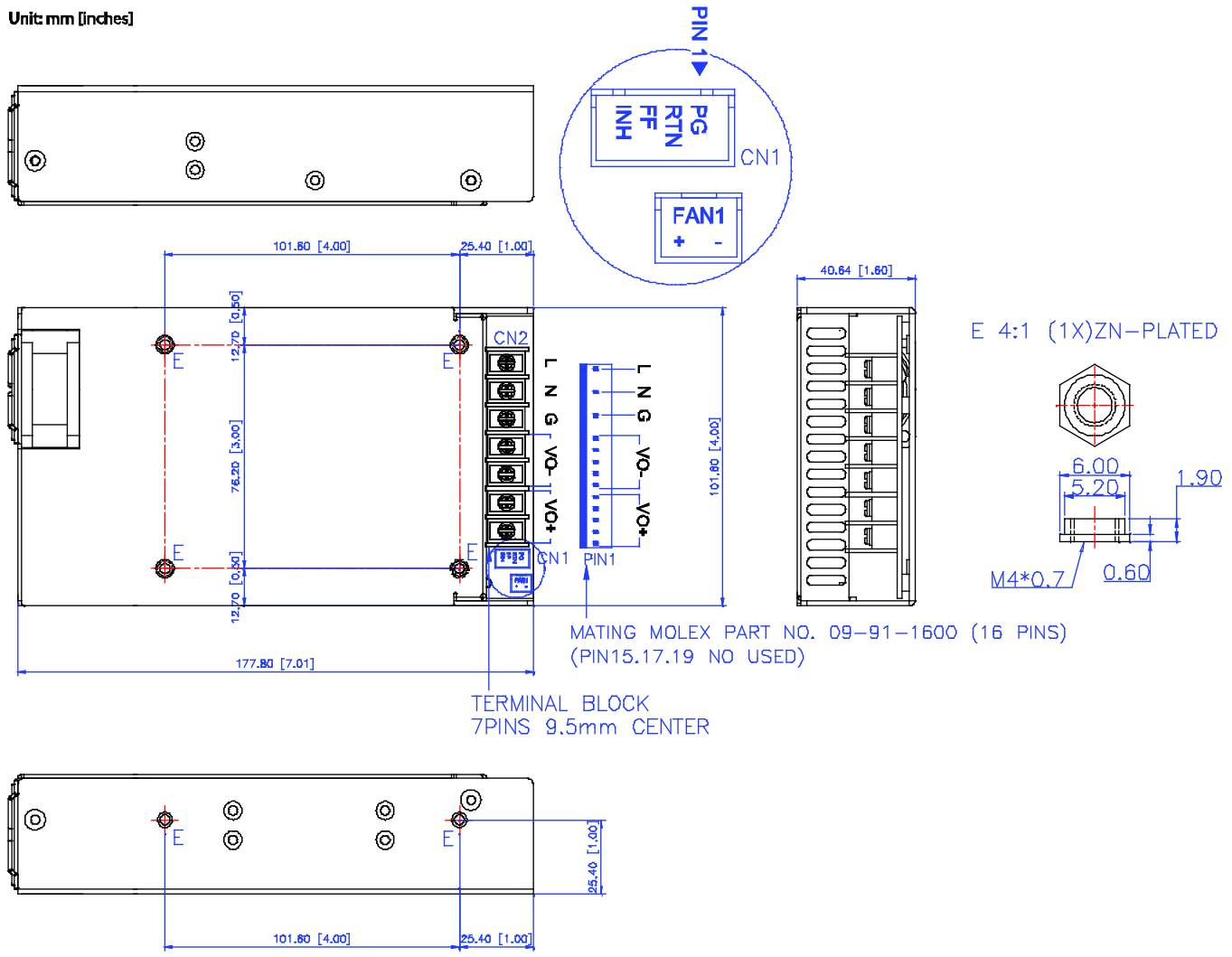
CN1 PIN CONNECTIONS	
Pin	Assignment
1	PG
2	RTN
3	FF
4	INH

Fan Driver Connector (FAN1):

12VDC/300mA is available to drive an external fan. Mating connector JST P/N XHP-2 (2 pins 0.98 pitch), equivalent (CHYAO SHIUNN JS-2001-02).

MECHANICAL DRAWINGS

Enclosed with End-Side Built-in Fan (Suffix "E")



I/O CONNECTOR PIN ASSIGNMENTS

Input and Output Connectors (CN2):
Terminal block – Howder Part No. HD-121-7P or Mating Molex Part No. 09-91-1600 (16 pins)
Molex - Mating JST VH series. Input 5 pin connector (3 pin used, pin 2 & pin 4 removed), PCB Labeling: L=Line; N=Neutral; G=Chassis Ground. Output 10 pin connector.

