

**CE BATTERY CHARGERS**

Iss. P6

**Features:** CE marked to the 'Low Voltage' and 'EMC' Directives.  
 Up to 50A Charging current.  
 Low cost.  
 Compact size.  
 High efficiency.

**Models Available:****12V Systems**

Number	Output	
	Current	Voltage
F20170-013	5A	13.8V
F20171-013	10A	13.8V
F20172-013	15A	13.8V
F20173-013	25A	13.8V
F20174-013	50A	13.8V

**24V Systems**

Number	Output	
	Current	Voltage
F20170-027	2.5A	27.2V
F20171-027	5A	27.2V
F20172-027	7.5A	27.2V
F20173-027	12.5A	27.2V
F20174-027	25A	27.2V

**48V Systems**

Number	Output	
	Current	Voltage
F20170-054	1.25A	54.5V
F20171-054	2.5A	54.5V
F20172-054	3.75A	54.5V
F20173-054	6.25A	54.5V
F20174-054	12.5A	54.5V

**Input Specification:**

**Voltage Range:** 230V  $\pm$ 10% a.c. all models.  
 115V  $\pm$ 10% a.c. input available to order on all models.

**Input Current:** See table.

**Inrush Current:** Unit cold - 20A maximum.  
 Unit hot - 100A maximum.

**Frequency:** 45 - 440Hz.

**Input Power:** Values indicated in table are worst case operating conditions.

**Efficiency:** Typically 75%, dependent on model and output voltage.

**Harmonic Distortion:** Units have been tested to and found to be compliant with  
 BS EN 61000-3-2

Input Ratings:	Model Number	Input Voltage	Input Current	Input Power
	F20170	230V	0.6A typ	150W max
		198V	1.2A max	150W max
	F20171	230V	1.1A typ	250W max
		198V	2.2A max	250W max
	F20172	230V	1.7A typ	375W max
		198V	3.25A max	375W max
	F20173	230V	2.7A typ	480W max
		198V	3.3A max	480W max
	F20174	230V	5.7A max	1000W max
		198V	7.0A max	1000W max

### Output Specification:

- Nominal Voltage:** 12V system models nominal output voltage 13.8V  $\pm$ 0.1V.  
24V system models nominal output voltage 27.2V  $\pm$ 0.2V.  
48V system models nominal output voltage 54.5V  $\pm$ 0.4V.  
Other preset voltages available.
- Voltage Adjustment:** Internal voltage adjustment available by potentiometer as below:  
12V system models - 11 - 14.5V  
24V system models - 23 - 28V  
48V system models - 46 - 56V
- Output Current:** The output current quoted above is the output current guaranteed to be available at nominal output voltage.
- Line Regulation:** <100mV for an input voltage variation from 198 to 264V.
- Load Regulation:** <100mV for an output current variation from 0A to full rated output.
- Ripple 10Hz-100kHz:** 1% pk-pk.
- Noise 10Hz-30MHz:** 2% pk-pk.
- Battery Drain:** With the charger connected to a battery, but with the mains input power off, the battery drain is <2mA.
- Indicator:** Charger running indicated by green LED.
- Input Protection:** Integral time delay mains fuse.
- Output Current Limit:** The current limit point is defined as the current at which the output voltage drops by 200mV below nominal at 25°C. Ratings as shown in table.

Model number	Current Limit Point		
	Min	Typ	Max
F20170-013	5.5A	6.5A	9.0A
F20170-027	2.7A	3.0A	4.5A
F20170-054	1.3A	1.4A	1.5A
F20171-013	10.5A	11.5A	14.0A
F20171-027	5.0A	6.0A	7.5A
F20171-054	2.6A	2.8A	3.0A
F20172-013	15.0A	16.5A	18.0A
F20172-027	7.5A	8.5A	10.0A
F20172-054	4.0A	4.5A	5.0A
F20173-013	25.5A	26.5A	30.0A
F20173-027	13.0A	13.5A	15.0A
F20173-054	6.5A	7.0A	7.5A

F20174-013	52.0A	53.0A	54.0A
F20174-027	29.0A	30.0A	31.0A
F20174-054	13.0A	13.5A	15.0A

**Output Overvoltage:** An output voltage in excess of the set trip level will cause the charger to reduce output. The charger output may be restored by interrupting the mains input and disconnecting battery.

	Overvoltage set level
12V system models	15.4V $\pm$ 0.6V
24V system models	31V $\pm$ 2.0V
48V system models	59V $\pm$ 1.0V

**Reverse Battery:** The charger is fitted with a protection diode across the output. For complete protection against reverse battery connection, a fast blow fuse should be fitted in the battery line, the fuse rating should be as specified:

Model Number	Fuse Rating	
	Current	Capacity
F20170	15A	350A <sup>2</sup> s
F20171	15A	350A <sup>2</sup> s
F20172	30A	1000A <sup>2</sup> s
F20173	30A	1000A <sup>2</sup> s
F20174	60A	1500A <sup>2</sup> s

#### Auxiliary Functions:

**Charge fail:** A charge fail relay coil may be connected between positive output and the relay drive pin. The relay drive will de-energise on charge fail, otherwise it will sink up to 50mA.

**Temp.Compensation:** Available as an option. Provides automatic output voltage adjustment for wide temperature range battery charging applications.

#### Electrical Isolation:

**Input to Output:** All isolation barriers provide 4kV a.c. isolation. Complete units are tested to 1500V a.c. from primary to secondary and earth.

**Output to Earth:** Complete units are tested to 500V a.c.

#### Electromagnetic Compatibility:

**Exported Noise:** Units have been tested to and found to be compliant with the conducted and radiated requirements of BS EN 55014:1993.

#### Environmental Conditions:

**Ambient Temp:** 0 - 40°C at full rated output power.

**Humidity:** 0 - 90% R.H. non-condensing.

**Cooling:** Convection cooled in free air flow.

**Safety Standards:** Units have been designed in accordance with the requirements of EN60950 and EN60335-2-29 where applicable.

**Mechanical Specification:**

See attached outline drawing.  
Dimensions (mm) as below:

Model number	A	B	C	D	E	F	G	Mass (kg)
F20170	180.0	113.6	72.9	190.0	5.0	92.0	9.4	1.0
F20171	200.0	113.6	75.9	210.0	5.0	92.0	9.4	1.3
F20172	260.0	113.6	84.9	270.0	5.0	92.0	9.4	1.9
F20173	310.0	144.6	97.9	320.0	5.0	92.0	9.4	2.5
F20174	288.2	232.7	145.2	308.2	10.0	125.0	26.6	5.0

**Fixings:** 4 off 5mm diameter holes are provided on all models.

**Mounting:** DIN rail mounting brackets available as an option.

**Input connections:** IEC 320

**Output connections:** ¼" Fast-on tabs on F20170, F20171, F20172.

M4 screws on F20173 and F20174.

**Guarantee:** All Advance Power products are guaranteed against faulty manufacture and faulty components for a period of twelve months from the date of despatch. See conditions of sale for full details.

**ADVANCE POWER Ltd.**

