

# DINergy™

By Micron Power Delivery

## Advanced power supplies built for the industrial environment



Brochure:  
PS-0916A- English

Supersedes: PS-0116C-English

## Why Choose Micron?

**Power Supplies and Converters:** The *DINergy™* product offering encompasses power supplies from 18 watt single phase through 960 watt three-phase in the most popular industrial output voltages (see the selection guide). The majority also operate as converters with 120 VDC input capability. Low profile, PCB and panel mount supplies and converters on special order. The *DINergy™* product carries an average MTBF of 450,000 hours and is built to the same demanding design parameters that made our ImperviTRAN™ the preeminent 600 Volt class transformer in the marketplace for over 40 years.

## POWER SUPPLY QUICK SELECTOR

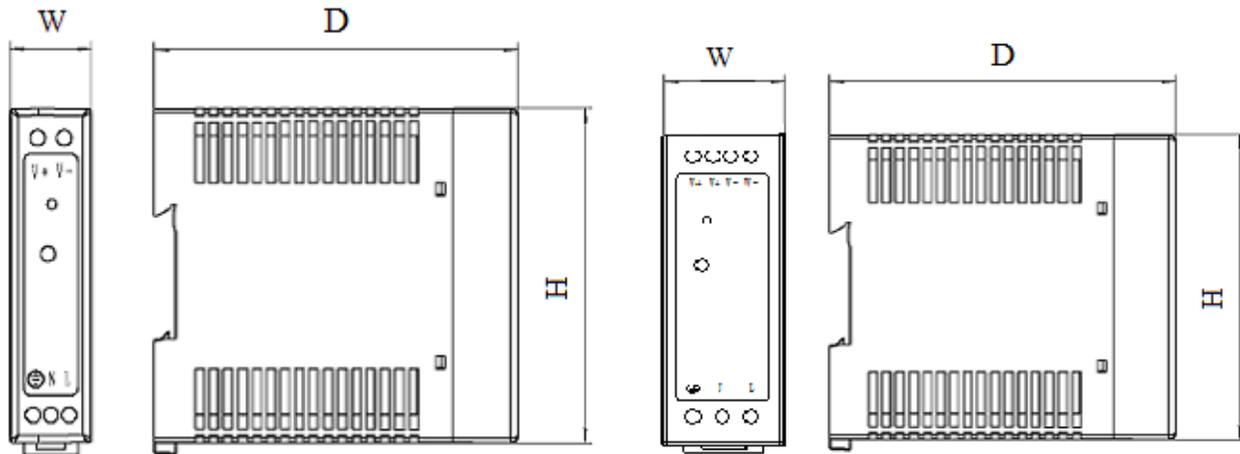
Plastic/Metal Cases	Case Material	Output Power (Watts)	Output Voltage (VDC)	Voltage Adj. Range	Output Current (A)	Peak Current (A)	Input Voltage (VAC)	UL/CE/EN/ISA				S T O C K
								508/60950	12.12.01	UL 1604 ISA 1310	61000	
<b>SINGLE-PHASE INDUSTRIAL DIN-MOUNT POWER SUPPLIES</b>												
MDP18-12A-1C	P	18	12	10.8 --13.8	1.67 – 1.30	1.80	90-264	X	X	X	X	X
MDP18-24A-1C	P	18	24	21.6 --28.8	0.83 – 0.63	0.94	90-264	X	X	X	X	X
MDP30-5-1	P	20	5	4.5 -- 5.5	4.44 – 3.64	4.44	90-255	X	X		X	X
MDP30-5A-1C	P	30	5	5.0 – 5.5	6.00 – 5.50	8.03	85-264	X	X		X	X
MDP30-5A-1CS	P	20	5	4.5 – 5.5	4.00 – 3.60	5.60	85-264	PROPOSED Q1 2017				
MDP30-12-1	P	30	12	10 -- 14	3.00 – 2.14	3.00	90-255	X	X		X	X
MDP30-12A-1C	P	30	12	12 -- 14	2.50 – 2.10	3.45	85-264	X	X	X	X	X
MDP30-12A-1CS	P	24	12	11.4 – 15.6	2.00 – 1.60	2.80	85-264	PROPOSED EQ1 2017				
MDP30-15-1	P	30	15	14 -- 18	2.14 – 1.67	2.14	90-255	X	X		X	X
MDP30-24A-1C	P	30	24	24 -- 28	1.25 – 1.05	1.71	85-264	X	X	X	X	X
MDP30-24A-1CS	P	30	24	22.5 – 28.5	1.25 – 1.00	1.75	85-264	X			X	X
MDP50-12-1	P	50	12	10 -- 14	5.00 – 3.57	5.00	90-255	X			X	X
MDP50-12A-1CS	P	48	12	11.4 – 15.6	4.00 – 3.20	6.00	85-264	PROPOSED Q1 2017				
MDP50-24-1	P	50	24	22 -- 28	2.27 – 1.79	2.27	90-255	X			X	C/F
MDP50-24A-1CS	P	50	24	22.5 – 28.5	2.10 – 1.70	3.15	85-264	X			X	X
MD60-12-1	P	60	12	10 -- 16	4.50 – 3.80	5.40	85-264	X	X		X	X
MDP60-12A-1C	P	60	12	12 – 14	5.00 – 4.25	5.85	85-264	X	X		X	X
MD60-24-1	M	60	24	22 -- 28	2.50 – 2.10	3.00	85-264	X	X		X	X
MDP60-24A-1C	P	60	24	24 -- 28	2.50 – 2.10	3.25	85-264	X	X	X	X	X
MDP70-24A-1CS	P	72	24	22.5 – 28.5	3.00 – 2.70	4.2	85-264	PROPOSED Q1 2017				
MD60-48-1	M	60	48	46 -- 52	1.25 – 1.15	1.50	85-264	X	X		X	X
MDP100-12A-1C	P	100	12	11.4 --14.5	8.40 – 6.90	10.42	90-264	X	X		X	X
MDP100-24AL-1C	P	91.2	24	22.5 --24.5	4.44 – 3.70	4.50	90-264	X	X	X	X	X
MD120-12-1	M	96	12	10 -- 16	8.00 – 6.00	9.60	85-264	X	X		X	X
MD120-12A-1C	M	120	12	11.4 --14.5	10.53 – 8.28	14.50	90-264	X	X		X	X
MD120-24A-1C	M	120	24	22.5 --28.5	5.33 – 4.21	6.85	90-264	X	X		X	X
MD120-48A-1C	M	120	48	45 -- 55	2.50 – 2.10	3.33	90-264	X	X		X	X
MD240-12A-1CS	M	190	12	11.4–14.5	16.00–13.00	23.75	88-264	X	X		X	X
MD240-24A-1C	M	240	24	22.5 – 28.5	10.00 – 8.40	13.50	90-264	X	X		X	X
MD240-24A-1CS	M	240	24	22.5–28.5	10.67 - 8.42	14.50	88-264	X	X		X	X
MD240-48-1	M	240	48	46 – 52	5.00 – 4.60	6.00	85-264	X	X		X	X
MD240-48A-1C	M	240	48	47 – 56	5.00 – 4.20	6.90	90-264	X	X		X	2017
MD480-24-1	M	480	24	22 – 28	20.00 – 17.10	24.00	85-264	X			X	X
MD480-24A-1C	M	480	24	22.5 – 28.5	21.33 – 16.84	25.00	90-264	X	X		X	X
MD480-36-1	M	480	36	34 – 40	13.30 – 12.00	16.00	85-264	X			X	C/F
MD480-48A-1C	M	480	48	47 – 56	10.00 – 8.50	12.50	90-264	X	X		X	X
MDP-PDMA-C	P	REDUNDANCY DIODE MODULE				20.00	24Vdc	X			X	X

