FS / FT SERIES

1-7 Outputs
400-1000 Watts

FEATURES

- ***0.99 power factor***
- ***5.5 watts per cubic inch***
- ***1-7 outputs, 400-1000 watts***
- ***Advanced forward topology***
- ***Universal input***
- ***UL, CSA, TÜV (IEC, EN), CE***
- ***FCC, CISPR Class B EMI***
- ***IEC, EN Immunity***
- ***All outputs:***
  - *Adjustable*
  - *Fully regulated*
  - *Floating*
  - *No minimum load required*
  - *Overload and short circuit protected*
  - *Remote On/Off*
  - *Overvoltage protected*
- ***Standard features include:***
  - *System inhibit*
  - *Isolated DC fan output*
- ***Options include:***
  - *Power fail monitor*
  - *End fan cover*
  - *Top fan cover*

DESCRIPTION

Deltron's FS and FT Series are comprehensive lines of ultra compact power factor corrected models derived from our Moduflex® family of power supplies. Both series utilize advanced technology to produce a high quality input current wave form that is compliant with EN 61000-3-2 harmonic standards. Based on modular construction, "off the shelf" modules permit high volume manufacturing resulting in products of superior quality at a competitive price. With the Moduflex platform, design engineers can optimally select output voltage and current ratings to match their system requirements, keeping projects on track and within budget.

The FS and FT Series offer 1–7 output models with power ratings from 400 to 1000 watts to meet a wide variety of applications including factory automation, computing, manufacturing, telecommunication and test equipment. An advanced forward converter topology in conjunction with extensive use of SMT combine to achieve an excellent power density.

OPTIONS

Option Code	Function
00	None
01	Power Fail Monitor
16	Class B Filter*
32	End Fan Cover
64	Top Fan Cover

Replace the YY with the sum of the Option Codes.
** Include Option 16 in all model numbers.*

TYPICAL MODEL SELECTION

500 Watt

Output 1	Output 2	Output 3	Output 4	Model
3.3V @ 60A	5V @ 20A	12V @ 6A	12V @ 6A	FT44B1233-YY
5V @ 60A	3.3V @ 20A	12V @ 6A	12V @ 6A	FT44B2133-YY
5V @ 60A	12V @ 12A	12V @ 6A	5V @ 10A	FT44B2332-YY
5V @ 60A	24V @ 6A	12V @ 6A	12V @ 6A	FT44B2633-YY

750 Watt

Output 1	Output 2	Output 3	Output 4	Model
3.3V @ 75A	5V @ 20A	12V @ 12A	12V @ 12A	FS48D1233-YY
5V @ 75A	3.3V @ 20A	12V @ 12A	12V @ 12A	FS48D2133-YY
5V @ 75A	12V @ 12A	12V @ 12A	5V @ 20A	FS48D2332-YY
5V @ 75A	12V @ 12A	12V @ 12A	24V @ 6A	FS48D2336-YY

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MODEL SELECTION

FS and FT models are available in power ratings of 400 to 1000 watts, with corresponding code letters A through E. The table below shows unit power ratings and power codes.

Output modules are available in five types: J, K, L, N and P in nominal power ratings from 75-500 watts. Type N and P main output modules are variable depending upon the total unit power rating. Type N modules are used for voltages 5.7V and lower. Type P modules are used for voltages above 5.7V. The table below lists the maximum allowable current rating for the N modules and maximum power rating for the P modules. For example, a typical 500 watt multiple output model will have its N module main output configured to produce 5V @ 60A, whereas a corresponding 750 watt unit would have the main output rated at 5V @ 75A. The voltage and current ratings of output modules are listed in the table of output types. This table assigns an alpha-numeric code designating the nominal voltage rating of the module. Higher power models may use paralleled output modules to meet output power requirements.

Power Code	Unit Power Rating	N Module* Allowable Current Rating	P Module* Allowable Power Rating
A	400W	50A	250W
B	500W	60A	300W
C	600W	75A	400W
D	750W	75A	500W
E	1000W	150A	750W

