



Downloaded from
Advance Product Services Ltd.
 For repairs and replacements, visit
<http://www.advanceproductservices.co.uk>



SUMMARY SPECIFICATION

Model Number	Input Voltage	Nominal Voltage	Adjustment Range	Output Current	Cooling	Dimensions
F20170-012	198 – 264V a.c. or 92 – 132V a.c.	12V	11 – 14.5V	0 – 5A	Convection	180 x 113.6 x 72.9 mm 7.09 x 4.47 x 2.87 in.
F20170-013		13.8V	11 – 14.5V	0 – 5A	Convection	
F20170-024		24V	23 – 28V	0 – 2.5A	Convection	
F20170-027		27.2V	23 – 28V	0 – 2.5A	Convection	
F20170-048		48V	46 – 56V	0 – 1.25A	Convection	
F20170-054		54.5V	46 – 56V	0 – 1.25A	Convection	

INPUT SPECIFICATION

Input Voltage	198 – 264V a.c. as standard. 92 – 132V a.c. available to order.
Frequency	45 – 65Hz.
Supply Type	Single phase TN-S systems (as defined in IEC364).
Efficiency	Typically 75%. Dependant on model and output voltage.
Harmonic Distortion	Units are input current corrected to meet the requirements of EN61000-3-2.

Line Regulation

100mV maximum for an input variation over the specified input range with the output loaded to maximum rated output current.

Ripple and Noise

1% V_{NOM} pk-pk maximum over 100kHz bandwidth. 2% V_{NOM} pk-pk maximum over 30MHz bandwidth. Measurements are made differentially with the output loaded to maximum rated output current.

Reverse Current Drain

When used for charging batteries but with the mains input turned off, the current drain is less than 2mA.

OUTPUT SPECIFICATION

Voltage	Nominal output voltages and adjustment ranges are shown in the summary specification above. Other voltages available to order.
Current	Recommended continuous current ratings (I_{MAX}) are shown in the summary specification above. All maximum current ratings are the guaranteed current available at the nominal output voltage.
Load Regulation	100mV maximum for an output load variation of 0 to I_{MAX} .

PROTECTION

Output Current Limit

All units have protection against output overload.

Output Overvoltage

The output is protected against overvoltage. Overvoltage protection levels are:

12V / 13.8V output	14.8V – 16V;
24V / 27.2V output	29V – 33V;
48V / 54.5V output	56V – 64V.

Reverse Voltage Protection

For battery charging applications, a diode is fitted across the output to rupture the external battery fuse on reverse connection.

Overtemperature Protection

Self resetting thermal protection is provided.

AUXILIARY FUNCTIONS

Output Fail	A relay drive output. Active low when unit operating.
Temperature Compensation	Available as an option. Provides automatic output voltage adjustment for wide temperature range battery charging applications.
Indicator	A green LED 'ON' indicator is provided.

ISOLATION

Input to Output	Reinforced insulation to 3kV a.c. r.m.s. for one minute. Complete units are tested to 1.5kV a.c. between input and output with all output terminals connected together and connected to earth
Output to Earth	Units are tested to 500V a.c. r.m.s. from output to earth, with all output terminals connected together.

ELECTROMAGNETIC COMPATIBILITY

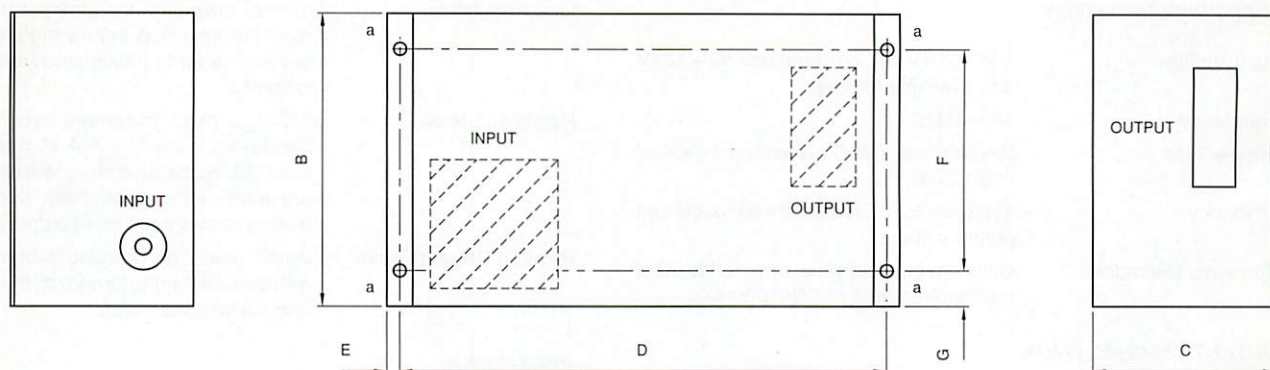
Exported Noise	Units meet the requirements of EN55022 curve B and EN55014 (where applicable) for both conducted and radiated noise.
Immunity	Units meet the requirements of EN50082-1.

