DPI/3DPI

Digital ProcessPower Inverter

INDUSTRIAL PWM INVERTER POWER SUPPLY SYSTEM SINGLE PHASE THREE PHASE





Industrial Pulse Width Modulated Inverter

DPI SINGLE PHASE 5-100 kVA 3DPI THREE PHASE 10-125 kVA

> The Digital ProcessPower Inverter (DPI) from AMETEK Solidstate Controls is a true on-line inverter system that provides continuous, clean, regulated power for critical AC loads. Designed specifically for process control and industrial applications, the DPI systems utilize state of the art Pulse Width Modulation (PWM) technology, incorporating high power IGBT semiconductors, and digital control for enhanced communications. monitoring, control and diagnostics capabilities.

Also essential to the DPI design is the use of fiber optic cables for control and communications; allowing for better isolation and faster, more accurate signals between processors. The DPI designs also include an LCD panel and user-friendly touch screen display for the ultimate in user control.



- True on-line inverter system
- Designed specifically for process control and harsh industrial applications
- High power IGBT semiconductors and digital control
- Fiber optic cables used for control and communications
- LCD panel and user-friendly touch
 screen display
- Offers a better transient response to step-load changes
- Digital ProcessPower has lower audible noise

The Power Behind the Process



Keypad Controls and Switches

- Inverter to Load with Light
- Bypass to Load with Light
- Static Switch Reset Retransfer
- Latching Alarm Reset
- Audible Alarm Silence
- Display On

*Standard LED Indicators: UPS Normal and UPS Trouble

Standard LCD Panel Indicators

- Inverter Status (OK/Fail)
- Synchronism Status (In/Out of Sync)
- Static Switch Position (Inverter or Bypass)
- Manual Bypass Position (Normal or Bypass)
- Bypass Status (OK/Fail)

PROCESSPOWER UPS SYSTEM LCD AND TOUCH SCREEN USER PANEL

Shown with optional indicator lights

DPI Specifications

		0.8	Load Pow	er Factor	at Rated	kVA 120 V	DC (60 Lead Calciu	um Battery Cell	s)			
Model	Rated Outpu	it Power	Efficiency	AC	Output Ar	mps	Max DC Current	Colored Challe	Weight ²		Heat Loss	
Number	kVA	kW	DC-AC	120	220	240	@ 1.75 VPC	Cabinet Style	lb	kg	(BTU/hr)	
DP1005-3	5	4	87%	42	23	21	44	GTD1X	650	295	2,039	
DP1007-3	7.5	6	87%	63	34	31	66	GTD1X	750	340	3,059	
DPI010-3	10	8	87%	83	45	42	88	GTD1X	900	408	4,079	
DPI015-3	15	12	87%	125	68	63	131	GTD1X	1,050	476	6,118	
DPI020-3	20	16	87%	167	91	83	175	GTD1X	1,150	522	8,157	
DP1030-3	30	24	87%	250	136	125	263	GTD1X	1,200	544	12,236	
DPI040-3	40	32	87%	333	182	167	350	GTD1X	1,250	567	16,315	
DPI050-3	50	40	87%	417	228	208	438	GTD2X	1,950	885	20,394	
	0.8 Load Power Factor at Rated kVA 240 VDC (120 Lead Acid Battery Cells)											
Model	Rated Outpu	it Power	Efficiency	AC	Output Ar	mps	Max DC Current		We	ight ²	Heat Loss	
Number	kVA	kW	DC-AC	120	220	240	@ 1.75 VPC	Cabinet Style	lb	kg	(BTU/hr)	
DP1030-3	30	24	89%	250	136	125	128	GTD1X	1,200	544	10,121	
DPI040-3	40	32	89%	333	182	167	171	GTD1X	1,500	680	13,495	
DP1050-3	50	40	89%	417	227	208	214	GTD2X	1,725	782	16,868	
DPI060-3	60	48	89%	500	273	250	257	GTD3X	2,050	930	20,242	
DP1080-3	80	64	89%	667	364	333	342	GTD3X	2,300	1,043	26,989	
DPI100-3	100	80	89%	833	454	417	428	GTD3X	3,300	1,497	33,737	
					N	Model Cod	ling					
	'EE"		"FF"			"C	iG"	"H"			"J"	
DC Bus Volts (code) A		AC C	C Output Volts (code) Frequer		cy (code)	Output Power Factor (code)		Configuration (code)				
110 - (11)			120 - (12)		60		60 - (60)		0.8 - (K)		Cascaded - (C)	
120 - (12)			220 - (22)		50 -	(50)			Parallel - (P)			
220 - (22)												
240) - (24)											
STAND ALONE INVERTER					Cabinet Dimensions Inches Millimeters							
				Style H x W x D H x			HxWxD					
					CTDIX	70 v	32 x 36	2 0 0 7 x 813 x 91/				



