



# PA-AB 4Q POWER AMPLIFIER

34 models

Doc ref. FT-PA V2

**POWER**  
1000W to 720kW

**CURRENT**  
0-1A to 0-600A

**VOLTAGE**  
0...1200V

PA series is a real 4 quadrants AC+DC amplifier to test or simulate all kind of loads or generators with power, high dynamic, a low distortion and a large bandwidth.

Our own high performance linear technology allows an easy integration for real time or HIL applications combined with simulator like Opal-Rt, Dspace or National Instruments.



**REGULATION**  
Voltage : 0,1%  
Current: 0,2%

**BANDWIDTH**  
DC...30 kHz  
Small signal: 150 kHz

**INRUSH CURRENT**  
I peak = 4 x I nom

**RISE & FALL TIME**  
< 20  $\mu$ s

**RIPPLE&NOISE**  
Rms: 0.1%  
Peak: 0.4%

**MASTER/SLAVE**  
Serial up to 1200Vdc  
3 or 6 phases

## APPLICATIONS

- 1 phase or 3 phases
- AC, AC+DC<sub>offset</sub>, DC
- 400/800/1200Hz avionic grid
- 50/60Hz grid
- ABD 100.1.8.1
- Power line disturbance
- AC Motor start up current
- AC or DC Motor simulation
- For all none linear loads
- 3 phased node distribution network
- Transmission system
- Distributed generation
- Solar & wind farm impacts
- STAT COM & SIG impacts
- HVDC & HVAC interconnection
- Power storage device
- Alternator, engine
- Different kind of energy consumers

## OPTIONS

- Power Analyzer
- Double range
- Specific Range
- Wide Bandwidth
- None-volatile Memory
- Specific software
- High frequency 40Hz...5000Hz

## HIGH PERFORMANCE

- Regulation CC or CV
- Accuracy
- High-speed programming
- Fast transient response time
- Fast rise & fall time
- High Inrush current
- High Bandwidth
- Advanced HMI
- Linear ramp programming
- Low impedance output
- Phase angle programing
- Low harmonic distortion
- No transition time between Q1 and Q4



## GENERAL SPECIFICATIONS:

### INPUT RATING:

Voltage range:	198-243 Vac 380V +6%/-10%
Frequency range:	47-65Hz

### PROGRAMMATION VALUE

Voltage range:	110%Vnom
Voltage accuracy:	0.05%FS+0.05%V
Voltage resolution:	12 bits
Current range:	Ipeak
Current accuracy:	0.1%FS+0.1%V
Current resolution:	12 bits
Frequency Range:	DC...30kHz
Cosφ range:	-1...1

<b>MASTER/SLAVE</b>	serial and 3 phased operation
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### REGULATION

Voltage line regulation:	0.1%
Voltage load regulation:	0.1%
Current line regulation:	0.2%
Current load regulation:	0.2%
Sense:	2V

### DYNAMIC MODE

Bandwidth:	DC...30kHz
Rise & fall time:	<20μs
Overshoot:	<5%
Recovery time:	<20 μs
Q14 transition time	<10 μs

### SIGNAL QUALITY

Voltage ripple & noise rms	≤ 10-3 Vs nom
Voltage ripple & noise pk to pk	≤ 4.10-3 Vs nom
Current ripple & noise rms	≤ 4.10-3 Is nom
Current ripple & noise pk to pk	≤ 10-2 Is nom
THD	0.7%
Voltage Drift	<2.10-4 Vs nom
Current drift	<4.10-3 Is nom
Temperature Voltage coefficient	50ppm/°C
Gain stability 10 min	0,05%
Gain stability 10 h	0,1%

### MEASUREMENT

Voltage accuracy:	0.3%FS
Current accuracy:	0.5%FS

### PROTECTION

Over voltage/Over current/Over temperature

### ISOLATION

Line/output:	100 MΩ @ 500Vdc
Output to case:	10 MΩ @ 500Vdc

### DIELECTRIC

Line to output:	2500Veff-50Hz
Line to case:	1500Veff

### ENVIRONMENT

Operating temperature:	-10°C/40°C
Storage temperature:	-25°C/80°C
Humidity:	10-90%
Protection:	IP30