OUTLINE DRAWING

All dimensions are nominal and are given in mm (inches).

External Dimensions 180 (7.09) x 113.6 (4.47) x 72.9 (2.87).

Mass 1kg (2.2lb).



Fixings

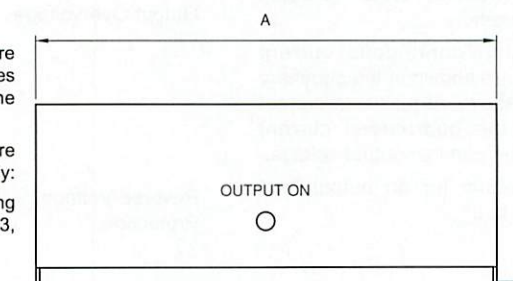
4 x 5mm diameter holes are provided on the chassis flanges and are marked 'a' on the outline drawing.

Connectors

The following connectors are provided on the power supply:

Input 1/4" Fast-on spades or flying lead with M option and on 013, 027 and 054 models.

Output 1/4" Fast-on spades.



MECHANICAL SPECIFICATION

Mechanical Format	012, 024 and 048 models are supplied on chassis as standard. A metal mesh cover with mains lead is available and is specified by adding 'M' to the end of the model number.
Mounting Orientation	013, 027 and 054 models are provided with cover and mains lead as standard. Units may be mounted in any orientation.
Ventilation and Cooling	Units are convection cooled and require free airflow over all faces.

ENVIRONMENTAL CONDITIONS

Operating Temperature	0 to 40°C at full rated output power.
Operating Humidity	0 to 90% R.H. non-condensing.

INTERNATIONAL SAFETY STANDARDS

Units have been designed in accordance with the requirements of EN60950 and EN60335-2-29 (where applicable).

CE marked to the Low Voltage Directive.

When fitted with a cover, units are **CE marked to the Low Voltage Directive and the EMC Directive** for stand alone battery chargers.

ORDERING INFORMATION

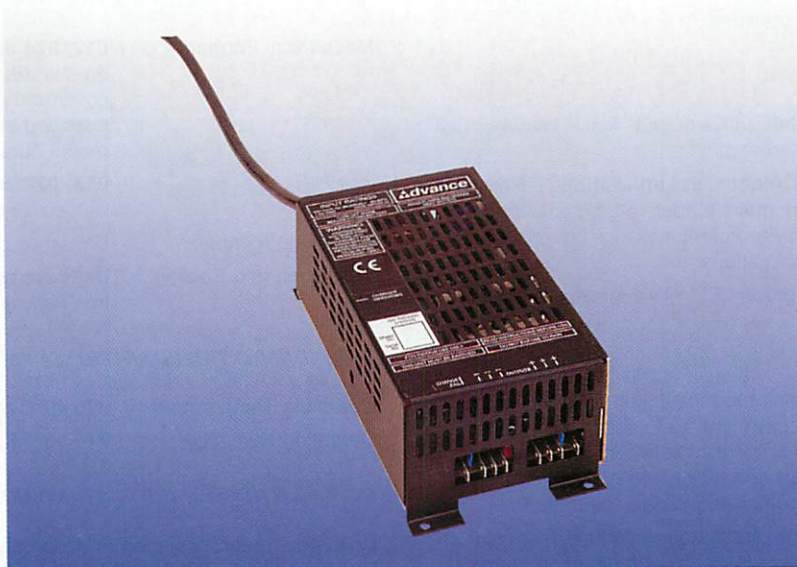
The order code consists of 4 fields:

