

PROCESSPOWER®

UPS System

Industrial PWM Uninterruptible Power Supply System

Single Phase 5-80 kVA

The Digital PROCESSPOWER (DPP) UPS from AMETEK Solidstate Controls is a true on-line, double conversion Uninterruptible Power Supply system that provides continuous, clean, regulated power for critical AC loads. Designed specifically for process control and industrial applications, the DPP systems utilize state of the art PWM technology, incorporating high power IGBT semiconductors, and digital control for enhanced communications, monitoring, control and diagnostics capabilities. Also essential to the DPP design is the use of fiber optic cables for control and communications; allowing for better isolation and faster, more accurate signals between processors. The DPP designs also include an LCD panel and user-friendly touch screen display for the ultimate in User control.



The Purpose of our business is to provide continuity of electrical power to keep businesses in business.



*The Columbus, Ohio facility
is ISO 9001 Certified*

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Brazilian Portuguese: www.solidstatecontrolsinc-bz.com

THE POWER BEHIND THE PROCESS™

PROCESSPOWER UPS System

LCD and Touch Screen User Interface Panel



Shown with optional indicator lights

Keypad Controls and Switches

- Float/Equalize Initialization w/Light
- Battery Test Initialization
- Inverter to Load w/Light
- Bypass to Load w/Light
- Static Switch Reset Retransfer
- Latching Alarm Reset
- Audible Alarm Silence
- Display On
- Inverter Enable (On/Off) Switch

Standard Mimic Screen (LCD Panel) Indicators

- Equalize Time Remaining
- Charger Status (OK/Fail)
- Float/Equalize Status
- Inverter Status (OK/Fail)
- Synchronism Status (In/Out of sync)
- Static Switch Position (Inverter or Bypass)
- Manual Bypass Position (Inverter or Bypass)
- Bypass Status (OK/Fail)

Standard LED Indicators

- UPS Normal
- UPS Trouble

General Specifications-Standard Features

Circuit Breakers

- AC Input (14kAIC)
- Battery Input (10kAIC, min.)
- Bypass Input (14kAIC)

Metering (Displayed on Mimic Screen)

- DC Bus Voltage
- DC Bus Current (\pm)
- AC Output Voltage
- AC Output Current
- AC Output Frequency
- Rectifier Output Current

System Measurements (Displayed on Mimic Screen)

- Total Number of Battery Discharges
- Total Operational Time on Batteries
- Average Time on Battery per Discharge
- Historical Min/Max Battery Voltage

System Measurements (Displayed on Mimic Screen)-continued

- Recent Min/Max Battery Voltage
- Total Operation Time on UPS
- Total Operation Time on Bypass
- Total Operation Time on Inverter

Alarms (Displayed on LCD Alarm Panel)

- Fan Failure
- Charger Failure
- Low DC Voltage
- Low DC Disconnect
- Battery Breaker Open
- ST/SW Retransfer Blocked
- Battery Discharging
- Inverter Bridge Over Temperature
- IGBT Desaturation
- Overload Shutdown
- Bypass Supplying Load
- ST/SW Bridge Over Temperature

Alarms (Displayed on LCD Alarm Panel)-continued

- ST/SW SCR Failure
- Bypass Failure
- Inverter Failure

System Diagnostics (Displayed on LCD Alarm Panel)

- Loss of System Communication(s)
- Power Supply Failure(s)

Relay Controls

The following alarms also include 1 set of normally open and normally closed relay contacts rated for 120 VAC @3 amps:

- UPS Trouble (Summary)
- Bypass Supplying Load
- UPS Communications Failure (Summary)

General Specifications-Optional Features

Metering and System Measurements

- AC Input Power (Voltage and Current)
- Inverter Output Voltage
- Bypass Input Voltage
- Output Power (kVA, KW, Power Factor)
- Bypass Input Frequency
- % Inverter Loading

Circuit Breaker

- 65 KAIC AC Input and Bypass Input
- Inverter Output (non-Automatic)
- AC Output