# POWER SUPPLY QUICK SELECTOR

Plastic/Metal Cases		Case Material	Output Power (Watts)	Output Voltage (VDC)	Voltage Adj. Range	Output Current (A)	Peak Current (A)	Input Voltage (VAC)	UL/CE/EN/ISA				S T O C K
Model	508/60950								UL 1604 ISA 12.12.01	1310	61000		
<b>PANEL MOUNT IP67 RATED POWER SUPPLIES</b>													
PMIP67A50S24A (IP67)	P	50	24	N/A	2.10	2.70	90-264	X			X	C/F	
PMIP67A75S24 (IP67)	P	72	24	N/A	3.00	3.90	90-264	X			X	C/F	
PMIP67A100S24 (IP67)	P	96	24	N/A	4.17	5.40	90-264	X			X	C/F	
600700-04512	CONNECTOR, 7/8" FEMALE-STRAIGHT												C/F
600700-04513	CONNECTOR, 7/8" MALE-STRAIGHT												C/F
600700-04514	CONNECTOR, 7/8" FEMALE-90°												C/F
600700-04515	CONNECTOR, 7/8" MALE-90°												C/F
<b>TWO-PHASE &amp; THREE-PHASE INDUSTRIAL DIN-MOUNT POWER SUPPLIES</b>													
MDP100-24-2C (2-PH)	p	100.8	24	22.5 – 28.5	4.20 – 3.50	5.40	340-575	X	X		X	X	
MDP100-12-2C (2-PH) VRH100-12	p	100.8	12	11.2 – 14.5	8.40 – 6.90	10.75	340-575	X	X		X	X	
MD120-24-3C (3-PH)	M	120	24	22.5 – 28.5	5.00 – 4.20	6.50	340-575	X	X		X	X	
MD240-24-3C (3-PH)	M	240	24	22.5 – 28.5	10.67 – 8.42	14.00	340-575	X	X		X	X	
MD480-24-3C (3-PH)	M	480	24	22.5 – 28.5	21.33 – 16.84	27.00	340-575	X	X		X	X	
MD960-24-3C (3-PH)	M	960	24	22.5 – 28.5	42.67 – 33.68	56.00	340-575	X	X		X	X	
<b>BUILDING AUTOMATION STYLE INDUSTRIAL DIN-MOUNT POWER SUPPLIES</b>													
MDP10-5-1CBA	p	7.5	5	N/A	1.50	2.10	90-264	X	X	X	X	EVAL	
MDP10-12-1CBA	p	10	12	N/A	0.83	1.16	90-264	X	X	X	X	EVAL	
MDP10-15-1CBA	p	10	15	N/A	0.67	0.94	90-264	X	X	X	X	EVAL	
MDP10-24-1CBA	p	10	24	N/A	0.42	0.59	90-264	X	X	X	X	EVAL	
MDP24-5-1CBA	p	15	5	5.0 – 5.5	3.00 – 2.70	3.90	90-264	X	X	X	X	EVAL	
MDP24-12-1CBA	p	24	12	12.0 – 14.0	2.00 – 1.70	2.60	90-264	X	X	X	X	EVAL	
MDP24-15-1CBA	p	24	15	13.5 – 16.5	1.60 – 1.40	2.08	90-264	X	X	X	X	EVAL	
MDP24-24-1CBA	p	24	24	24.0 – 28.0	1.00 – 0.85	1.30	90-264	X	X	X	X	X	
MDP34-5-1CBA	p	22.5	5	5.0 – 5.5	4.50 – 4.00	5.85	90-264	X	X	X	X	EVAL	
MDP34-12-1CBA	p	33	12	12.0 – 14.0	2.75 – 2.30	3.58	90-264	X	X	X	X	EVAL	
MDP34-15-1CBA	p	36	15	13.5 – 16.5	2.40 – 2.10	3.12	90-264	X	X	X	X	EVAL	
MDP34-24-1CBA	p	36	24	24.0 – 28.0	1.50 – 1.25	1.95	90-264	X	X	X	X	X	
MDP60-5-1CBA	p	35	5	5.0 – 5.5	7.00 – 6.30	9.10	90-264	X	X	X	X	EVAL	
MDP60-12-1CBA	p	54	12	12.0 – 14.0	4.50 – 3.80	5.85	90-264	X	X	X	X	EVAL	
MDP60-15-1CBA	p	60	15	13.5 – 16.5	4.00 – 3.60	5.2	90-264	X	X	X	X	EVAL	
MDP60-24-1CBA	p	60	24	24.0 – 28.0	2.50 – 2.10	3.25	90-264	X	X	X	X	X	
MDP75-5-1CBA	p	60	5	5.0 – 5.5	12.00 – 10.50	15.25	90-264	X	X		X	EVAL	
MDP75-12-1CBA	p	72	12	12.0 – 14.0	6.00 – 5.10	7.68	90-264	X	X		X	EVAL	
MDP75-15-1CBA	p	75	15	13.5 – 16.5	5.00 – 4.50	6.40	90-264	X	X		X	EVAL	
MDP75-24-1CBA	p	100.8	24	24.0 – 28.0	4.20 – 3.60	5.38	90-264	X	X		X	X	
MDP100-24L-1CBA	p	91.2	24	20.0 – 24.2	3.80 – 3.70	4.10	90-264	X	X	X	X	EVAL	
<b>UPS DEVICES AND BATTERY HOLDERS</b>													
MD-VSB240-24-1	M	240	24	24VDC/240WATT VOLTAGE SAG BUFFER/UPS				X			X	C/F	
DRU30-12/MDPU30	p	360	12	12VDC/30A UPS MODULE				X			X	X	
DRU30-24/MDPU30	p	720	24	24VDC/30A UPS MODULE				X			X	X	
MD-DINBRKTA	M	DIN-MOUNT L.A.B. BRACKET. MAX BATTERY DIMENSION: 134x62x134MM										C/F	
MD-DINBRKTB	M	DIN-MOUNT L.A.B. BRACKET. MAX BATTERY DIMENSION: 88x57x97MM										C/F	

