

Programmable Attenuators, TTL, Serial port types

Frequency: DC ~ 3 GHz

P/N: IPA-.. Series



XX = F



XX = FD



XX = FC

Impedance : 50 Ω
 Average Power : 2 W
 Connectors : SMA(F,F)
 Operating Temp : -55°C ~ 75°C
 Switching time : < 6ms
 Operat. Voltage : +5V, +12V
 Operat. Current : 100mA, 30mA

Ordering Code	Cells	Freq. (GHz)	Attenuation Range (dB)	Attenuation Steps (dB)	VSWR Max	Insertion Loss (dB)	Attenuation Accuracy (dB)	
IPA2-4-55-1-XX	4	DC-1	0-55dB in 5dB steps	5,10,20,20	1.25	≤ 1.5	±0.3	±1.0
IPA2-4-55-2-XX	4	DC-2	0-55dB in 5dB steps	5,10,20,20	1.30	≤ 2.0	±0.6	±1.2
IPA2-4-70-1-XX	4	DC-1	0-70dB in 10dB steps	10,20,20,20	1.25	≤ 1.5	±0.3	±1.0
IPA2-4-70-2-XX	4	DC-2	0-70dB in 10dB steps	10,20,20,20	1.30	≤ 2.0	±0.6	±1.2
IPA2-5-31-1-XX	5	DC-1	0-31dB in 1dB steps	1,2,4,8,16	1.30	≤ 1.8	±0.3	±1.0
IPA2-5-31-2-XX	5	DC-2	0-31dB in 1dB steps	1,2,4,8,16	1.35	≤ 2.5	±0.6	±1.0
IPA2-5-31-3-XX	5	DC-3	0-31dB in 1dB steps	1,2,4,8,16	1.45	≤ 3.2	±0.8	±1.2
IPA2-6-63-1-XX	6	DC-1	0-63dB in 1dB steps	1,2,4,8,16,32	1.30	≤ 2.5	±0.3	±1.2
IPA2-6-63-2-XX	6	DC-2	0-63dB in 1dB steps	1,2,4,8,16,32	1.40	≤ 3.5	±0.6	±1.2
IPA2-6-63-3-XX	6	DC-3	0-63dB in 1dB steps	1,2,4,8,16,32	1.45	≤ 4.5	±0.8	±1.5
IPA2-8-127-1-XX	8	DC-1	0-127dB in 1dB steps	1,2,4,8,16,32,32,32	1.30	≤ 3.0	±0.3	±1.2
IPA2-8-127-2-XX	8	DC-2	0-127dB in 1dB steps	1,2,4,8,16,32,32,32	1.40	≤ 3.5	±0.6	±1.2
IPA2-8-127-3-XX	8	DC-3	0-127dB in 1dB steps	1,2,4,8,16,32,32,32	1.55	≤ 5.0	±0.8	±1.5
IPA2-8-63.75-1-XX	8	DC-1	0-63.75dB in 0.25dB steps	0.25,0.5,1,2,4,8,16,32	1.30	≤ 3.0	±0.3	±1.2
IPA2-8-63.75-2-XX	8	DC-2	0-63.75dB in 0.25dB steps	0.25,0.5,1,2,4,8,16,32	1.40	≤ 3.5	±0.6	±1.2
IPA2-8-63.75-3-XX	8	DC-3	0-63.75dB in 0.25dB steps	0.25,0.5,1,2,4,8,16,32	1.50	≤ 5.0	±0.8	±1.5
IPA2-10-64.5-1-XX	10	DC-1	0-64.5dB in 0.1dB steps	0.1,0.2,0.4,0.8,1,2,4,8,16,32	1.30	≤ 3.5	±0.4	±1.2
IPA2-10-64.5-2-XX	10	DC-2	0-64.5dB in 0.1dB steps	0.1,0.2,0.4,0.8,1,2,4,8,16,32	1.40	≤ 4.5	±0.6	±1.2
IPA2-10-64.5-3-XX	10	DC-3	0-64.5dB in 0.1dB steps	0.1,0.2,0.4,0.8,1,2,4,8,16,32	1.50	≤ 6.0	±0.8	±1.5
IPA1-12-127-1-XX	12	DC-1	0-127dB in 0.1dB steps	0.1,0.2,0.4,0.8,1,2,4,8,16,32,32,32	1.45	≤ 6.5	±0.5	±1.25