¹Circuit Breakers are sized at a minimum of 125% of rated current.

² Unit weights correspond to a 60 Hz unit. Contact factory for 50 Hz unit weight.

³ A complete model number includes the 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: DPI010-EE-FF-GC-H-J; where EE-DC bus voltage; FF-AC Output Voltage; GC=System Frequency: H=Power Factor; J=Inverter configuration (IF' for Float, 'P' for Parallel Redundant). For Example: A 30 kVA inverter with a 240 VDC bus voltage; 120 output voltage; 60 Hz would have the following model number: DPI030-24-12-60-K-C For custom systems and for units which do not have a configurable model number, insert a 'C' in the model number as follows: DPI020C

Sizes are subject to change. Top mounted cooling fans require 0.5 in (13 mm) additional height. Certain optional features and/or combinations may require larger cabinets

General Specifications -	General Specifications - Optional Features						
Standard Features	Metering and System M	easurements	(Option #)	Alarms (LCD)		(Option #)	
System Measurements (Displayed on LCD Panel) Total Operation Time on Bypass Total Operation Time on Inverter Metering (Displayed on LCD Panel)	Bypass Input Frequency Bypass Input Voltage Output Power (kVA, kW, % Inverter Loading Inverter Output Voltage	, Power Factor)	(112) (113) (114) (115) (117)	High DC Disconnect Positive/Negative to Ground High/Low Bypass Source Vo High/Low AC Output Voltag AC Output Overload High/Low Inverter Output V	l (2 relays) Itage ge 'oltage	(2) (3) (7/6) (9/8) (40) (41/42)	
DC Voltage DC Battery Current (+/-) AC Output Voltage AC Output Current AC Output Frequency Circuit Breakers DC Input (10 kAIC, minimum)	Circuit Breaker 65 kAIC Bypass Input Inverter Output (Non-Au AC Output	utomatic)	(Option #) (85) (17) (18)	Out-of-Sync (43) Inverter Fuse Blown (44) Inverter Off Frequency (45) Bypass Off Frequency (46) Battery Near Exhaustion (60) High DC Voltage (5) MBS in Bypass to Load (84)		(43) (44) (45) (46) (60) (5) (84)	
Bypass Input (14 kAIC, minimum) Alarms - All displayed on LCD Alarm Panel with options for LEDs and Relays R - Red LED Y-Relay ⁶ (Option #)			(-	Inverter Output CB Open Bypass Input CB Open AC Output CB Open Battery Time Remaining		(102) (103) (104) (157)	
Fan Failure R, Y (120) Low DC Voltage R, Y (11) Low DC Disconnect R, Y (107) Battery Breaker Open R, Y (57) Bypass Supplying Load A, Y Over Temperature R, Y (10)	Latching Alarms Lamp Test ESI (Essential System Indicator) Panel Alarm Test Precharge Circuit Emergency, Power Off		(Option #) (28) (35) (123) (132) (122) (129)	Modbus RTU (RS485 Connection) Ethernet Webpage Modbus TCP Consult Us for Additional Communication		(187) (187) (187) (187) s Options	