# MDP SERIES - SINGLE PHASE/TWO PHASE

## Plastic Case DIN Rail Power Supply Dimensions



(MDP18, MDP30, MDP30-1CS)

(MDP30-1C, MDP50, MDP50-1CS, MDP60,  
MDP70-1CS, MDP100-1C, MDP100-2C  
MDP-PDMA-C, DRU30-xx/MDPU30)

### Model Comparison

Model	W (Width)	D (Depth)	H (Height)	Weight	Connectors	Torque lb/in
MDP18	0.89"(22.5mm)	4.49"(114mm)	3.60" (90mm)	0.33lbs (150g)	IN/OUT: AWG 26-12	IN/OUT 5
MDP30	0.89"(22.5mm)	4.02"(102mm)	3.60" (90mm)	0.35lbs (160g)	IN/OUT: AWG 22-12	IN/OUT 5
MDP30-1C	1.59"(40.5mm)	4.49"(114mm)	3.60" (90mm)	0.60lbs (270g)	IN/OUT: AWG 26-12	IN/OUT 5
MDP30-1CS	0.89"(22.5mm)	3.94"(100mm)	3.60" (90mm)	0.30lbs(140g)	IN/OUT: AWG 24-14	IN/OUT 5
MDP50	1.26" (32mm)	4.02"(102mm)	3.60"(90mm)	0.51lbs (230g)	IN/OUT: AWG 22-12	IN/OUT 5
MDP50-1CS	1.18"(30mm)	3.94"(100mm)	3.60" (90mm)	0.44lbs(200g)	IN/OUT: AWG 24-14	IN/OUT 5
MDP60-1C	1.59 (40.5mm)	4.49"(114mm)	3.60" (90mm)	0.75lbs (340g)	IN/OUT: AWG 26-12	IN/OUT 5
MDP70-1CS	1.59"(40.5mm)	3.94"(100mm)	3.60" (90mm)	0.55lbs(250g)	IN/OUT: AWG 24-14	IN/OUT 5
MDP100-1C	2.13" (54mm)	4.49"(114mm)	3.60" (90mm)	0.95lbs (430g)	IN/OUT: AWG 24-10	IN 9/OUT 5.5
MDP100-2C	2.13" (54mm)	4.49"(114mm)	3.60" (90mm)	1.10lbs (500g)	IN/OUT: AWG24-10	IN 9/OUT 5.5
MDP-PDMA-C	2.13" (54mm)	4.49"(114mm)	3.60" (90mm)	0.50lbs (210g)	IN/OUT AWG24-10	IN 9/OUT 5.5
DRU30-xx/ MDPU30	2.13" (54mm)	4.49"(114mm)	3.60" (90mm)	0.82lbs(370g)	IN/OUT AWG 18-8	IN 9/Relay 5

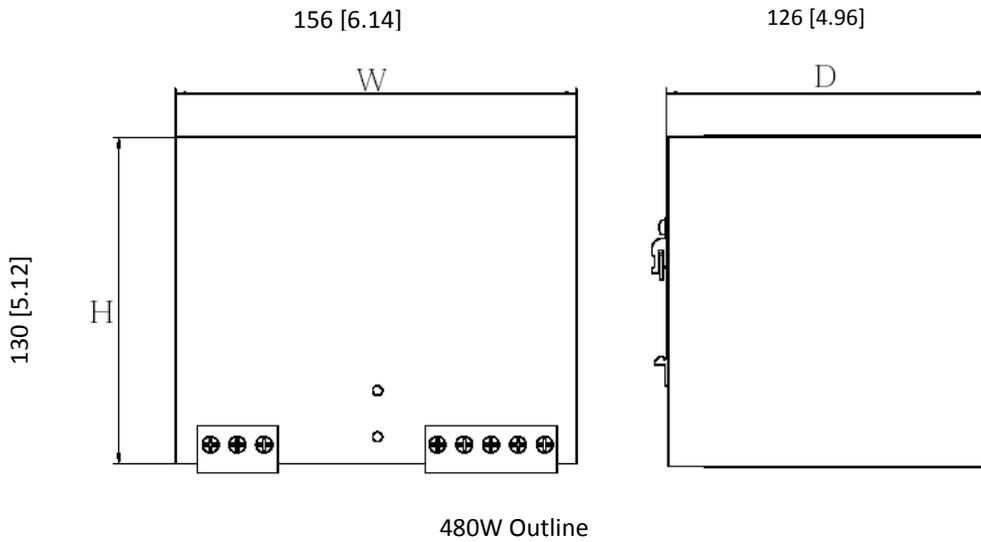
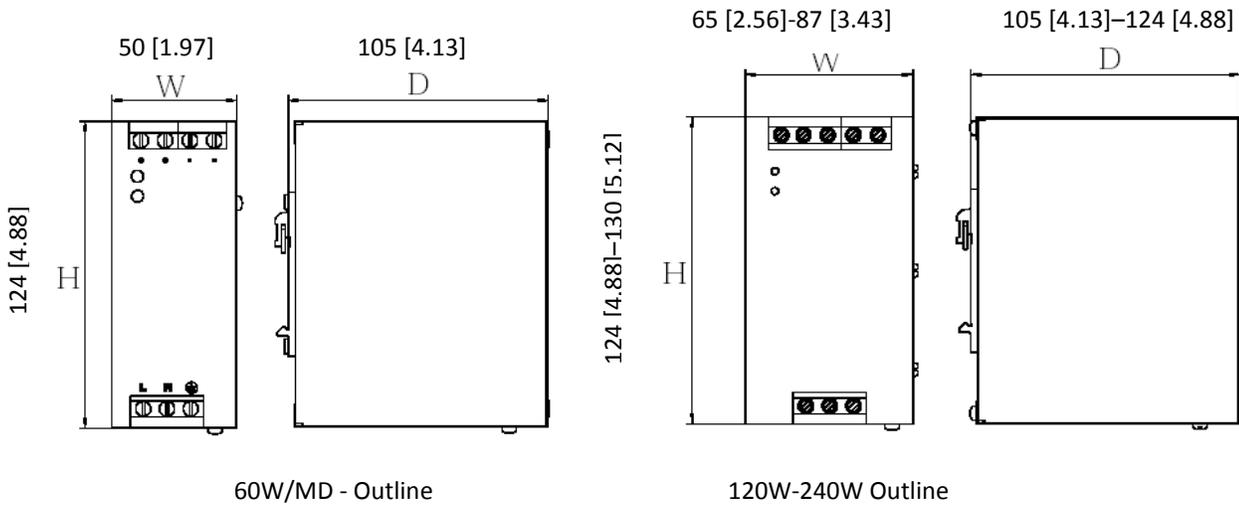
### GENERAL TOLERANCE