### CONFORMITY

CE

### STANDARD REMOTE CONTROL

HMI:	touchscreen display Waveform storage
ANALOG	
ETHERNET	
RS232	

### OPTION

Power analyzer	POW-ANA-PA-1
Specific range	SR-PA
100kHz bandwidth	WBW-PA
Q4 load capability 60%	L60-PA
Q4 load capability 100%	L100-PA
Optic fiber remote control	OF
IEEE remote control	IEEE
USB storage	USB
Last configuration data save	MEM



		PA-600-AB				
		36V-16A	56V-10A	140V-4A	280V-2A	400V-1.5A
AC POWER RANGE	VA	600,00	600,00	600,00	600,00	600,00
AC PEAK POWER RANGE	VA	2400,00	2400,00	2400,00	2400,00	2400,00
AC VOLTAGE RANGE	V	36,00	56,00	140,00	280,00	400,00
AC CURRENT RANGE	A	16,00	10,00	4,00	2,00	1,50
AC PEAK CURRENT RANGE	A	66,67	42,86	17,14	8,57	6,00
DC POWER RANGE	W	600,00	600,00	600,00	600,00	600,00
DC VOLTAGE RANGE	V	51,00	79,00	198,00	396,00	566,00
DC CURRENT RANGE	A	12,00	8,00	3,00	2,00	1,00
DC PEAK CURRENT RANGE	A	66,67	42,86	17,14	8,57	6,00
DC CONTINUOUS CURRENT SINK	A	5,29	3,42	1,36	0,68	0,48
DC PEAK CURRENT SINK	A	15,88	10,25	4,09	2,05	1,43
DC PEAK POWER SINK RANGE	W	810,00	810,00	810,00	810,00	810,00
DC CONTINUOUS POWER SINK	W	270,00	270,00	270,00	270,00	270,00
DIMENSIONS (WxHxD)		19" - 3U - 490mm	19" - 3U - 490mm	19" - 3U - 490mm	19" - 3U - 490mm	19" - 3U - 490mm

		PA-1000-AB				
		36V-27.5A	56V-17.5A	140V-7A	280V-3.5A	400V-2.5A
AC POWER RANGE	VA	1000,00	1000,00	1000,00	1000,00	1000,00
AC PEAK POWER RANGE	VA	4000,00	4000,00	4000,00	4000,00	4000,00
AC VOLTAGE RANGE	V	36,00	56,00	140,00	280,00	400,00
AC CURRENT RANGE	A	27,00	17,50	7,00	3,50	2,50
AC PEAK CURRENT RANGE	A	111,11	71,43	28,57	14,29	10,00
DC POWER RANGE	W	1000,00	1000,00	1000,00	1000,00	1000,00
DC VOLTAGE RANGE	V	51,00	79,00	198,00	396,00	566,00
DC CURRENT RANGE	A	20,00	13,00	5,00	3,00	2,00
DC PEAK CURRENT RANGE	A	111,11	71,43	28,57	14,29	10,00
DC CONTINUOUS CURRENT SINK	A	5,49	3,54	1,41	0,71	0,49
DC PEAK CURRENT SINK	A	16,47	10,63	4,24	2,12	1,48
DC PEAK POWER SINK RANGE	W	840,00	840,00	840,00	840,00	840,00
DC CONTINUOUS POWER SINK	W	280,00	280,00	280,00	280,00	280,00
DIMENSIONS (WxHxD)		19" - 4U - 490mm	19" - 4U - 490mm	19" - 4U - 490mm	19" - 4U - 490mm	19" - 4U - 490mm



