

TECHNICAL DATA SHEET

FORCE 650W

80 PLUS Bronze
Model: FP-650W | P/N: FP-650W



KEY FEATURES

- | | |
|-----------------------------------|---------------------------------|
| • ATX12V Version 2.3 | • 120 mm silent cooling fan |
| • 80 PLUS Bronze efficiency class | • Matte black chassis |
| • Active PFC circuit | • Dimensions: 140 x 148 x 85 mm |

ELECTRICAL SPECIFICATIONS

Nominal input voltage	230 VAC	Maximum output power	650 W
Frequency	50-60 Hz	Hold-up time	>12 ms at full load
Rated input current	4 A at 230 VAC	Rise time	<20 ms at full load
Inrush current	<60 A peak, cold start	Power Good signal	TTL compatible
Cooling	120 x 120 x 25 mm fan	Form factor	ATX12V Version 2.3

PROTECTION FEATURES

OVP	OPP	OTP	UVP	SCP
Over Voltage Protection (+3.3 V / +5 V / +12 V)	Over Power Protection (latch-off)	Over Temperature Protection	Under Voltage Protection	Short Circuit Protection

DC OUTPUT RATINGS

Output rail	Minimum current	Maximum current	Combined rating / notes
+12 V1	0 A	21.5 A	
+12 V2	0 A	21.5 A	
+5 V	0 A	15 A	
+3.3 V	0 A	15 A	
-12 V	0 A	0.3 A	
+5 VSB	0 A	2.0 A	

+3.3 V and +5 V combined load: 120 W

+3.3 V, +5 V and +12 V combined load: 630 W

Total power rating: 650 W

EFFICIENCY VERIFICATION

Load	Efficiency	Power factor	Source
20%	86.98%	See report	80 PLUS report EU-737
50%	89.14%	See report	80 PLUS report EU-737
100%	85.99%	See report	80 PLUS report EU-737
Average	87.37%	-	80 PLUS verification report

DC CONNECTORS

- | | |
|-----------------------|------------------------------------|
| • 1 x ATX 20+4-pin | • 6 x SATA |
| • 2 x EPS 8-pin (4+4) | • 2 x Peripheral 4-pin (IDE Molex) |
| • 2 x PCI-E 6+2-pin | • 1 x FDD |

ENVIRONMENTAL / COMPLIANCE

Operating temperature	5 to 40 deg C	Storage temperature	-20 to 70 deg C
MTBF	>50,000 hours at 80% load, 25 deg C	EMI/RFI	FCC Part 15 Class B; CISPR 22 Class B
Compliance	CE; RoHS	80 PLUS report	EU-737; test date 29 Sep 2020