0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]

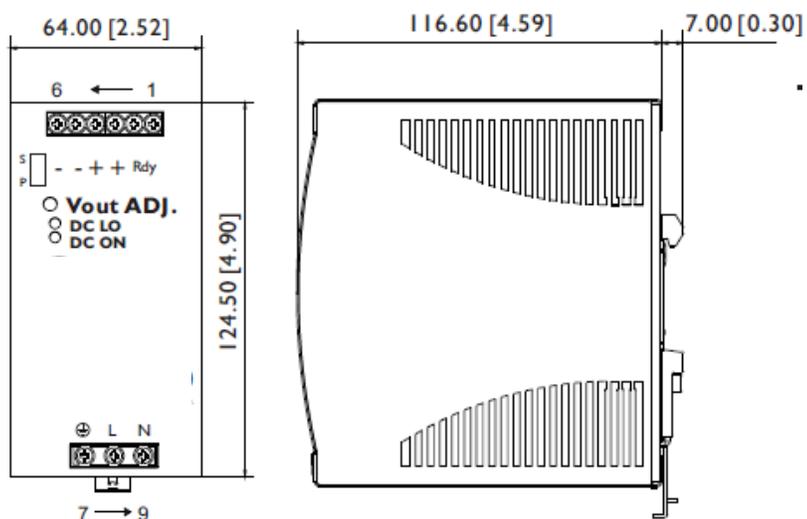
# MD SERIES – SINGLE PHASE

## Metal Case DIN Rail Power Supply Dimensions

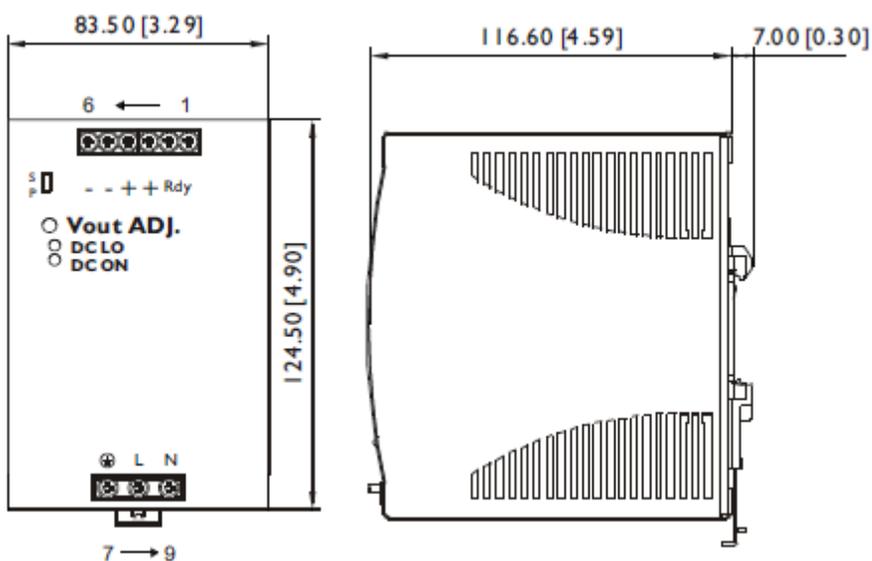
### MD60-xx-1 – MD480-xx-1 Dimensions



## MD120-xxA-1C and MD240-xxA-1CS Dimensions

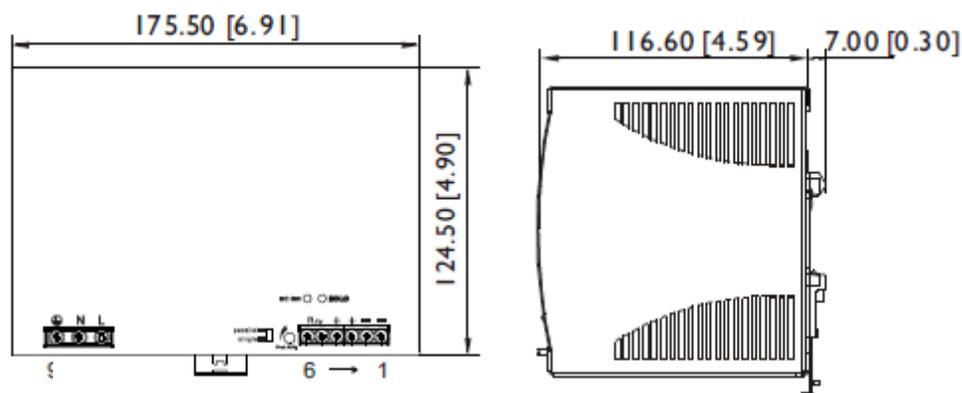


## MD240-xxA-1C Dimensions



**MICRON ALSO OFFERS THE ImperviTRAN™ LINE OF CONTROL TRANSFORMERS PLUS SINGLE, THREE PHASE LVGP AND BUCK-BOOST TRANSFORMERS PLUS SPECIALTY CHOKES AND INDUCTORS**