**For N or P modules, the allowable power and the module current ratings in the table above must not be exceeded.*

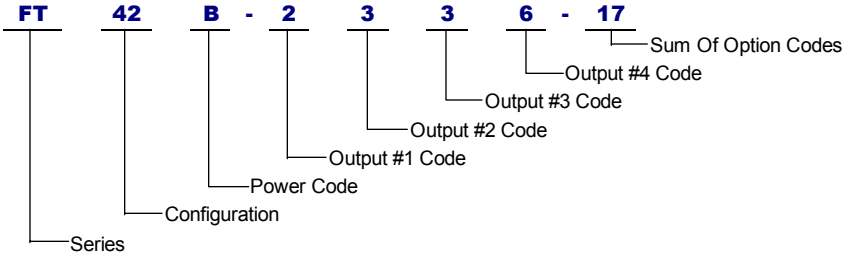
OUTPUT TYPES*					
Output		Module Type			
Code	Volts	J Amps	K Amps	L Amps	N/P Amps
0	2	10	20	30	75
1	3.3	10	20	30	75
2	5	10	20	30	75
3	12	6	12	24	42
4	15	5	10	20	33
5	18	4	8	16	28
6	24	3	6	12	21
7	28	2.5	5	10	18
8	36	2	4	8	14
9	48	1.5	3	6	10
A	2.2	10	20	30	75
B	2.4	10	20	30	75
C	2.7	10	20	30	75
D	3	10	20	30	75
E	3.6	10	20	30	75
F	4	10	20	30	75
G	4.5	10	20	30	75
H	5.7	10	20	30	75
J	6.3	10	20	30	50
K	7	9	18	30	50
L	8	8	16	30	50
M	9	8	15	30	50
N	10	7	14	30	50
P	11	7	13	27	45
Q	13.5	6	11	22	37
R	17	5	9	18	30
S	19	4	8	16	26
T	21	4	7	14	24
U	23	4	7	13	22
V	26	3	6	12	19
W	29	3	5	10	17
X	32	2	5	9	16
Y	40	2	4	8	13
Z	44	2	4	7	12

*Multiple output modules of a given type are arranged in ascending order by voltage magnitude in the same sense as the output number sequence in the configuration diagrams. *Shaded ratings are stock.*

HOW TO ORDER

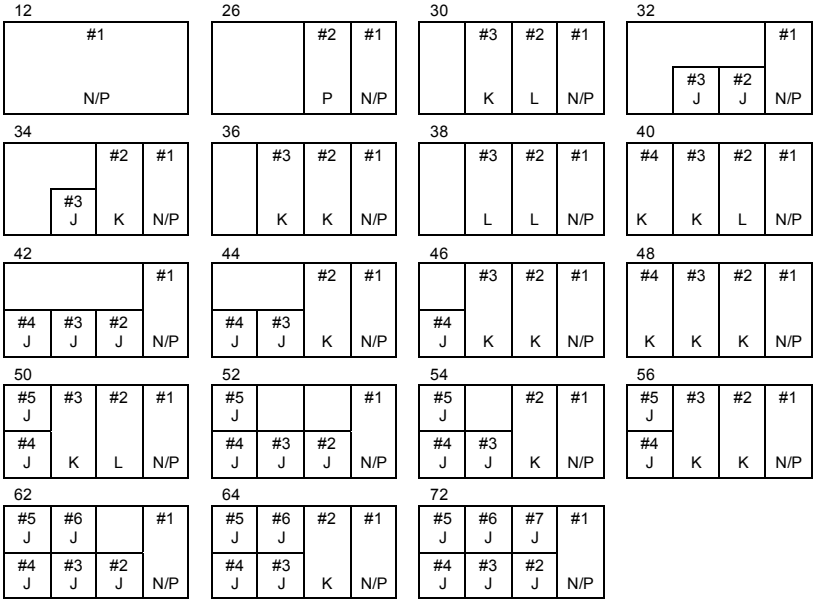
To form the proper model number defining your requirement, match your outputs to the closest module types. Based on the selected output modules and total power requirements, select a corresponding configuration and series followed by the power and output codes. Finish the model number by entering a dash, and from the option table insert the sum of the option codes. See example below for a 500 watt quad output supply with 5, 12, 12 and 24 volt outputs. Also included are Class B Filter and Power Fail Monitor options.

500W QUAD OUTPUT SWITCHER



OUTPUT CONFIGURATIONS

The boxes below are diagrammatic representations of the power supplies as viewed from the output end. The two-digit numbers above the boxes are the configuration codes.



Refer to the table below for allowable configurations by series.

Output Config.	Unit Power Rating				
	400W	500W	600W	750W	1000W
12	•	•	• x	• x	x
26		•	• x	• x	x
30					x
32	•		• x	• x	
34	•	•	• x	• x	
36	•	•	• x	• x	x
38					x
40					x
42	•	•	• x	• x	
44	•	•	• x	• x	x
46			x	x	x
48			x	x	x
50					x
52	•	•	• x	• x	x
54			x	x	x
56			x		x
62			x	x	x
64			x		x
72			x		x

• *Represents allowable configurations for the FT Series.*
x *Represents allowable configurations for the FS Series.*

FS / FT SERIES SPECIFICATIONS

INPUT
90-264 VAC, 47-63 Hz.

POWER FACTOR
0.95 typical.

