

DPI/3DPI

Digital ProcessPower Inverter

INDUSTRIAL PWM INVERTER
POWER SUPPLY SYSTEM
SINGLE PHASE
THREE PHASE



AMETEK[®]

SOLIDSTATE CONTROLS

PROVIDING CONTINUITY OF ELECTRICAL POWER

DPI/3DPI

DIGITAL PROCESS POWER

Industrial Pulse Width Modulated Inverter

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

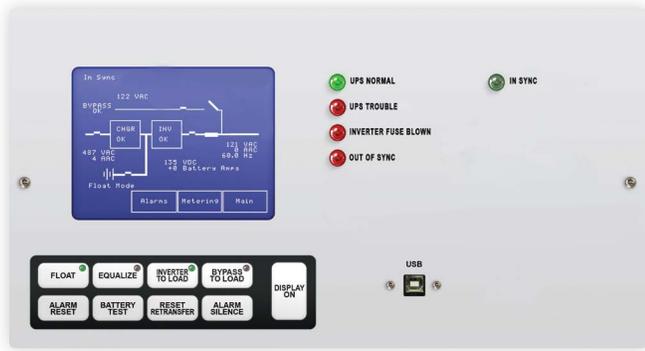
The Digital ProcessPower Inverter (DPI) from AMETEK Solidstate Controls is a true on-line inverter system that provides continuous, clean, regulated power for critical AC loads. Designed specifically for process control and industrial applications, the DPI systems utilize state of the art Pulse Width 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



PROCESSPOWER UPS SYSTEM LCD AND TOUCH SCREEN USER PANEL

Shown with optional
indicator lights

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)

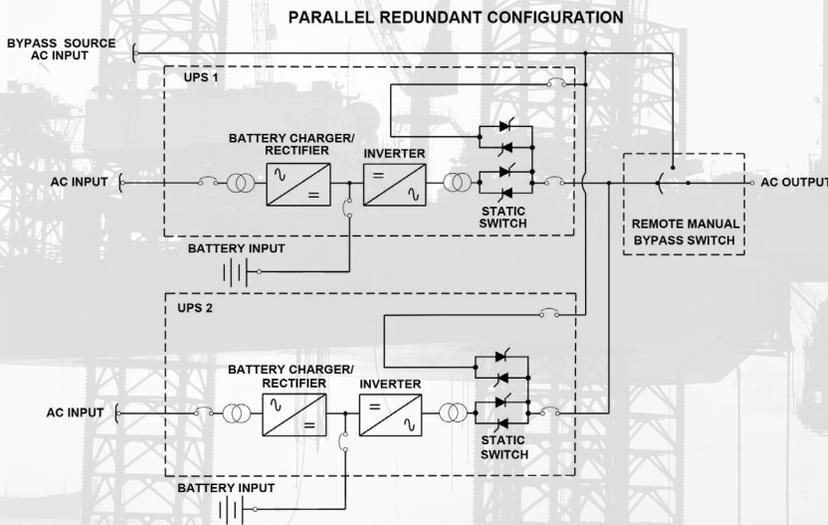
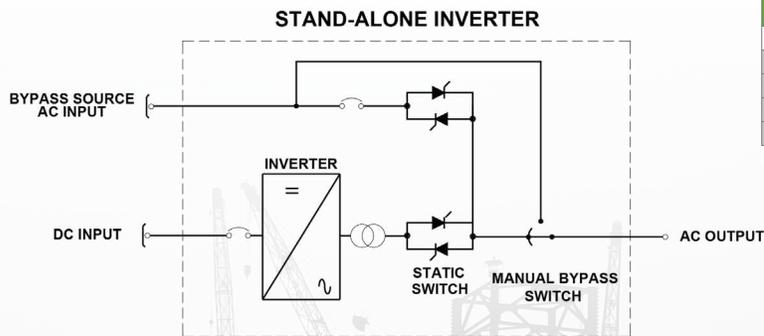