Slydas Failure (BPF) R, Y Inverter Failure (BPF) R, Y Inverter Failure R, Y (58) IGBT Desaturation Overload Shutdown Retransfer Blocked System Diagnostics (Displayed on LCD Alarm Panel) Loss of System Communication(s) Power Supply Failure(s)	Key Lock Enclosure Drip Shield Lifting Eye Bolts Padlockable Circuit Brea Padlockable MBS MBS with Sync Lockout DC Rated Contacts Space Heater PCB Confrormal Coating Fungus and Moisture Pr Parallel Redundant Con	akers g oof figuration	(159) (65) (105) (93) (30P) (32) (72) (88) (127) (70)	LED Indicators (C In Sync (G Bypass Available (G Inverter Available (G	olor) (reen) (reen)	(Option #) (SNK) (15) (47)	
Relay Controls	General Specifications - Performance						
of normally open and normally closed				Static Switch			
relay contacts rated for 120 VAC at 8 amps (30 VDC at 8 amps): Trouble (Summary) Bypass	DC Input Nominal Voltage 110 V/55 (96-128)		VDC)	Bypass Voltage	120, 220 VAC	2	
Supplying Load Communications Failure (Summary) Applicable Standards,	Range/ #of Cells (Lead Calcium Type)	120 V/60 (105-14 220 V/110 (192-25 240 V/120 (210-2	0 VDC) 56 VDC) 280 VDC)	Switch Type Failure Mode	Automatically fails to Bypass		
Codes and Regulations				Transfer Time	Make Before	Break	
	AC Output	1		Svnc Capture Range	0.5% to 1.5%		
ANSI/NFPA 70	Inverter/UPS Ratings Power Factor	5-100 kVA 0.8		Slew Rate	1 Hz/sec to 1 (adjustable)	0 Hz/sec	
UL/C-UL (UL1778) Unit Manufactured in ISO9001 Certified Facility	AC Output Voltage ² Regulation Voltage Adjustment	120, 220 ± 1 % ± 5 %		Overload Capability	125% continu 150% for 10 200% for 1 n 1000% for 1	uous minutes ninute cycle	
	Frequency	50 or 60 Hz; ± 0	.1%	Manual	Bypass Switch	רי ר	
	Total Harmonic Distortion (THD)	100% linear loac	1 < 3% r load < 5%	Mounting Positions	Inside UPS/II Enclosure Two	nverter	
CERTIFICATION TM	Transient Response Recovery Time	ansient Response ± 5% (0-100% load) Recovery Time < 50 millisecond to + 1%		Construction	600 VAC, ro before-break	tary drum, make- < type	
Intertek	Overload Capacity			Transfer Time	Zero in both	directions	
	Mechanical Cooling Aided Convection of Air, depending on l		on or Forced on kVA rating	Overload Capacity	150% for 10 200% for 1 n 1,000% for 1	minutes ninute cycle	
		and design (fans standard		Env	vironmental		
	Cable Entry Top or Bottom Entry Standard Cabinet Rating NEMA 1 / IP-20		Entry Standard	Ambient Temperature Relative Humidity Operating Altitude	23 to 104°F (0-95% non-o 10,000 feet	-5 to 40°C) condensing (3,048 meters)	
		(IP-21 with additidrip shield)		Audible Noise ³ Mean Time Between Failure (MTBE)	65-72 dB(A) (1.5 meter) Ty > 205,000 H	@ 4.9 feet - ypical lours	
	¹ Internal Ma ² Custom In ³ Addition o ⁴ Additional ⁵ Additional	, anual Bypass Swit put and Output V f drip shield may i LED Indicators (1 Relay Contacts (M	ch is normally rer oltages available increase the nois green, 9 red allow 1ax of 13 allowed)	- Consult Us - Consult Us e by 1-3 dB(A) red)	al Bypass Swite	ch is selected	