EMISSIONS
EN 55022/CISPR 22, Class B Conducted. EN 61000-3-2, Harmonics. EN 61000-3-3, Voltage Fluctuations.

IMMUNITY
EN 61000-4-2, Level 3 Electrostatic Discharge. EN 61000-4-3, Level 3 Radiated Field. EN 61000-4-4, Level 3 Electrical Fast Transients. EN 61000-4-5, Level 3 Surge. EN 61000-4-6, Level 3 Conducted Field.

INPUT SURGE
230 VAC – 38 amps max. 115 VAC – 19 amps max.

EFFICIENCY
75% typical.

HOLDUP TIME
20 milliseconds from loss of nominal AC voltage.

OUTPUTS
Outputs are trim adjustable ±5%.

OUTPUT POLARITY
All outputs are floating from chassis and each other and can be referenced to each other or ground, as required.

LINE REGULATION
Less than 0.5% for full line change.

LOAD REGULATION
Less than 1% or 40 mV for full load change.

MINIMUM LOAD
None required.

RIPPLE & NOISE
1% or 100 mV, pk.-pk., 20 MHz bandwidth.

OPERATING TEMPERATURE
0-70°C. Derate 2.5%/°C above 50°C.

COOLING
A minimum of 10 linear feet per second is required, directed through the unit for full rating. Two test locations on chassis rated for maximum temperature of 90°C.

TEMPERATURE COEFFICIENT
±0.02%/°C typical.

DYNAMIC RESPONSE
Peak transient less than ±2% or ±100 mV for a step load change from 75% to 50% or 100% max. Outputs recover within 300 microseconds.

SAFETY
Units meet UL 1950/60950, CSA 22.2 No. 60950-00, EN 60 950.

ISOLATION
Conforms to safety agency standards.

INPUT UNDERVOLTAGE
Protects against damage from under voltage operation.

SOFT START
Units have soft start feature to protect critical components.

OVERVOLTAGE PROTECTION
Standard on all outputs. Latching action.

REVERSE VOLTAGE PROTECTION
All outputs are protected up to 100% load ratings.

OVERLOAD & SHORT CIRCUIT
All outputs are protected by foldback current limiting with automatic recovery.

THERMAL SHUTDOWN
Circuit cuts off supply in case of local over temperature. Units reset automatically when temperature returns to normal.

FAN OUTPUT
Nominal 12 VDC @ 12 watts maximum.

INHIBIT
TTL compatible system inhibit provided.

REMOTE SENSING
On all outputs greater than 75 watts.

SHOCK & VIBRATION
Shock per MIL-STD 810-E Method 516.4, Procedure I. Vibration per MIL-STD 810-E Method 514.4, Category 1, Procedure I.

MECHANICAL

Case	Series	Watts	H x W x L
1	FT	400	2.50" x 4.93" x 8.00"
1	FT	500	2.50" x 4.93" x 8.00"
2	FT	600	2.56" x 5.08" x 10.03"
3	FS	600	2.56" x 5.08" x 11.00"
4	FT	750	2.56" x 5.20" x 10.03"
5	FS	750	2.56" x 5.20" x 11.63"
6	FS	1000	2.56" x 7.13" x 11.63

WARRANTY
Deltron 2 year Standard Warranty on parts and labor.

OPTIONS

POWER FAIL MONITOR *(Code 01)*
Optional circuit provides isolated TTL and VME compatible ACFAIL signal providing 4 milliseconds warning before main output drops by 5% after an input failure.

CLASS B FILTER *(Code 16)*
Included filter to meet EN 55022/CISPR 22, Class B Conducted.

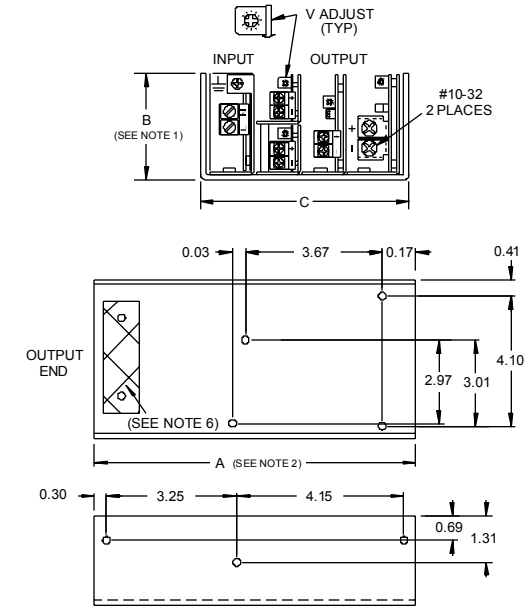
END FAN COVER *(Code 32)*
Optional cover with brushless DC ball bearing fan which provides the required air flow for full rating of Moduflex® power supplies.