		PA-2000-AB			
		56V-35.5A	140V-14A	280V-7A	400V-5A
AC POWER RANGE	VA	2000,00	2000,00	2000,00	2000,00
AC PEAK POWER RANGE	VA	8000,00	8000,00	8000,00	8000,00
AC VOLTAGE RANGE	V	56,00	140,00	280,00	400,00
AC CURRENT RANGE	A	35,50	14,00	7,00	5,00
AC PEAK CURRENT RANGE	A	142,86	57,14	28,57	20,00
DC POWER RANGE	W	2000,00	2000,00	2000,00	2000,00
DC VOLTAGE RANGE	V	79,00	198,00	396,00	566,00
DC CURRENT RANGE	A	25,00	10,00	5,00	4,00
DC PEAK CURRENT RANGE	A	142,86	57,14	28,57	20,00
DC CONTINUOUS CURRENT SINK	A	7,09	2,83	1,41	0,99
DC PEAK CURRENT SINK	A	21,27	8,48	4,24	2,97
DC PEAK POWER SINK RANGE	W	1680,00	1680,00	1680,00	1680,00
DC CONTINUOUS POWER SINK	W	560,00	560,00	560,00	560,00
DIMENSIONS (WxHxD)		19" - 5U - 490mm	19" - 5U - 490mm	19" - 5U - 490mm	19" - 5U - 490mm

		PA-3000-AB			
		56V-53A	140V-21A	280V-10A	400V-7,5A
AC POWER RANGE	VA	3000,00	3000,00	3000,00	3000,00
AC PEAK POWER RANGE	VA	12000,00	12000,00	12000,00	12000,00
AC VOLTAGE RANGE	V	56,00	140,00	280,00	400,00
AC CURRENT RANGE	A	53,00	21,00	10,00	7,50
AC PEAK CURRENT RANGE	A	214,29	85,71	42,86	30,00
DC POWER RANGE	W	2000,00	2000,00	2000,00	2000,00
DC VOLTAGE RANGE	V	79,00	198,00	396,00	566,00
DC CURRENT RANGE	A	25,00	10,00	5,00	4,00
DC PEAK CURRENT RANGE	A	214,29	85,71	42,86	30,00
DC CONTINUOUS CURRENT SINK	A	10,63	4,24	2,12	1,48
DC PEAK CURRENT SINK	A	31,90	12,73	6,36	4,45
DC PEAK POWER SINK RANGE	W	2520,00	2520,00	2520,00	2520,00
DC CONTINUOUS POWER SINK	W	840,00	840,00	840,00	840,00
DIMENSIONS (WxHxD)		19" - 5U - 490mm	19" - 5U - 490mm	19" - 5U - 490mm	19" - 5U - 490mm



		PA-5000-AB			
		56V-89A	140V-35A	280V-17A	400V-12,5A
AC POWER RANGE	VA	5000,00	5000,00	5000,00	5000,00
AC PEAK POWER RANGE	VA	20000,00	20000,00	20000,00	20000,00
AC VOLTAGE RANGE	V	56,00	140,00	280,00	400,00
AC CURRENT RANGE	A	89,00	35,00	17,00	12,50
AC PEAK CURRENT RANGE	A	357,14	142,86	71,43	50,00
DC POWER RANGE	W	5000,00	5000,00	5000,00	5000,00
DC VOLTAGE RANGE	V	79,00	198,00	396,00	566,00
DC CURRENT RANGE	A	63,00	25,00	13,00	9,00
DC PEAK CURRENT RANGE	A	357,14	142,86	71,43	50,00
DC CONTINUOUS CURRENT SINK	A	22,78	9,09	4,55	3,18
DC PEAK CURRENT SINK	A	68,35	27,27	13,64	9,54
DC PEAK POWER SINK RANGE	W	5400,00	5400,00	5400,00	5400,00
DC CONTINUOUS POWER SINK	W	1800,00	1800,00	1800,00	1800,00
DIMENSIONS (WxHxD)		19" - 8U - 490mm	19" - 8U - 490mm	19" - 8U - 490mm	19" - 8U - 490mm