DPI Specifications

0.8 Load Power Factor at Rated kVA 120 VDC (60 Lead Calcium Battery Cells)											
Model Number	Rated Output Power		Efficiency	AC Output Amps			Max DC Current	Cabinet Style	Weight ²		Heat Loss (BTU/hr)
	kVA	kW	DC-AC	120	220	240	@ 1.75 VPC		lb	kg	
DPI005- ³	5	4	87%	42	23	21	44	GTD1X	650	295	2,039
DPI007- 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
DPI030- 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 Number	Rated Output Power		Efficiency	AC Output Amps			Max DC Current	Cabinet Style	Weight ²		Heat Loss (BTU/hr)
	kVA	kW	DC-AC	120	220	240	@ 1.75 VPC		lb	kg	
DPI030- 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
DPI050- 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
DPI080- 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

Model Coding				
"EE"	"FF"	"GG"	"H"	"J"
DC Bus Volts (code)	AC Output Volts (code)	Frequency (code)	Output Power Factor (code)	Configuration (code)
110 - (11)	120 - (12)	60 - (60)	0.8 - (K)	Cascaded - (C)
120 - (12)	220 - (22)	50 - (50)		Parallel - (P)
220 - (22)				
240 - (24)				



Cabinet Dimensions Inches Millimeters		
Style	H x W x D	H x W x D
GTD1X	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: DPI010-EE-FF-GG-H-J; where EE=DC bus voltage; FF=AC Output Voltage; GG=System Frequency; H=Power Factor; J=inverter configuration ('F' 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 - Standard Features		General Specifications - Optional Features			
System Measurements (Displayed on LCD Panel)		Metering and System Measurements (Option #)		Alarms (LCD) (Option #)	
Total Operation Time on Bypass		Bypass Input Frequency	(112)	High DC Disconnect	(2)
Total Operation Time on Inverter		Bypass Input Voltage	(113)	Positive/Negative to Ground (2 relays)	(3)
Metering (Displayed on LCD Panel)		Output Power (kVA, kW, Power Factor)	(114)	High/Low Bypass Source Voltage	(7/6)
DC Voltage		% Inverter Loading	(115)	High/Low AC Output Voltage	(9/8)
DC Battery Current (+/-)		Inverter Output Voltage	(117)	AC Output Overload	(40)
AC Output Voltage				High/Low Inverter Output Voltage	(41/42)
AC Output Current		Circuit Breaker (Option #)		Out-of-Sync	(43)
AC Output Frequency		65 kAIC Bypass Input	(85)	Inverter Fuse Blown	(44)
Circuit Breakers		Inverter Output (Non-Automatic)	(17)	Inverter Off Frequency	(45)
DC Input (10 kAIC, minimum)		AC Output	(18)	Bypass Off Frequency	(46)
Bypass Input (14 kAIC, minimum)				Battery Near Exhaustion	(60)
Alarms - All displayed on LCD Alarm Panel with options for LEDs and Relays		Miscellaneous (Option #)		High DC Voltage	(5)
R = Red LED* A=Amber LED Y=Relay ² (Option #)		Latching Alarms	(28)	MBS in Bypass to Load	(84)
Fan Failure R, Y (120)		Lamp Test	(35)	Inverter Output CB Open	(102)
Low DC Voltage R, Y (11)		ESI (Essential System Indicator) Panel	(123)	Bypass Input CB Open	(103)
Low DC Disconnect R, Y (107)		Alarm Test	(132)	AC Output CB Open	(104)
Battery Breaker Open R, Y (57)		Precharge Circuit	(122)	Battery Time Remaining	(157)
Bypass Supplying Load A, Y		Emergency Power Off	(129)	Communications (Option #)	
Over Temperature R, Y (10)		Key Lock Enclosure	(159)	Modbus RTU (RS485 Connection)	(187)
ST/SW SCR Failure (SWF) R, Y		Drip Shield	(65)	Ethernet Webpage	(187)