Alarms

- Charger Overload
- High DC Disconnect
- Pos/Neg to Ground

Alarms-continued

- High/Low Bypass Source Voltage
- High/Low AC Output Voltage
- AC Input Failure
- AC Output Overload
- High/Low Inverter Output Voltage
- Out-Of-Sync
- Inverter Fuse Blown
- Inverter Off Frequency
- Bypass Off Frequency
- Static Switch Fuse Blown
- Battery Near Exhaustion
- Rectifier/Charger Fuse Blown
- Low AC Input Voltage
- High DC Voltage
- Rectifier/Charger Failure
- MBS to Bypass
- AC Input CB Open
- Bypass Input CB Open
- AC Output CB Open

Misc

- External MBS
- Rectified Configuration
- Cascade Redundant Configuration
- 10% Reflected Harmonics (Rectifier Input)
- Additional LED Indicators
- Additional Relay Contacts
- Latching Alarms
- Lamp test
- ESI (Essential System Indicator)Panel Alarm Test

Communications

- Modbus RTU
- SNMP Compatible

General Specifications-Performance Features

Battery Charger/Rectifier

· AC Input	
Nominal Voltage*	208,380,415, 480: 3-Phase/3-Wire
Input Range	± 10%
Frequency	50 or 60 Hz ± 5%
· DC Output	
DC Bus Voltage(s)	110, 120, 220, and 240 VDC
Regulation	± 1%
Ripple Voltage	<2% with battery connected
Capacity	Sized to recharge a thirty (30) min. battery to 95% of its rated capacity within eight (8) hours, while simultaneously supplying power to a fully loaded inverter
Float/Equalize	± 5% Adjustability

Inverter

· DC Input	
Nominal Voltage	110V/55 (96-128VDC)
Range/ # of Cells	120V/60 (105-140VDC)
(Lead Calcium Type)	220V/110 (192-256VDC)
	240V/120 (210-280VDC)
Battery End Voltage	1.75 end volts per cell
(Lead Calcium Type)	
· AC Output	
Inverter/UPS Ratings	5-80 kVA
Power Factor	0.8 – 1.0
AC Output voltage*	120, 220, and 240
	1-phase, 2-wire (grounded)
Regulation	± 1%
Voltage Adjustment	± 5%
Frequency	50 or 60 Hz; ± 0.1%
Crest Factor	3:1
Total Harmonic Distortion (THD)	100% linear load <3%
	100% non-linear load <5%
Transient Response	± 5% (0-100% load)
Recovery Time	< 50 msec to ± 1%
Overload Capacity	100% - continuous
	125% - 10 minutes
	150% - 1 minute

Static Switch

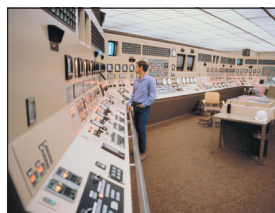
Bypass Voltage	120, 220, and 240 1-phase, 2-wire
Switch Type	Inversely paired set of SCRs

*Custom Input and Output Voltages available-consult factory

Reliability for Critical Industrial Applications



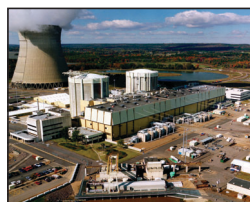
Oil Platforms



Process Control



Petrochemical



Power Generation

Failure Mode	(one set per leg) Automatically fails to Bypass
Transfer Time	Make Before break:
Sync Capture Range	0.5% to 1.5%
Slew Rate	1Hz/sec to 10Hz/sec (adjustable)
Overload Capability	125% continuous; 150% for 10 minutes; 200% for 1 minute; 1000% for 1 cycle

Manual Bypass Switch

Voltage	120, 220, and 240 1-phase, 2-wire
Mounting	Inside UPS/Inverter Enclosure
Positions	Two
Construction	Electro-Mechanical Rotary Type
Transfer Time	Make Before Break
Overload Capacity	125% continuous; 150% for 10 minutes; 200% for 1 minute; 1000% for 1 cycle

Environmental

Ambient Temperature	-5 to 40°C (23 to 104°F)
Relative Humidity	0-95% non-condensing
Operating Altitude	0-3300 meters (10,000 feet)
Audible Noise	65-72dB(A) @ 1.5 meter typical
Addition of drip shield	may increase the noise by 1-3dB (A)
Cooling	Aided Convection or Forced Air, depending on kVA rating and design