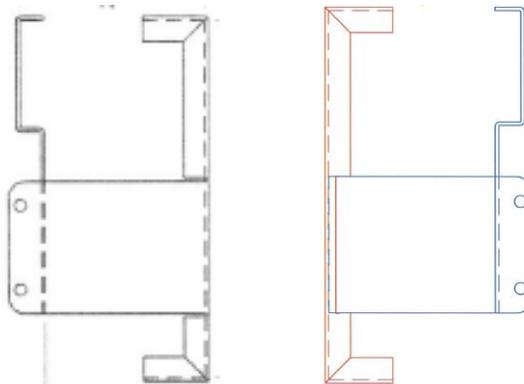
## MD480-xxA-1C Dimensions



## Model Comparison

Model	W (Width)	D (Depth)	H (Height)	Weight	Connectors	Torque lb/in
MD60	1.97" (50)	4.13" (105)	4.88" (124)	1.08lbs (490g)	IN/OUT: AWG 24-10	4.4
MD120	2.56" (65)	4.13" (105)	4.88" (124)	1.65lbs (750g)	IN/OUT: AWG 24-10	4.4
MD120-1C	2.52" (64)	4.59" (117)	4.90" (124.5)	2.03lbs (920g)	IN/OUT: AWG 24-10	IN 9/OUT 5.5
MD240	3.43" (87)	4.88" (124)	5.12" (130)	2.87lbs (1300g)	IN/OUT: AWG 21-12	4.4
MD240-1C	3.29" (83.5)	4.59" (117)	4.90" (124.5)	3.04lbs (1380g)	IN/OUT: AWG 24-10	IN 9/OUT 5.5
MD240-1CS	2.52" (64)	4.59" (117)	4.90" (124.5)	2.03lbs (920g)	IN/OUT: AWG 24-10	IN 9/OUT 5.5
MD480	6.14" (156)	4.96" (126)	5.12" (130)	4.96lbs (2250g)	IN/OUT: AWG 20-6	7.0
MD480-1C	6.91" (175.5)	4.59" (117)	4.90" (124.5)	4.23lbs (1920g)	IN/OUT: AWG 24-10	IN 9/OUT 5.5
MD-DINBRKTA	5.38" (135)	3.13 (80)	5.50 (140)	1.08lbs (490g)	IN/OUT: AWG 16	N/A
MD-DINBRKTB	3.56 (90)	3.19 (80)	4.00 (102)	0.75lbs (340g)	IN/OUT: AWG 16	N/A

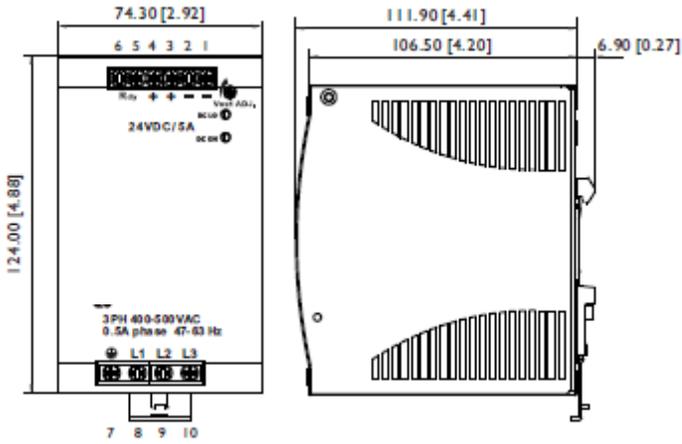
## DIN-MOUNT BATTERY HOLDER KITS



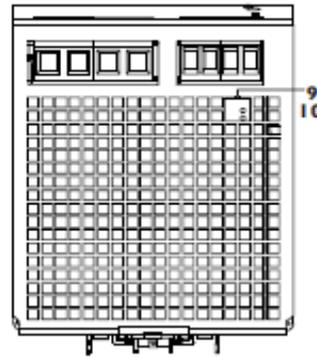
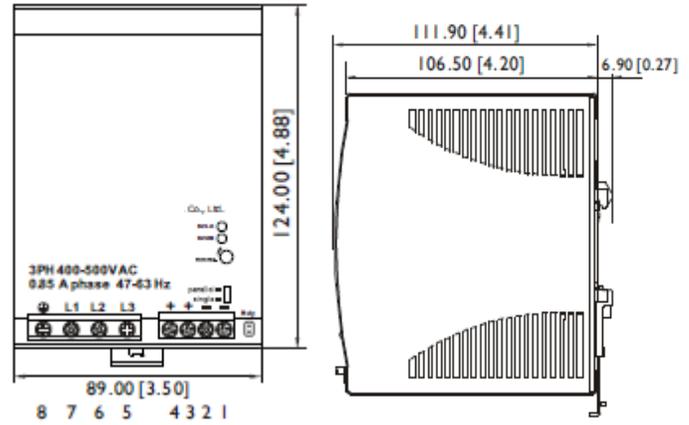
# MD SERIES – THREE PHASE

## MD120-xx-3C – MD960-xx-3C Dimensions

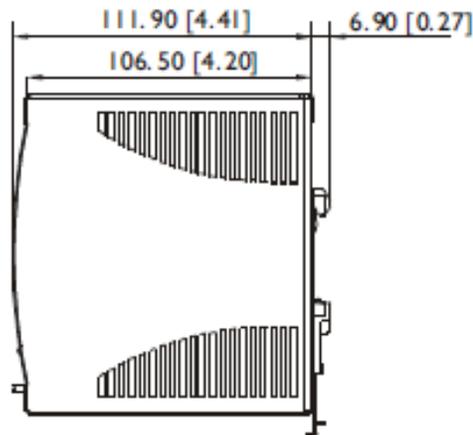
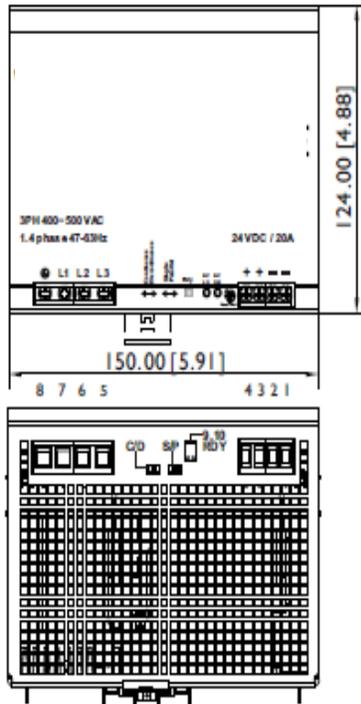
### MD120-xx-3C