Bypass Failure (BPF) R, Y		Lifting Eye Bolts	(105)	Modbus TCP	(187)
Inverter Failure R, Y (58)		Padlockable Circuit Breakers	(93)	Consult Us for Additional Communications Options	
IGBT Desaturation		Padlockable MBS	(30P)	LED Indicators (Color) (Option #)	
Overload Shutdown		MBS with Sync Lockout	(32)	In Sync	(Green) (SNK)
Retransfer Blocked		DC Rated Contacts	(72)	Bypass Available	(Green) (15)
System Diagnostics (Displayed on LCD Alarm Panel)		Space Heater	(88)	Inverter Available	(Green) (47)
Loss of System Communication(s)		PCB Conformal Coating	(127)		
Power Supply Failure(s)		Fungus and Moisture Proof	(70)		
Relay Controls		Parallel Redundant Configuration			
The following alarms also include one set of normally open and normally closed relay contacts rated for 120 VAC at 8 amps (30 VDC at 8 amps): Trouble (Summary) Bypass Supplying Load Communications Failure (Summary)		Remote External MBS ¹			
Applicable Standards, Codes and Regulations		General Specifications - Performance			
NEMA PE-1		Inverter		Static Switch	
ANSI		DC Input		Bypass Voltage	120, 220 VAC
ANSI/NFPA 70		Nominal Voltage	110 V/55 (96-128 VDC)	Switch Type	Inversely paired set of SCRs (one set per leg)
IEEE		Range/ #of Cells (Lead Calcium Type)	120 V/60 (105-140 VDC) 220 V/110 (192-256 VDC) 240 V/120 (210-280 VDC)	Failure Mode	Automatically fails to Bypass
UL/C-UL (UL1778)		AC Output		Transfer Time	Make Before Break
Unit Manufactured in ISO9001 Certified Facility		Inverter/UPS Ratings	5-100 kVA	Sync Capture Range	0.5% to 1.5%
		Power Factor	0.8	Slew Rate	1 Hz/sec to 10 Hz/sec (adjustable)
		AC Output Voltage ²	120, 220	Overload Capability	125% continuous 150% for 10 minutes 200% for 1 minute 1000% for 1 cycle
		Regulation	± 1 %	Manual Bypass Switch ¹	
		Voltage Adjustment	± 5 %	Voltage	120, 220 VAC
		Frequency	50 or 60 Hz; ± 0.1%	Mounting	Inside UPS/Inverter Enclosure
		Crest Factor	3:1	Positions	Two
		Total Harmonic Distortion (THD)	100% linear load < 3% 100% non-linear load < 5%	Construction	600 VAC, rotary drum, make-before-break type
		Transient Response	± 5% (0-100% load)	Transfer Time	Zero in both directions
		Recovery Time	< 50 millisecond to + 1%	Overload Capacity	125% continuous 150% for 10 minutes 200% for 1 minute 1,000% for 1 cycle
		Overload Capacity	100% - continuous 125% - 10 minutes 150% - 1 minute	Environmental	
		Mechanical		Ambient Temperature	23 to 104°F (-5 to 40°C)
		Cooling	Aided Convection or Forced Air, depending on kVA rating and design (fans standard for 40 kVA units and above)	Relative Humidity	0-95% non-condensing
		Cable Entry	Top or Bottom Entry Standard	Operating Altitude	10,000 feet (3,048 meters)
		Cabinet Rating	NEMA 1 / IP-20 (IP-21 with addition optional drip shield)	Audible Noise ³	65-72 dB(A) @ 4.9 feet - (1.5 meter) Typical
				Mean Time Between Failure (MTBF)	> 205,000 Hours
¹ Internal Manual Bypass Switch is normally removed when a Remote Manual Bypass Switch is selected ² Custom Input and Output Voltages available - Consult Us ³ Addition of drip shield may increase the noise by 1-3 dB(A) ⁴ Additional LED Indicators (1 green, 9 red allowed) ⁵ Additional Relay Contacts (Max of 13 allowed)					