		PA-10K-AB			
		56V-178A	140V-71A	280V-35A	400V-25A
AC POWER RANGE	VA	10000,00	10000,00	10000,00	10000,00
AC PEAK POWER RANGE	VA	40000,00	40000,00	40000,00	40000,00
AC VOLTAGE RANGE	V	56,00	140,00	280,00	400,00
AC CURRENT RANGE	A	178,00	71,00	35,00	25,00
AC PEAK CURRENT RANGE	A	714,29	285,71	142,86	100,00
DC POWER RANGE	W	10000,00	10000,00	10000,00	10000,00
DC VOLTAGE RANGE	V	79,00	198,00	396,00	566,00
DC CURRENT RANGE	A	127,00	51,00	25,00	18,00
DC PEAK CURRENT RANGE	A	714,29	285,71	142,86	100,00
DC CONTINUOUS CURRENT SINK	A	41,77	16,67	8,33	5,83
DC PEAK CURRENT SINK	A	125,32	50,00	25,00	17,49
DC PEAK POWER SINK RANGE	W	9900,00	9900,00	9900,00	9900,00
DC CONTINUOUS POWER SINK	W	3300,00	3300,00	3300,00	3300,00
DIMENSIONS (WxHxD)		800mm-38U-800mm	800mm-38U-800mm	800mm-38U-800mm	800mm-38U-800mm



		PA-15K-AB			
		56V-267A	140V-107A	280V-53A	400V-40A
AC POWER RANGE		15000,00	15000,00	15000,00	15000,00
AC PEAK POWER RANGE		60000,00	60000,00	60000,00	60000,00
AC VOLTAGE RANGE		56,00	140,00	280,00	400,00
AC CURRENT RANGE		267,00	107,00	53,00	40,00
AC PEAK CURRENT RANGE		1071,43	428,57	214,29	150,00
DC POWER RANGE		15000,00	15000,00	15000,00	15000,00
DC VOLTAGE RANGE		79,00	198,00	396,00	566,00
DC CURRENT RANGE		190,00	76,00	38,00	27,00
DC PEAK CURRENT RANGE		1071,43	428,57	214,29	150,00
DC CONTINUOUS CURRENT SINK		62,66	25,00	12,50	8,75
DC PEAK CURRENT SINK		187,97	75,00	37,50	26,24
DC PEAK POWER SINK RANGE		14850,00	14850,00	14850,00	14850,00
DC CONTINUOUS POWER SINK		4950,00	4950,00	4950,00	4950,00
DIMENSIONS (WxHxD)		800mm-38U-800mm	800mm-38U-800mm	800mm-38U-800mm	800mm-38U-800mm

		PA-20K-AB			
		56V-357A	140V-142A	280V-71A	400V-50A
AC POWER RANGE	VA	20000,00	20000,00	20000,00	20000,00
AC PEAK POWER RANGE	VA	80000,00	80000,00	80000,00	80000,00
AC VOLTAGE RANGE	V	56,00	140	280	400
AC CURRENT RANGE	A	357,00	142,00	71,00	50,00
AC PEAK CURRENT RANGE	A	1428,57	571,43	285,71	200,00
DC POWER RANGE	W	20000,00	20000,00	20000,00	20000,00
DC VOLTAGE RANGE	V	79,00	198,00	396,00	566,00
DC CURRENT RANGE	A	253,00	101,00	51,00	35,00
DC PEAK CURRENT RANGE	A	1428,57	571,43	285,71	200,00
DC CONTINUOUS CURRENT SINK	A	83,54	33,33	16,67	11,66
DC PEAK CURRENT SINK	A	250,63	100,00	50,00	34,98
DC PEAK POWER SINK RANGE	W	19800,00	19800,00	19800,00	19800,00
DC CONTINUOUS POWER SINK	W	6600,00	6600,00	6600,00	6600,00
DIMENSIONS (WxHxD)		800mm-38U-800mm	800mm-38U-800mm	800mm-38U-800mm	800mm-38U-800mm