CN2 PIN CONNECTIONS	
Howder	
Pin	Assignment
1~2	V+
3~4	V-
5	GND
6	Neutral
7	Line

CN2 PIN CONNECTIONS	
Molex	
Pin	Assignment
1~5	V+
6~10	V-
12	GND
14	Neutral
16	Line

Mounting Inserts: 6 Places M4X0.7. Maximum penetration 4mm

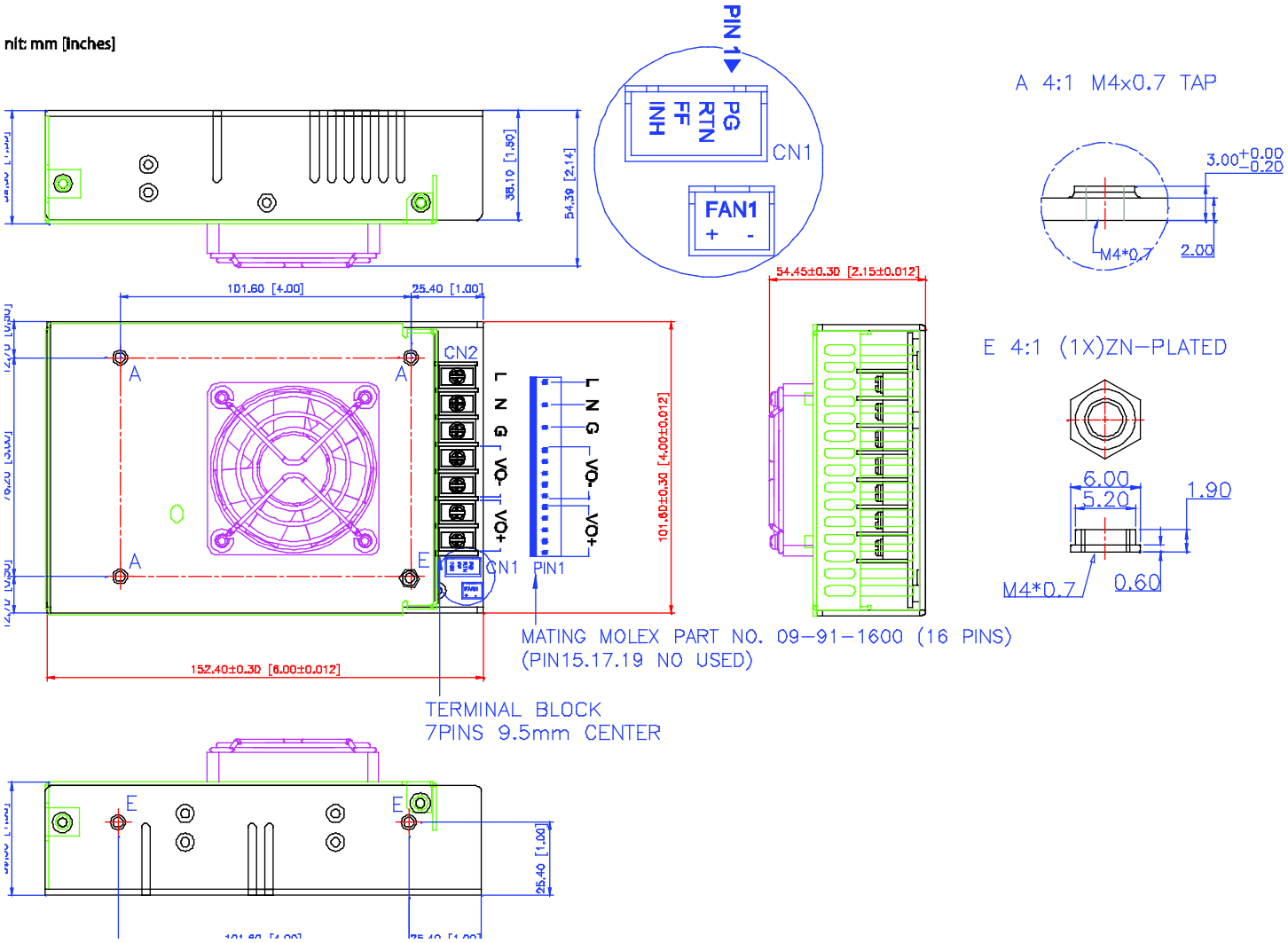
Logic Signal Connector (CN1):
Mating JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04);
Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26.

CN1 PIN CONNECTIONS	
Pin	Assignment
1	PG
2	RTN
3	FF
4	INH

Fan Driver Connector (FAN1):
12VDC/300mA is available to drive an external fan. Mating connector JST P/N XHP-2 (2 pins 0.98 pitch), equivalent (CHYAO SHIUNN JS-2001-02).

MECHANICAL DRAWINGS

Enclosed with Top-Side Built-in Fan (Suffix "F")



I/O CONNECTOR PIN ASSIGNMENTS

Input and Output Connectors (CN2):
Terminal block – Howder Part No. HD-121-7P or Mating Molex Part No. 09-91-1600 (16 pins)
Molex - Mating JST VH series. Input 5 pin connector (3 pin used, pin 2 & pin 4 removed), PCB Labeling: L=Line; N=Neutral; G=Chassis Ground. Output 10 pin connector.

CN2 PIN CONNECTIONS	
Howder	
Pin	Assignment
1~2	V+
3~4	V-
5	GND
6	Neutral
7	Line

CN2 PIN CONNECTIONS	
Molex	
Pin	Assignment
1~5	V+
6~10	V-
12	GND
14	Neutral
16	Line

Mounting Inserts: 6 Places M4X0.7. Maximum penetration 4mm

Logic Signal Connector (CN1):
Mating JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04);
Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26.

CN1 PIN CONNECTIONS	
Pin	Assignment
1	PG
2	RTN
3	FF
4	INH

Fan Driver Connector (FAN1):
12VDC/300mA is available to drive an external fan. Mating connector JST P/N XHP-2 (2 pins 0.98 pitch), equivalent (CHYAO SHIUNN JS-2001-02).

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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