3DPI Specifications

		0.8 Load	Power Factor	at Rated kVA 120	0VDC (60 Lead	d Calcium	Battery C	ells)			
Model	Rated Out	put Power	F 60 - i	Max DC Current	3PH AC Outp	out Amps Per Phase ¹		Cabinet	Weight ²		Heat Loss
Number	kVA	kW	Efficiency	@ 1.75 VPC	208	480	380	Style	lb	kg	(BTU/hr)
3DPI010-3	10	8	87%	88	28	12	15	GTD1X	715	325	4,077
3DPI015-3	15	12	87%	131	42	18	23	GTD1X	845	383	5,098
3DPI020-3	20	16	87%	175	56	24	30	GTD1X	975	442	8,158
3DPI030-3	30	24	87%	263	83	36	46	GTD2X	1,268	575	12,235
3DPI040-3	40	32	87%	350	111	48	61	GTD2X	1,333	605	16,317
3DPI050-3	50	40	87%	438	139	60	76	GTD3X	1,398	634	20,394
Load Power Factor at Rated kVA 240VDC (120 Lead Acid Battery Cells)											
Model	Rated Out	put Power	out Power		3PH AC Outp	ut Amps Pe	r Phase ¹	Cabinet We	ght²	Heat Loss	
Number	kVA	kW	Efficiency	@ 1.75 VPC	208	480	380	Style	lb	kg	(BTU/hr)
3DP1060-3	60	48	89%	257	167	72	91	GTD2X	1,658	752	20,244
3DP1080-3	80	64	89%	342	222	96	122	GTD3X	2,210	1,002	26,990
3DPI100-3	100	80	89%	428	278	120	152	GTD4X	2,860	1,297	33,739
3DPI125-3	125	100	89%	535	348	150	190	GTD4X	3,185	1,445	42,174
				Model C	Coding						
"Е	E"	"F	F	"GC	ر ۲		"H"			"J"	
DC Bus Volts (code) AC Output Volts (code)		Freq (code)		Output Power Factor (code)			Config Code (code)				
110	- (11)	208	- (20)	50 - (50)		0.8 - (K)			Cascaded - (C)		
120	- (12)	380	- (38)	60 -(60)					C	ascaded - (C)
220	- (22)	480	- (48)								
240 - (24)											

Cabinet Dimensions Inches Millimeters							
Style	H x W x D	H x W x D					
GTDIX	79 x 32 x 36	2,007 x 813 x 914					
GTD2X	79 x 54 x 36	2,007 x 1,372 x 914					
GTD3X	79 x 86 x 36	2,007 x 2,184 x 914					
GTD4X	79 x 108 x 36	2,007 x 2,743 x 914					



¹Circuit Breakers are sized at a minimum of 125% of rated current. ² Unit weights correspond to a 60 Hz unit Contact factory for 50 Hz unit weight. ³ A complete model number includes the 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: 3DP1010-EE-FF-GC-H3; where EE=DC bus voltage, FF-AC Output voltage, GC-System Frequency,H=Power Factor; 3=Inverter configuration (F for Float, 'C for Cascaded Redundant,'P for Parallel Redundant). For Example, A 30 kVA inverter with a 240 VDC bus voltage, 208 output voltage, 60-2 would have the following model number: 3DP1030-24-20-60-K-C For custom systems and for units which do not have a configurable model number, are ta 'C in the model number as follows: 3DPP020C

Sizes are subject to change. Top mounted cooling fans require 0.5 in (13 mm) additional height. Certain optional features and/or combinations may require larger cabinets - consult us