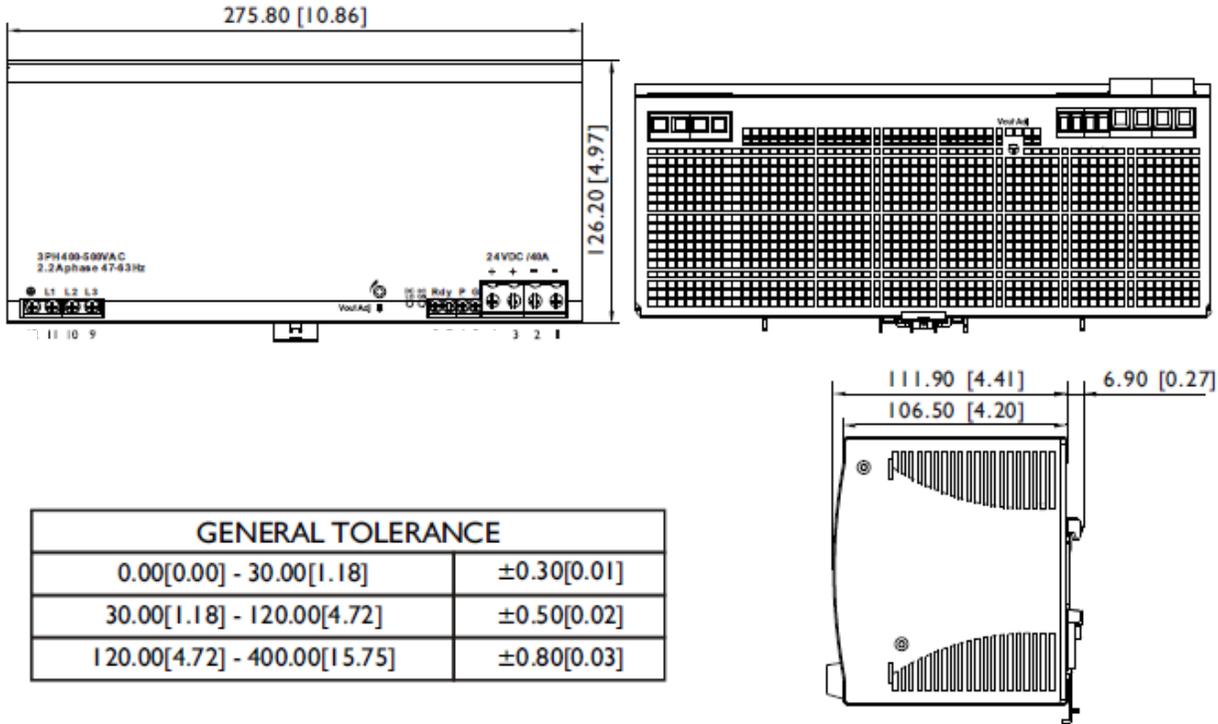
### MD240-xx-3C



### MD480-xx-3C



## MD960-xx-3C Dimensions



## Model Comparison

Model	W (Width)	D (Depth)	H (Height)	Weight	Connectors	Torque lb/in
MD120-3C	2.92" (74.3)	4.41" (112)	4.88" (124)	1.76lbs (800g)	IN/OUT: AWG 24-10	IN 9/OUT 5.5
MD240-3C	3.50" (89)	4.41" (112)	4.88" (124)	2.43lbs (1100g)	IN/OUT: AWG 24-10	IN 9/OUT 5.5
MD480-3C	5.91" (150)	4.41" (112)	4.88" (124)	3.80lbs (1720g)	IN/OUT: AWG 24-10	IN 9/OUT 5.5
MD960-3C	10.86 (276)	4.41" (112)	4.97" (126)	7.50lbs (3400g)	IN: AWG 24-10 OUT: AWG 20-6	IN 9/OUT 5.5

## Basic Specifications

For individual product detail, please refer to the four-page PDF technical document for each power supply listing (Wattage & Single/Two/Three Phase). Contact Micron Industries Corporation, +1 630 516 1222 or [www.micronpower.com](http://www.micronpower.com).

- All **DINergy** products are cUL Listed to UL508/60950-1 and CE Certified to EN 61000 specifications.
- Virtually all **DINergy** products qualify to UL 1604; Class 1, Division 2 requirements.
- Many **DINergy** products are classified to UL 1310; Class 2 – current limiting applications.
- All **DINergy** products, excepting UL 1310, are capable of at least 120% rated load.
- All **DINergy** products carry a 3-year warranty.

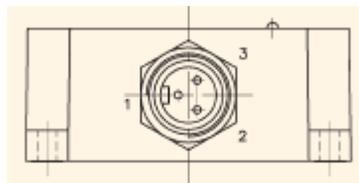
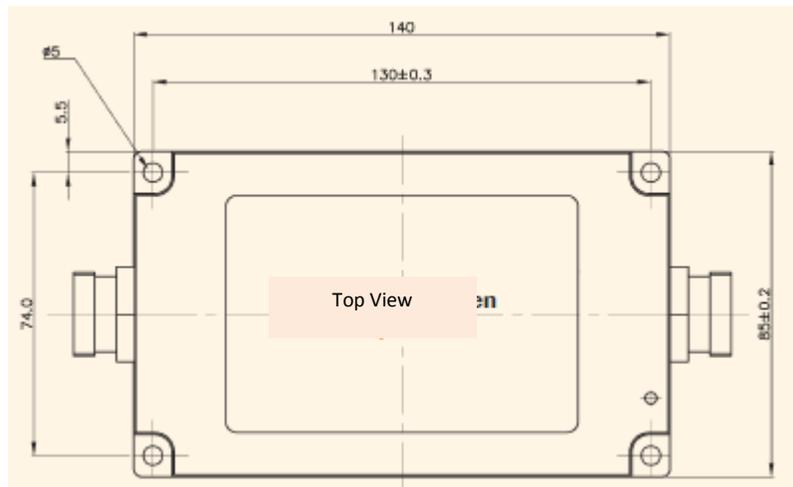
**Micron also offers engineered designs such as UPS Modules,  
Power supplies for battery backup,  
Encapsulated power supplies,  
Open frame power supplies**

**Individual four-page technical PDF's are available for all *DINergy* power supplies**

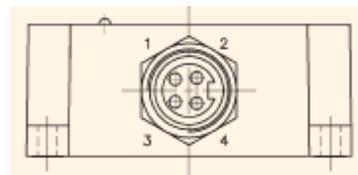
# PM SERIES ENCAPSULATED

## DIN-Mount, Non-Metallic Power Supplies

### PM-IP67A50 S24, PM-IP67A75 S24 and PM-IP67A100 S24 Dimensions

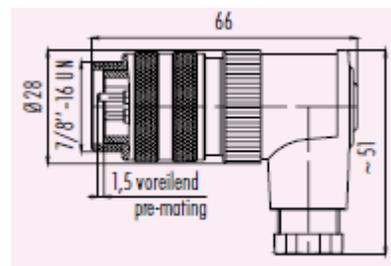
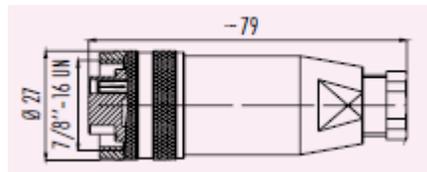


1	2	3
nc	AC <sub>In</sub>	AC <sub>In</sub>



1	2	3	4
+U <sub>1</sub>	+U <sub>1</sub>	GND	GND

### CONNECTORS SOURCED SEPARATELY (Binder 820 Series) 7/8"



Part Number	Description
600700-04512	Connector, 7/8" Female-Straight
600700-04513	Connector, 7/8" Male-Straight
600700-04514	Connector, 7/8" Female-90°
600700-04515	Connector, 7/8" Male-90°

# MICRON “CBA SERIES” LOW PROFILE POWER SUPPLIES

Small enclosure, big job?