XX = Pls suffix F, FD or FC as per choice, see next pages for details on these

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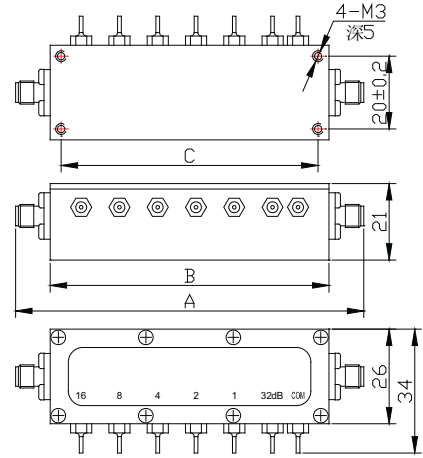
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'F' Series

(Operating Voltage) : +5V, +12V
 (Operating Current) : 100mA/Cell, 30mA/C

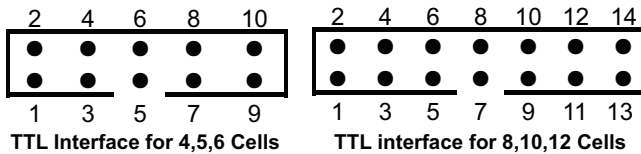
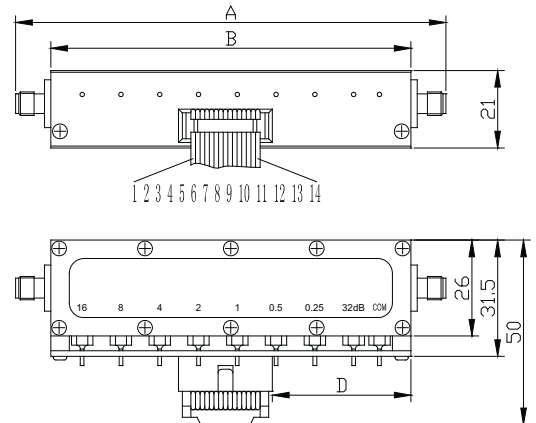


'FD' Series- TTL Control

(Control Voltage) : +5V +12V
 (Control Current) : 100mA/Cell, 30mA/Cell
 (Driver Voltage) : 2.7-5V
 (Driver Current) : > 15mA/Cell



Dimensions (mm)	A	B	C	D	F Series Weight(g)	FD Series Weight(g)
4 cells	74.5	55.5	49.5±0.2	29	80	95
5 cells	85	66	60±0.2	29	95	110
6 cells	95.5	76.5	70.5±0.2	29	105	125
8 cells	116.5	97.5	91.5±0.2	47.6	135	150
10 cells	137.5	118.5	112.5±0.2	37.5	160	180
12 cells	158.5	139.5	133.5±0.2	37.5	190	210



TTL	1	2	3	4	5	6	7	8	9	10	11	12	13	14
4Cell 55/5dB	V+	5	COM	10	N	20	N	20	N	N	/	/	/	/
4Cell 70/10dB	V+	10	COM	20	N	20	N	20	N	N	/	/	/	/
5Cell 31/1dB	V+	1	COM	2	N	4	N	8	N	16	/	/	/	/
6Cell 63/1dB	V+	1	COM	2	N	4	N	8	32	16	/	/	/	/
8Cell 63.75/0.25dB	N	N	16	N	COM	V+	N	1	0.5	2	0.25	4	8	32
8Cell 127/1dB	N	N	32	N	COM	V+	N	32	2	4	1	8	16	32
10Cell 64.5/0.1dB	16	32	8	N	COM	V+	N	0.8	0.4	1	0.2	2	4	0.1
12Cell 127/0.1dB	32	2	16	4	COM	8	0.4	V+	0.2	0.8	0.1	1	32	32

(N: Empty; COM: OV; V+: Operating Voltage.)

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'FC' Series- RS-232 Programmable Control