TOP FAN COVER *(Code 64)*
Same as above, with fan cover mounted on top of the power supply.

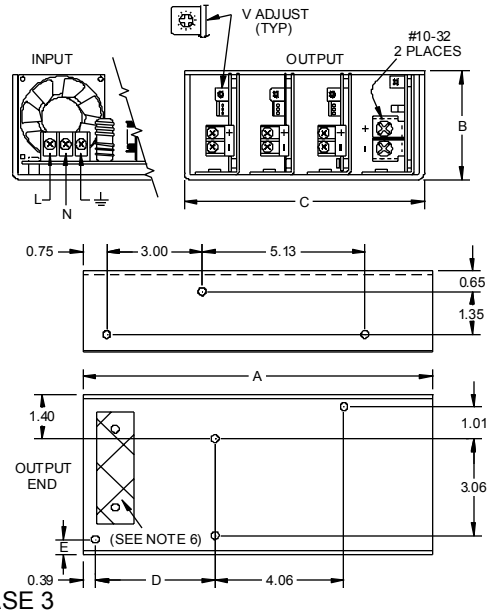
DROOP CURRENT SHARE
Wireless droop current share is available upon request for parallel or N+1 redundant operation. Contact factory for details.

Specifications subject to change without notice.

FS / FT SERIES DIMENSIONS



CASE 1



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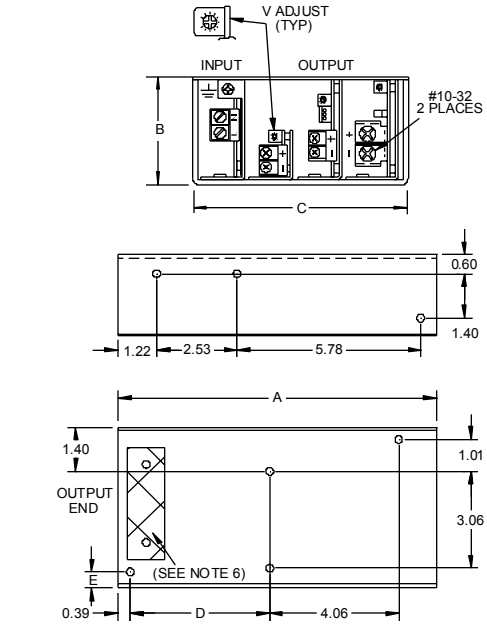
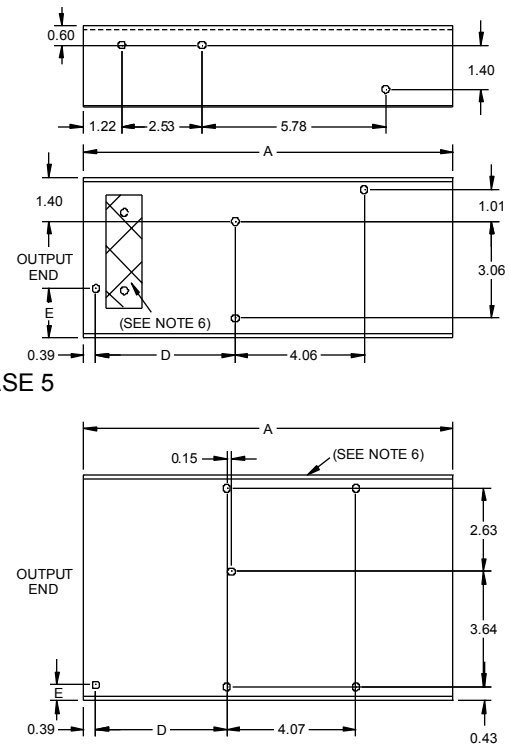


CASE 2 & 4



CASE 5

CASE 6

NOTES:

(1) WITH TOP FAN COVER ADD 1.38" TO HEIGHT.
(2) WITH END FAN COVER ADDS 1.38" TO LENGTH AND 0.10" TO HEIGHT.
(3) TERMINAL BLOCKS (#6-32) UNLESS NOTED.
(5) ALL MOUNTING HOLES (#6-32).
(6) OPTIONAL MOUNTING HOLES. CONSULT FACTORY.

CASE	1	2	3	4	5	6
WATTS	400/500	600	600	750	750	1000
A	8.00	10.03	11.00	10.03	11.63	11.63
B	2.50	2.56	2.56	2.56	2.56	2.56
C	4.93	5.08	5.08	5.08	5.08	7.13
D	–	4.39	3.77	4.39	4.39	4.12
E	–	0.50	0.50	1.57	1.56	0.50