You need a power supply with full features, plus a low profile.

Look to the “CBA Series” of low profile building automation style power supply that is also UL508 Listed, UL1310

Recognized plus ISA 12.12.01 approved!

Choices from 7.5 – 100.8 watts; 5, 12, 15 and 24 Vdc in five frame sizes.



## MECHANISM & PIN CONFIGURATION

mm [inch]



Example: MDP60-24-1CBA

Pin assignment:

1,2 - Negative output

3,4 + Positive output

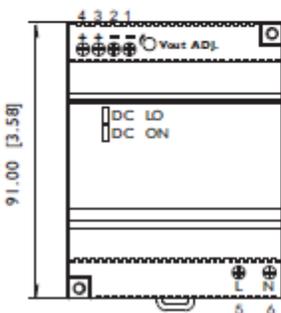
5 L Input Terminal

6 N Neutral input

V<sub>out</sub> Voltage adjustment

DC ON Operation LED

DC LO V<sub>out</sub> low LED



The full featured Micron “CBA Series” was designed for building automation but is fully functional in the industrial environment as well. Available five different frame sizes in wattages from 7.5 through 100.8 including a 91.2 watt/24Vdc Class 2 design.

## FEATURES

- Agency approvals: UL 508 Listed, UL 1310 Class 2 Recognized and ISA 12.12.01 (UL1604) Approved
- Series available from 7.5 watts @ 5Vdc through 100.8 watts @ 24Vdc with DC output choices of 5V, 12V, 15V and 24Vdc
- Low Profile Design Only 52MM off the rail
- Full feature design  
Wide input: AC: 90/264; DC: 120/375  
Operational from -40° through +71°C  
MTBF of up to 970,000 hrs
- Cost efficient design and pricing

## BENEFITS

- Can be used for industrial control as well as building automation applications
- Serves a wide range of applications from logic control to building automation and industrial control and includes a UL 1310 Class 2, 24Vdc design at 91.2 watts
- 55% more headroom than comparable Industrial power supplies. Solves low clearance issues
- Both DC “OK” and DC “low” LEDs, adjustable output voltage and performance normally reserved for industrial power supplies
- Project problems solved within budget

SERIES “XX” = VOLTS OUT	VOLTS OUT	RATED WATTS	VOLTS OUT	RATED WATTS	VOLTS OUT	RATED WATTS	VOLTS OUT	RATED WATTS
MDP10-XX-1CBA	5*	7.5	12*	10	15*	10	24*	10
<b>MDP24-XX-1CBA</b>	5*	15	12*	24	15*	24	<b>24*</b>	<b>24</b>
<b>MDP34-XX-1CBA</b>	5*	22.5	12*	33	15*	36	<b>24*</b>	<b>36</b>
<b>MDP60-XX-1CBA</b>	5	35	12*	54	15*	60	<b>24*</b>	<b>60</b>
<b>MDP75-XX-1CBA</b>	5	60	12	72	15	75	<b>24</b>	<b>100.8</b>
MDP100-24L-1CBA							24*	91.2

Entire series is UL 508 Listed  
Entire series carries ISA 12.12.01; CL1, Div2 rating  
All marked “\*” are UL 1310; Class 2 power limited  
**Bold:** stock

DIMENSIONS	IN WIDTH MM		IN DEPTH MM		IN LENGTH MM	
MDP10-XX-1CBA	0.71	18	2.05	52	3.58	91
MDP24-XX-1CBA	1.38	35	2.05	52	3.58	91
MDP34-XX-1CBA	2.09	53	2.05	52	3.58	91
MDP60-XX-1CBA	2.80	71	2.05	52	3.58	91
MDP75-XX-1CBA	3.54	90	2.07	53	3.58	91

## What is a DC Power Supply:

Industrial power supplies take an AC voltage input and produce a DC voltage output. Most will also take a DC input as well. A DC-DC device is commonly referred to as a CONVERTER. Industrial power supplies are typically mounted to a DIN-Rail but can be directly mounted to the controller or to the electronic board. Micron's "MDP" and "MD" Series are designed as DIN-Mountable product. The MTM Power product can be purchased as DIN-Mount, Chassis Mount or PCB-Mount. All are defined as "switching power supplies".

### TERMS:

**Switching power supply, Switched mode, SMPS:** An electronic power supply that incorporates a switching regulator in order to be highly efficient in the conversion of electrical power.

**Linear power supply:** Linear power supplies do not incorporate high frequency electronic switching. They can produce less harmonic feedback (noise), but are heavier and less efficient than switchers.

**Wattage:** Volts X Amps. Determined from the output side. (24V X 5A=120W)

**Negative voltage:** A negative output in reference to ground. Negative output in combination with positive output is often used to increase on/off switching speed of transistors in digital circuits. The telecommunications industry commonly uses -48Vdc.

**Hiccup, fold back, crowbar, active crowbar:** As applies to power supplies, it is a protective circuit that causes the output of the power supply to drop out if there is an overcurrent, over voltage or short circuit fault. All methods describe protection circuits.

**Universal (autoranging) input Vs Autoselect input VS Switch selectable input:** Universal input allows any voltage within the entire tolerable range to be connect to mains. Autoselect input normally has two automatic input ranges ie: 88-136 and 200-264 but may not operate reliably at 140-260. Switch selectable input utilizes a user operated switch to operate in either low or high voltage range.

**Auto-restart:** the ability of a power supply to reset itself after a fault condition without manual intervention.

**Chassis mount:** The power supply can be bolted directly to the interior control panel. Typically fan-cooled above 200 watts. The fan is a source of failure on many units.

**PCB mount:** The power supply has contact pins which are directly solderable to a Printed Circuit Board.

**Building automation style:** Typically the same construction and approvals as Industrial power supplies but packaged in a much shallower plastic case which allows mounting within wall studs.