Interface: RS-232

RS-232 provides control interface and communication

(Voltage) : AC~220V/5V

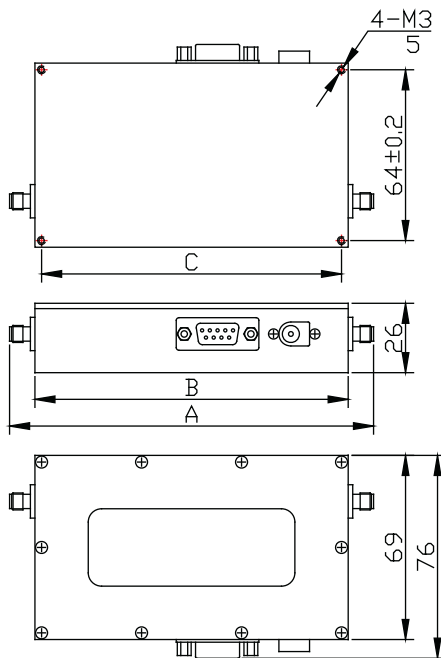


IPA-FC

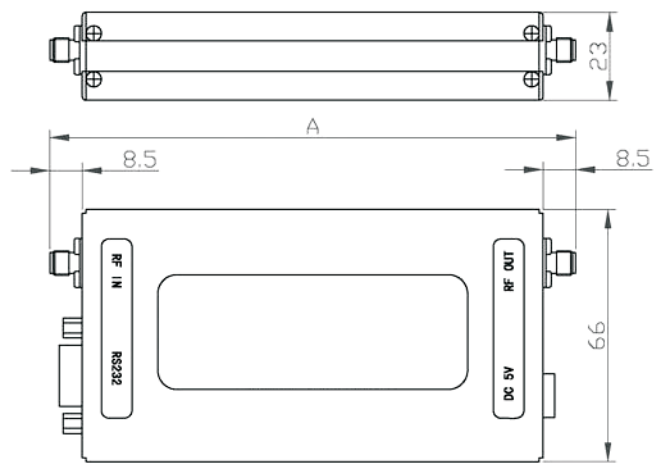


IPA-FCII

Model Number	Cells	Dimensions(mm)			Weight(g)
		A	B	C	
IPA-FC	4	115.5	96.5	91.5±0.2	205
	5	126	107	102±0.2	260
	6	136.5	117.5	112.5±0.2	310
	8	157.5	138.5	133.5±0.2	415
IPA-FCII	8	116.5	/	/	200
	10	137.5	/	/	220
	12	158.5	/	/	250



IPA-FC



IPA-FCII

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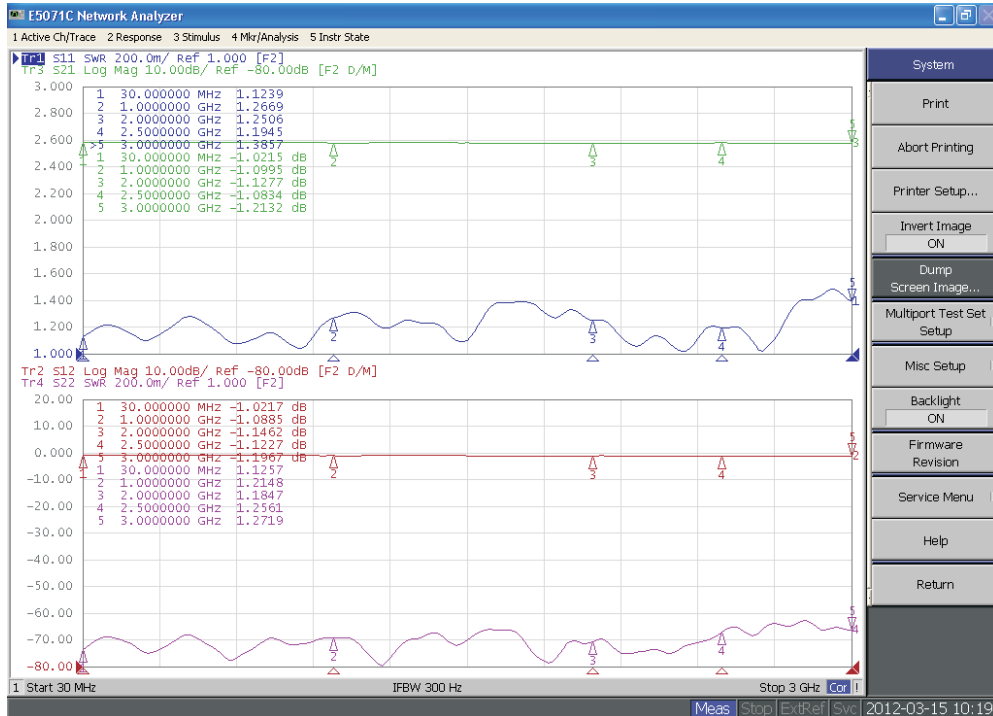
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VNA Plot for IPA-10-64.5-3 Attenuator at 1dB



VNA Plot for IPA-10-64.5-3 Attenuator at 16dB