STAND-ALONE INVERTER

General Specifications -	General Specifications - Optional Features							
Standard Features	Metering and System M	leasurements	(Option #)	Miscellaneous - Continued		(Option #)		
System Measurements (Displayed on	Bypass Input Frequency	/	(112)	Latching Alarms		(28)		
LCD Panel)	Bypass Input Voltage		(11.3)	Lamp Test		(35)		
Total Operation Time on UPS	Output Power (kVA, kW, Power Factor)		(114)	ESI (Essential System Indicator) Panel		(123)		
Total Operation Time on Bypass	% Inverter Loading	, 1 01101 1 00001)	(115)	Alarm Relay Test		(132)		
Total Operation Time on Inverter	Inverter Output Voltage		(117)			(102)		
Metering (Displayed on LCD Panel)	interter output foldge		(,	Alarms		(Option #)		
DC Voltage	Circuit Breaker		(Option #)	High DC Disconnect		(2)		
AC Output Voltage	65 kAIC Bypass Input		(82/85)	Positive/Negative to Ground	(2 relays)	(3)		
AC Output Current	Inverter Output (Non-Au	utomatic)	(17)	High/Low Bypass Source Vol	Itage	(7/6)		
AC Output Frequency	AC Output		(18)	AC Output Overload	(9/8)			
Circuit Breakers	Battery High Interrupt E	Breaker	(86)	High/Low Inverter Output Vo	oltage	(41/42)		
DC Input (10 kAIC, minimum)	Communications		(Option #)	Out-of-Sync	(43)			
Bypass Input (14 kAIC, minimum)	Modbus RTU (RS485 Co	nnection)	(187)	Inverter Fuse Blown		(44)		
Fan Failure	Ethernet Webpage		(187)	Bypass Off Frequency		(46)		
Charger Failure	Modbus ICP		(187)	Battery Near Exhaustion		(60)		
Low DC Voltage	SCI-LITIK			Low AC Input Voltage		(68) (F)		
Low DC Disconnect	Consult Us for Additiona	al Communication	Options	MBS to Bypass		(78)		
DC Breaker Open ST/SW Petransfer Blocked	Miscellaneous			Bypass Input CB Open		(103)		
Battery Discharging	Parallel Redundant Con	figuration		AC Output CB Open		(104)		
IGBT Desaturation	Additional Relay Contac	ts (Max of 13 availa	ble)					
Overload Shutdown	Additional LED Indicato	rs(I green, 9 red ava	ailable)					
ST/SW Bridge Over Temperature	Remote External MIDS							
Inverter Bridge Over Temperature		Ge	neral Specific	cations - Performance				
ST/SW SCR Failure		Inverter		Sta	tic Switch			
Inverter Failure	DC Input			Bypass Voltage	120/208, 22	.0/380, and		
System Diagnostics (Displayed on LCD	Nominal Voltage	110 V/55 (96-128 V	/DC)		277/480: 3-	phase, 4-wire		
Alarm Panel)	Range/ #of Cells	120 V/60 (105-140	VDC)	Switch Type	Inversely pa	aired set of SCRs (one		
Loss of System Communication(s)	(Lead Calcium Type)	220 V/110 (192-25)	5 VDC)		set per leg)			
Power Supply Failure(s)		240 V/120 (210-28	O VDC)	Failure Mode	Automatica	Illy fails to Bypass		
Relay Controls		277/480: 3-phase,	4-wire	Transfer Time	Make Befor	re Break		
The following alarms also include one set	AC Output			Sync Capture Range	0.5% to 1.59	% adjustable		
of normally open and normally closed	Inverter/UPS Ratings	10-225 kVA		Slew Rate	1 Hz/sec to	10 Hz/sec		
amps (30 VDC at 8 amps).	Power Factor	0.8 or 1.0			(adjustable)		
Trouble (Summary) Bypass	AC Output Voltage ²	age ² 120/208, 220/380 and 277/480: 3-phase, 4-wire		Overload Capability	125% contir	nuous		
Supplying Load Communications				_	150% for 10	minutes		
Failure (Summary)	Regulation	± 1%			1,000% for	1 cycle		
Applicable Standards, Codes and Regulations	Voltage Adjustment	± 5%			-			
ANSI	Frequency	50 or 60 Hz; ± 0.1	%	Manual	Bypass Switc	<u>n'</u>		
ANSI/NEPA 70	- Crest Factor	5:1 10,00/ linear land	- 70/		120/208, 22	.U/38U, and		
IEEE		100% Inteal load	$\sim 3\%$	Mounting	277/460: 3-	pridse, 4-wire		
UL/C-UL (UL1778)	Transient Decourse	+ EV (0.100% log			Enclosuro	Inverter		
	Bocovon/Timo	< 50 millisocond	u <u>)</u> to + 1%	Dositions	Two			
	Overload Capacity	100% - continuou	IS	Construction	600 VAC r	otary drum make-		
	- Overload capacity	125% - 10 minutes			before-brea	ak type		
		150% - 1 minute	2	Transfer Time	Zero in hot	h directions		
150 9001:200g					2010 111 000			
				Overload Capacity	125% contir	1uous 1 minutes		
					200% for 1	minute		
					1,000% for	1 cycle		
TM TIFICATION TM				Envi	ironmental			
Intertok				Ambient Temperature	23 to 104°F	(-5 to 40°C)		
Intertek				Relative Humidity	0-95% non	-condensing		
				Operating Altitude	10,000 feet	: (3,048 meters)		
				Audible Noise ³	65-72 dB(A) @ 4.9 feet		
					(I.5 meter)	typical		
				Cooling	Aided Conv	ection or Forced		
					Air, depend	ing on kVA rating		
					and design	(fans standard		
					for 40 kVA ι	units and above)		
				Cable Entry	Top and Bo	ottom Entry		
				Mean Time Potwers		Hours		
				Failure (MTBF)	205,0001	Tours		
				Cabinet Rating	NEMA 1 / I	 P-20		
					(IP-21 with	addition of		
					optional dr	ip shield)		
	¹ Internal Ma	anual Bypass Switcl	h is normally rer	moved when a Remote Manua	al Bypass Swit	ch is selected		
	^a Custom input and Output voltages available - Consult Us ³ Addition of drip shield may increase the noise by 1-3 dB(A)							