**UL 1310 Class 2:** Output power is certified to be limited to less than a total of 100 watts.

**UL 1604 Hazardous Location:** (now ISA 12.12.01). The power supply is certified by UL not to exceed combustible temperatures in operation.

**Paralleling:** The ability to wire multiple units either to obtain higher output voltage, wattage or redundancy. Some units utilize a paralleling circuit which interconnects both supplies' control loops. Wiring in series for higher voltage is also termed "paralleling".

**Hold-up Time:** The timespan that output will remain when the primary power is cut. Measured at rated load and normally only a few milliseconds.

**Decoupling Module:** Also called a Redundancy Module. The device installs between multiple power supplies and allows each to evenly share a portion of the load. If one fails the other picks up the full load thereby averting a shutdown of critical equipment. The module is, in essence, a diode array which prevents feedback should one power supply fail. A number of *DINergy* products are equipped with a built-in diode array, which is activated by an on-board switch.

**Power Boost:** The ability of a power supply to support higher than nameplate wattage before allowing the output voltage to drop below an acceptable level or going into hiccup mode. Normally varies from 105% to 150% of rated output.

**Constant Current:** A power supply that will provide greater than nameplate current at the expense of nameplate voltage.

**Constant Voltage:** A power supply that will supply nameplate voltage until a designed overcurrent cut-off point, at which point it will shut down.

**MTBF:** Mean Time Between Failure. Average life expectancy. Normally expressed in hundreds of thousands of hours.

**Derating Curve:** Normally refers to the calculation that measures available output power as a function of ambient temperature.

**DC "OK" Output:** Available terminal outputs that allow a remoted LED or indicator to signal a low voltage or power-out condition.

**TYPICAL POWER SUPPLY QUESTIONS:**

<p><i>Why are there multiple output terminals?</i></p>	<p>If the power supply has two positive (++) and two negative (--) terminals they are meant to be all connected. The reason the terminals are duplexed is to provide ample current carrying capabilities for both the terminals and wires.</p>
<p><i>What are the suggested fusing values for input/output?</i></p>	<p>Input: 125% of FLA should be in line with current code. Note that due to input capacitors, the power supply is capable of producing high inrush currents. Output: 100% FLA for electronic applications; 125% for motor applications (to account for inrush).</p>
<p><i>I am getting no output. Why?</i></p>	<p><b>First</b>, make sure that the power feeding the power supply is good. (Autoranging) power supply's operating range is from 85-265V; (auto-select) power supplies may not operate reliably with an input voltage falling between the high and low ranges. <b>Second</b>, make sure the connection to the primary terminals are within the clamps and secure. <b>Third</b>, make sure that the output wires are connected to a (+) and a (-) terminal. In many cases the power supply must be connected to both positive and both negative terminals in order to properly carry the full load. If the power supply still does not operate after assuring the above, assume it has failed. The power supplies have an internal fuse. However, they typically only trip due to catastrophic failure and are not designed to be user replaceable.</p>
<p><i>The DC OK lamp just blinks</i></p>	<p>The power supply is in "hiccup" mode. It is trying to energize but may be seeing too high of an amp draw on the secondary side. Try disconnecting the load and see if the power supply output stabilizes. The power supply should be able to carry a load of up to 25% - 50% over nameplate rating before shutting down. The DC – OK lamp will also blink if the input voltage is below minimums.</p>
<p><i>Can I wire in series for higher voltage?</i></p>	<p>Yes, two can be wired in series to provide a higher output voltage. Make sure that the maximum Current is no more than the rated load of the smallest power supply used. <b>EXAMPLE:</b> If you put an MD240-12A-1CS (12V @ 20A) in series with an MD240-24A-1CS (24V @ 10A) to obtain 36V, the maximum current must be 10A.</p>

<p><b>How can I get more power?</b></p>	<p>Up to three units can be wired in parallel to increase the available output current. If one of the units fails the other will go into hiccup mode due to an overcurrent situation.</p> <p>Note that in both examples the system must be balanced. That is, the wires the same length and gauge, the terminals evenly torqued and both output voltages equal. Failure to do this will cause one power supply to carry the load at the expense of the other.</p>
<p><b>Do I need a redundancy module?</b></p>	<p>Also called a "diode module", redundancy devices are used when a system cannot shut down for loss of a single power supply. Two power supplies are connected in parallel with both secondaries feeding into the module. The load is then "shared" with each power supply carrying a portion of the total load. If one power supply fails, the module shifts full power to the remaining, provides a feedback buffer through the diode array and can provide for a DC-OK check signal to warn of a failure. A number of the <b>DINergy</b> products of 100 watts and larger contain a built-in diode array allowing redundant paralleling without the need for a diode module. In super critical applications where electrical failure cannot be tolerated, a Sag Buffer and/or battery backup system may also be employed.</p>
<p><b>Can the redundancy module operate at other than 24Vdc?</b></p>	<p>No. The MDP-PDMA-C module is designed to operate at 24Vdc. The on-board parallel switch found on many units both eliminates the redundancy module and allows for other than 24Vdc redundant parallel operation.</p>
<p><b>Do I need to restart the power supply once it shut down?</b></p>	<p>No. The DINergy products will auto restart once an overvoltage or overload fault has been removed.</p>
<p><b>Are the power supplies Class 2?</b></p>	<p>Yes. Class 2 power limited, LPS and UL1310 all refer to a design which will not allow output above a 100 watt maximum. A number of the lower wattage power supplies are UL 1310 listed.</p>
<p><b>What is a Sag Buffer?</b></p>	<p>Technically, a Sag Buffer is a capacitor circuit that connects between a power supply output and the load. The charged capacitor provides voltage to ride through voltage sags of short duration (from 700 milliseconds to 10 seconds), depending on load, to allow a system an orderly shut-down. The DINergy Sag Buffer also has a battery connection that with battery installed will seamlessly transition the 24Vdc power for a longer period dependent on battery size and load. In normal mode the Sag Buffer provides a charging circuit for the battery. In this mode the Sag Buffer performs as a UPS. Micron also offers both a 12Vdc and 24Vdc UPS controller capable of controlling a 30A load.</p>
<p><b>Can the power supply operate with a DC input?</b></p>	<p>Virtually all of the <b>DINergy</b> product can operate with a DC input. Those with <i>autoranging</i> capability can accept as low as 120Vdc while those with <i>autoselect</i> capability normally accept a DC input in conjunction with the higher AC voltage range.</p>



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