Cable Entry

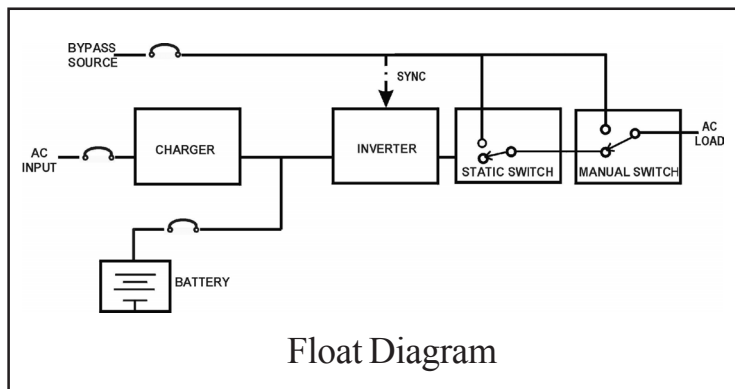
Top or Bottom Entry Standard

Mean Time Between Failure (MTBF)

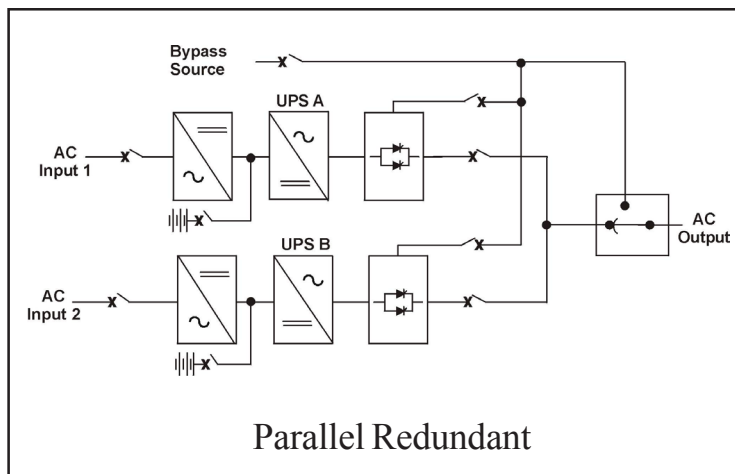
> 140,000 Hours

Cabinet Rating

Nema 1 (IP-20) (other enclosure ratings available-consult factory)



Float Diagram



Parallel Redundant

**0.8 Output Power Factor
120 VDC (60 Lead Calcium Battery Cells)**

Model	Rated Output Power		Efficiency		AC Input Amps/Phase* Voltage/Frequency			DC Current	AC Output Amps			UPS Cabinet Style	Weight		Heat Loss (Watts)
	kVA	kW	AC-DC	DC-AC	480/60	208/60	380/50	1.75 VPC	120	220	240		Lbs.	Kg.	
DPP005-**	5	4	92%	87%	11	25	14	44	42	23	21	GTD1X	765	347	998
DPP007-**	7.5	6	92%	87%	16	37	20	66	63	34	31	GTD1X	930	422	1996
DPP010-**	10	8	92%	87%	21	48	26	88	83	46	42	GTD1X	1100	499	1995
DPP015-**	15	12	92%	87%	31	70	39	131	125	68	63	GTD1X	1300	590	2993
DPP020-**	20	16	93%	87%	40	92	50	175	167	91	83	GTD1X	1500	680	3775
DPP030-**	30	24	93%	87%	59	137	75	263	250	136	125	GTD2X	1950	885	5663
DPP040-**	40	32	93%	87%	78	181	99	350	333	182	167	GTD2X	2050	930	7550
DPP050-**	50	40	93%	87%	99	228	125	438	417	227	208	GTD2X	2150	975	9438

240 VDC (120 Lead Calcium Battery Cells)

Model	Rated Output Power		Efficiency		AC Input Amps/Phase* Voltage/Frequency			DC Current	AC Output Amps			UPS Cabinet Style	Weight		Heat Loss (Watts)
	kVA	kW	AC-DC	DC-AC	480/60	208/60	380/50	1.75 VPC	120	220	240		Lbs.	Kg.	
DPP030-**	30	24	93%	89%	58	134	73	128	250	136	125	GTD1X	1950	885	4996
DPP040-**	40	32	94%	89%	76	176	97	171	333	182	167	GTD2X	2050	930	6250
DPP050-**	50	40	94%	89%	96	220	121	214	417	227	208	GTD2X	2150	975	7813
DPP060-**	60	48	94%	89%	119	276	151	257	500	273	250	GTD3X	2550	1157	9375
DPP080-**	80	64	94%	89%	153	353	193	342	667	364	333	GTD3X	3400	1542	12500