3DPI Specifications

0.8 Load Power Factor at Rated kVA 120VDC (60 Lead Calcium Battery Cells)

Model Number	Rated Output Power		Efficiency	Max DC Current @ 1.75 VPC	3PH AC Output Amps Per Phase ¹			Cabinet Style	Weight ²		Heat Loss (BTU/hr)
	kVA	kW			208	480	380		lb	kg	
3DPI010- ³	10	8	87%	88	28	12	15	GTDIX	715	325	4,077
3DPI015- ³	15	12	87%	131	42	18	23	GTDIX	845	383	5,098
3DPI020- ³	20	16	87%	175	56	24	30	GTDIX	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 Number	Rated Output Power		Efficiency	Max DC Current @ 1.75 VPC	3PH AC Output Amps Per Phase ¹			Cabinet Style	Weight ²		Heat Loss (BTU/hr)
	kVA	kW			208	480	380		lb	kg	
3DPI060- ³	60	48	89%	257	167	72	91	GTD2X	1,658	752	20,244
3DPI080- 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

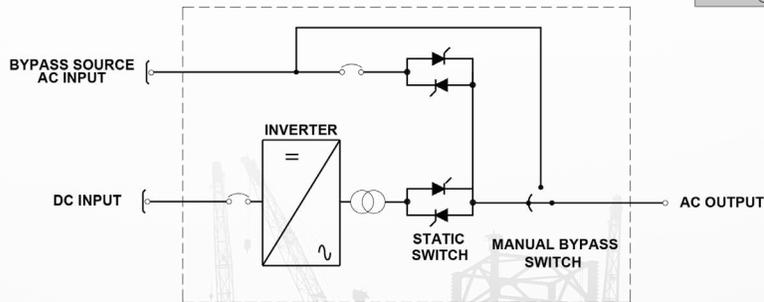
Model Coding

"EE"	"FF"	"GG"	"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)		Cascaded - (C)
220 - (22)	480 - (48)			
240 - (24)				

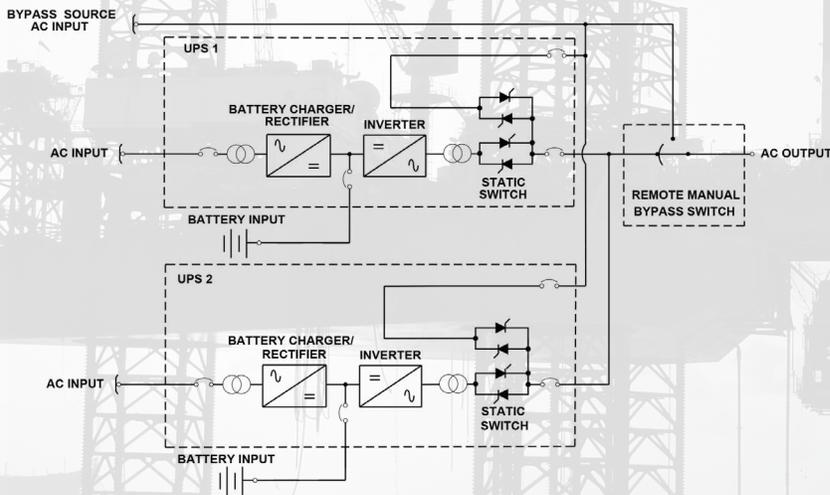
Cabinet Dimensions Inches Millimeters

Style	H x W x D	H x W x D
GTD1X	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

STAND-ALONE INVERTER



PARALLEL REDUNDANT CONFIGURATION



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: 3DPI010-EE-FF-GG-H-J; where EE=DC bus voltage, FF=AC Output Voltage, GG=System Frequency, H=Power Factor, J=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 Hz would have the following model number: 3DPI030-24-20-60-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: 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

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.

General 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%

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

² System restored to safe and stable condition

WORLD HEADQUARTERS

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AMETEK[®]
SOLIDSTATE CONTROLS

REV 01/2019

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.