1. Source code: 14
2. Series: F20170
3. Version: 012, 013, 024, 027, 048 or 054
4. Cover option M (standard on 013, 027 and 054)

e.g. to order model F20170 with 24V output with a cover and mains lead, the order code is:

13 F20170 024 / M

Dim	mm	in
A	180.0	7.09
B	113.6	4.47
C	72.9	2.87
D	190.0	7.48
E	5.0	0.20
F	92.0	3.62
G	9.4	0.37



97

SUMMARY SPECIFICATION

Model Number	Input Voltage	Nominal Voltage	Adjustment Range	Output Current	Cooling	Dimensions
F20171-012	198 – 264V a.c. or 92 – 132V a.c.	12V	11 – 14.5V	0 – 10A	Convection	200 x 113.6 x 75.9 mm 7.87 x 4.47 x 2.99 in.
F20171-013		13.8V	11 – 14.5V	0 – 10A	Convection	
F20171-024		24V	23 – 28V	0 – 5A	Convection	
F20171-027		27.2V	23 – 28V	0 – 5A	Convection	
F20171-048		48V	46 – 56V	0 – 2.5A	Convection	
F20171-054		54.5V	46 – 56V	0 – 2.5A	Convection	

INPUT SPECIFICATION

Input Voltage	198 – 264V a.c. as standard. 92 – 132V a.c. available to order.
Frequency	45 – 65Hz.
Supply Type	Single phase TN-S systems (as defined in IEC364).
Efficiency	Typically 75%. Dependant on model and output voltage.
Harmonic Distortion	Units are input current corrected to meet the requirements of EN61000-3-2.

Line Regulation	100mV maximum for an input variation over the specified input range and with the output loaded to maximum rated output current.
Ripple and Noise	1% V_{NOM} pk-pk maximum over 100kHz bandwidth. 2% V_{NOM} pk-pk maximum over 30MHz bandwidth. Measurements are made differentially with the output loaded to maximum rated output current.
Reverse Current Drain	When used for charging batteries but with the mains input turned off, the current drain is less than 2mA.

OUTPUT SPECIFICATION

Voltage	Nominal output voltages and adjustment ranges are shown in the summary specification above. Other voltages available to order
Current	Recommended continuous current ratings (I_{MAX}) are shown in the summary specification above. All maximum current ratings are the guaranteed current available at the nominal output voltage.
Load Regulation	100mV maximum for an output load variation of 0 to I_{MAX} .

PROTECTION

Output Current Limit	All units have protection against output overload.
Output Overvoltage	The output is protected against overvoltage. Overvoltage protection levels are: 12V / 13.8V output 14.8V – 16V; 24V / 27.2V output 29V – 33V; 48V / 54.5V output 56V – 64V.
Reverse Voltage Protection	For battery charging applications, a diode is fitted across the output to rupture the external battery fuse on reverse connection.

Overtemperature Protection

Self resetting internal thermal protection is provided.

AUXILIARY FUNCTIONS

Output Fail

A relay drive output. Active low when unit operating.

Temperature Compensation

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

Indicator

A green LED 'ON' indicator is provided.

ISOLATION

Input to Output

Reinforced insulation to 3kV a.c. r.m.s. for one minute. Complete units are tested to 1.5kV a.c. between input and output with all output terminals connected together and connected to earth

Output to Earth

Units are tested to 500V a.c. r.m.s. from output to earth, with all output terminals connected together.

ELECTROMAGNETIC COMPATIBILITY

Exported Noise

Units meet the requirements of EN55022 Curve B and EN55014 (where applicable) for both conducted and radiated noise.