SERVICE OPTIONS

AMETEK Solidstate Controls' products are known for their high quality. To keep them running smoothly, do not trust the maintenance of them to just anyone. No one will have the in-depth knowledge and familiarity as we do. We care about our products and we provide superior service agreements that ensure your critical power equipment continuously functions as designed.

We offer three levels of multi-year service agreements, designed to support our preventative maintenance schedules.

Ceneral Services	Basic	CSA ¹	CSA+1
Pre-Inspection Interview	Annually	Annually	Annually
Post-Inspection Interview	Annually	Annually	Annually
Detailed Service Report	Annually	Annually	Annually
UPS/Inverter/Charger Services	Basic	CSA	CSA+
Visual Inspection	Annually	Annually	Annually
Scheduled Parts Replacement	Every 5 Years	Annually	Annually
System Operational and Functional Testing	Every 5 Years	Annually	Annually
Infrared Scanning/Thermal Imaging	Optional	Annually	Annually
Battery Inspection & Continuity Test	Basic	CSA	CSA+
Visual Inspection	Annually	Annually	Annually
Individual Cell Voltages	Every 5 Years	Annually	Annually
Continuity Test	Every 5 Years	Annually	Annually
Inter-cell resistance	Optional	Optional	Annually
Specific Gravity	Optional	Optional	Annually
System AC Load testing	Optional	Optional	Annually
Battery Capacitance Discharge Testing per IEEE Recommended Schedule	Optional	Optional	Optional
Parts and Service Coverage	Basic	CSA	CSA+
Emergency Service Fee	Waived	Waived	Waived
Guaranteed Emergency Response Time	Not Specified	72 Hours ²	24 Hours ²
Minimum Repair Service Cost per Repair Trip	Waived	Waived	Waived
Parts Covered Under Warranty	Only PM parts covered	All Parts in System	All Parts in System
Transformers (Less than 20 years)	No Coverage	Covered	Covered
Travel and Living Expenses	Billed at cost	Covered	Covered
Labor	Standard Rates	Covered	Covered
Replacement System Manuals	\$350 each	\$175 each	No Cost
Financial Benefits	Basic	CSA	CSA+
Spare Parts Discount	5%	15%	20%
Annualized Pricing	Included	Included	Included
Discount on Training Seminars	None	25%	50%

¹CSA and CSA+ meet factory recommended guidelines for preventative maintenance

² System restored to safe and stable condition

WORLD HEADQUARTERS 875 Dearborn Drive Columbus, Ohio 43085 Phone: +1-614-846-7500 Toll Free: +1-800-635-7300 Fax: +1-614-885-3990

GLOBAL OFFICES LOCATED INMexicoMiddle EastAsia PacificIndiaBrazilArgentina

WEBSITE www.solidstatecontrolsinc.com EMAIL SCI.sales@AMETEK.com



THE PURPOSE OF OUR BUSINESS IS TO PROVIDE CONTINUITY OF ELECTRICAL POWER TO KEEP BUSINESSES IN BUSINESS. WE DO THIS BY HELPING CLIENTS SOLVE THEIR POWER PROBLEMS

AND BY CREATING THE MOST ECONOMICAL LONG-TERM RESULTS.