**1.0 Output Power Factor
120 VDC (60 Lead Calcium Battery Cells)**

Model	Rated Output Power		Efficiency		AC Input Amps/Phase* Voltage/Frequency			DC Current	AC Output Amps			UPS Cabinet Style	Weight		Heat Loss (Watts)
	kVA	kW	AC-DC	DC-AC	480/60	208/60	380/50	1.75 VPC	120	220	240		Lbs.	Kg.	
DPP005-**	5	5	92%	87%	15	35	20	55	42	23	21	GTD1X	940	426	1247
DPP007-**	7.5	7.5	92%	87%	20	47	26	82	63	34	31	GTD1X	1105	501	1770
DPP010-**	10	10	92%	87%	30	70	39	109	83	45	42	GTD1X	1300	590	2494
DPP015-**	15	15	92%	87%	40	93	51	164	125	68	63	GTD1X	1500	680	3539
DPP020-**	20	20	93%	87%	60	139	76	219	167	91	83	GTD2X	1950	885	4719
DPP030-**	30	30	93%	87%	81	187	102	328	250	136	125	GTD2X	2050	930	7078
DPP040-**	40	40	93%	87%	99	228	125	438	333	182	167	GTD3X	2150	975	9438

240 VDC (120 Lead Calcium Battery Cells)

Model	Rated Output Power		Efficiency		AC Input Amps/Phase* Voltage/Frequency			DC Current	AC Output Amps			UPS Cabinet Style	Weight		Heat Loss (Watts)
	kVA	kW	AC-DC	DC-AC	480/60	208/60	380/50	1.75 VPC	120	220	240		Lbs.	Kg.	
DPP030-**	30	30	93%	89%	77	178	98	161	250	136	125	GTD2X	2050	930	5859
DPP040-**	40	40	94%	89%	96	220	121	214	333	182	167	GTD2X	2150	975	7813
DPP050-**	50	50	94%	89%	119	276	151	268	417	227	208	GTD3X	2550	1157	9766
DPP060-**	60	60	94%	89%	153	353	193	321	500	273	250	GTD3X	3400	1542	11719

*Circuit Breakers are sized at a minimum of 125% of rated current

Specifications subject to change without notice

"DD"		"EE"		"FF"		"GG"		"HH"		"I"		"J"	
AC Input Volts	Code	DC Bus Volts	Code	AC Output Volts	Code	Freq.	Code	Output P.F.	Code	Charger Design	Code	UPS Config	Code
480	48	120	12	120	12	60	60	0.8	K	6-Pulse	S	Float	F
208	20	240	24	220	22	50	50	1.0	W	12-Pulse	T	Cascaded	C
380	38			240	24								

**A complete model number includes the AC input voltage, DC bus (link) voltage, AC output voltage, system frequency, output power factor, and UPS configuration. To "build" a model number, use the "code" in the matrix shown above, following the example format: DPP010-DD-EE-FF-GG-H-I-J; where DD=AC Input Voltage; EE=DC bus Voltage; FF=AC Output voltage; GG=system Frequency; H=Output Power Factor ('K' for 0.8; 'W' for 1.0); I=6 (S) or 12 (T) Pulse Charger design; J=UPS configuration ('F' for Float, 'C' for Cascaded Redundant.)

For Example: A 20 kVA with 480 volt input; 120 VDC bus voltage; 120 volt output; 60 Hz; 0.8 output power factor; 6=pulse charger; Float system would have the following model number:
DPP020-48-12-12-60-K-S-F.

For custom systems, and for units which do not have a configurable model number, insert a 'C' in the model number as follows: DPP020C.

Inches--Cabinet-Dimensions--mm

Style	H	x	W	x	D	H	x	W	x	D
GTD1X	79	x	32	x	36	2007	x	813	x	914
GTD2X	79	x	54	x	36	2007	x	1372	x	914
GTD3X	79	x	86	x	36	2007	x	2184	x	914
GTD4X	79	x	108	x	36	2007	x	2743	x	914

Certain optional features and/or combinations may require larger cabinets.
Contact factory