Immunity

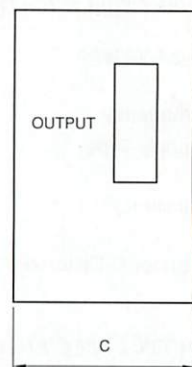
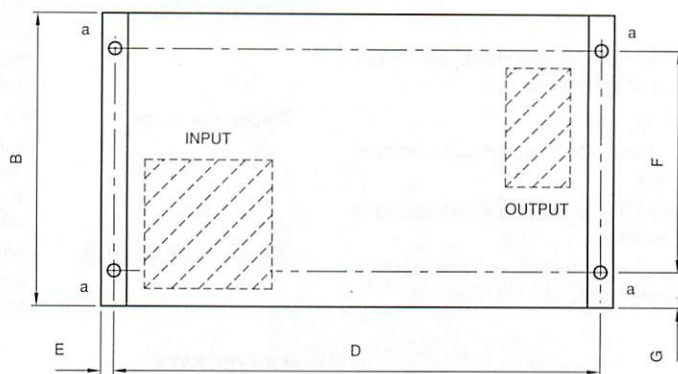
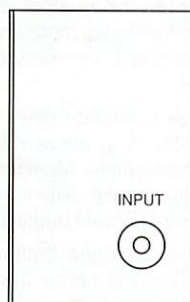
Units meet the requirements of EN50082-1.

OUTLINE DRAWING

All dimensions are nominal and are given in mm (inches).

External Dimensions 200 (7.87) x 113.6 (4.47) x 70.9 (2.79).

Mass 1.3kg (2.9lb).



Fixings

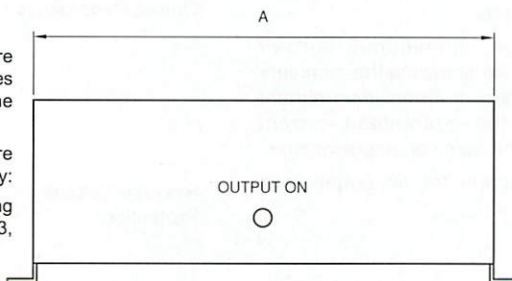
4 x 5mm diameter holes are provided on the chassis flanges and are marked 'a' on the outline drawing.

Connectors

The following connectors are provided on the power supply:

Input 3 x 1/4" Fast-on spades or flying lead with M option and on 013, 027 and 054 models.

Output 1/4" Fast-on spades.



MECHANICAL SPECIFICATION

Mechanical Format

012, 024 and 048 models are supplied on chassis as standard. A metal mesh cover and mains lead is available and is specified by adding 'M' to the end of the model number.

Mounting Orientation

013, 027 and 054 models are supplied with cover and mains lead as standard.

Ventilation and Cooling

Units may be mounted in any orientation. Units are convection cooled and require free airflow over all faces.

ENVIRONMENTAL CONDITIONS

Operating Temperature 0 to 40°C at full rated output power.

Operating Humidity 0 to 90% R.H. non-condensing.

INTERNATIONAL SAFETY STANDARDS

Units have been designed in accordance with the requirements of EN60950 and EN60335-2-29 (where applicable).

CE marked to the Low Voltage Directive.

When fitted with a cover, units are **CE marked to the Low Voltage Directive and the EMC Directive** for stand alone battery chargers.

ORDERING INFORMATION

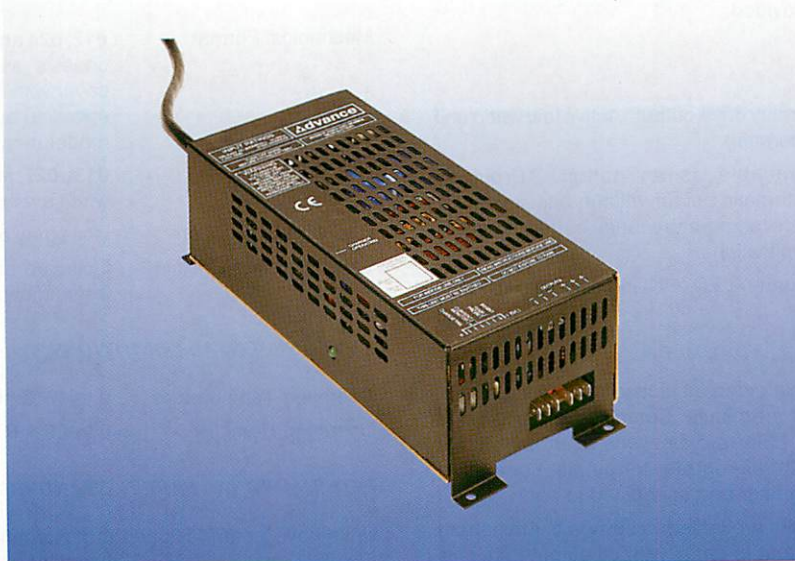
The order code consists of 4 fields:

1. Source code: 14
2. Series: F20171
3. Version: 012, 013, 024, 027, 048 or 054
4. Options a) Cover option M (standard on 013, 027 and 054)

e.g. to order model F20171 with 24V output and with a cover and mains lead, the order code is:

13 F20171 024 / M

Dim	mm	in
A	200.0	7.87
B	113.6	4.47
C	75.9	2.99
D	210.0	8.27
E	5.0	0.20
F	92.0	3.62
G	9.4	0.37



SUMMARY SPECIFICATION

Model Number	Input Voltage	Nominal Voltage	Adjustment Range	Output Current	Cooling	Dimensions
F20172-012	198 – 264V a.c. or 92 – 132V a.c.	12V	11 – 14.5V	0 – 15A	Convection	260 x 113.6 x 84.9 mm 10.24 x 4.47 x 3.34 in.
F20172-013		12V	11 – 14.5V	0 – 15A	Convection	
F20172-024		24V	23 – 28V	0 – 7.5A	Convection	
F20172-027		24V	23 – 28V	0 – 7.5A	Convection	
F20172-048		48V	46 – 56V	0 – 3.75A	Convection	
F20172-054		48V	46 – 56V	0 – 3.75A	Convection	

INPUT SPECIFICATION

Input Voltage	198 – 264V a.c. as standard. 92 – 132V a.c. available to order.
Frequency	45 – 65Hz.
Supply Type	Single phase TN-S systems (as defined in IEC364).
Efficiency	Typically 75%. Dependant on model and output voltage.
Harmonic Distortion	Units are input current corrected to meet the requirements of EN61000-3-2.

Line Regulation

100mV maximum for an input variation over the specified input range with the output loaded to maximum rated output current.

Ripple and Noise

1% V_{NOM} pk-pk maximum over 100kHz bandwidth. 2% V_{NOM} pk-pk maximum over 30MHz bandwidth. Measurements are made differentially with the output loaded to maximum rated output current.

Reverse Current Drain

When used for charging batteries but with the mains input turned off, the current drain is less than 2mA.

OUTPUT SPECIFICATION

Voltage	Nominal output voltages and adjustment ranges are shown in the summary specification above. Other voltages available to order.
Current	Recommended continuous current ratings (I_{MAX}) are shown in the summary specification above. All maximum current ratings are the guaranteed current available at the nominal output voltage.
Load Regulation	100mV maximum for an output load variation of 0 to I_{MAX} .

PROTECTION

Output Current Limit

All units have protection against output overload.

Output Overvoltage

The output is protected against overvoltage. Overvoltage protection levels are:

12V / 13.8V output	14.8V – 16V;
24V / 27.2V output	29V – 33V;
48V / 54.5V output	56V – 64V.

Reverse Voltage Protection

For battery charging applications, a diode is fitted across the output to protect the external battery fuse on reverse connection.

Overtemperature Protection

Self resetting thermal protection is provided.

AUXILIARY FUNCTIONS

Output Fail

A relay drive output. Active low when unit operating.

Temperature Compensation

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

Indicator

A green LED 'ON' indicator is provided.

ISOLATION

Input to Output

Reinforced insulation to 3kV a.c. r.m.s. for one minute. Complete units are tested to 1.5kV a.c. between input and output with all output terminals connected together and connected to earth

Output to Earth

Units are tested to 500V a.c. r.m.s. from output to earth, with all output terminals connected together.

ELECTROMAGNETIC COMPATIBILITY

Exported Noise

Units meet the requirements of EN55022 curve B and EN55014 (where applicable) for both conducted and radiated noise.

Immunity

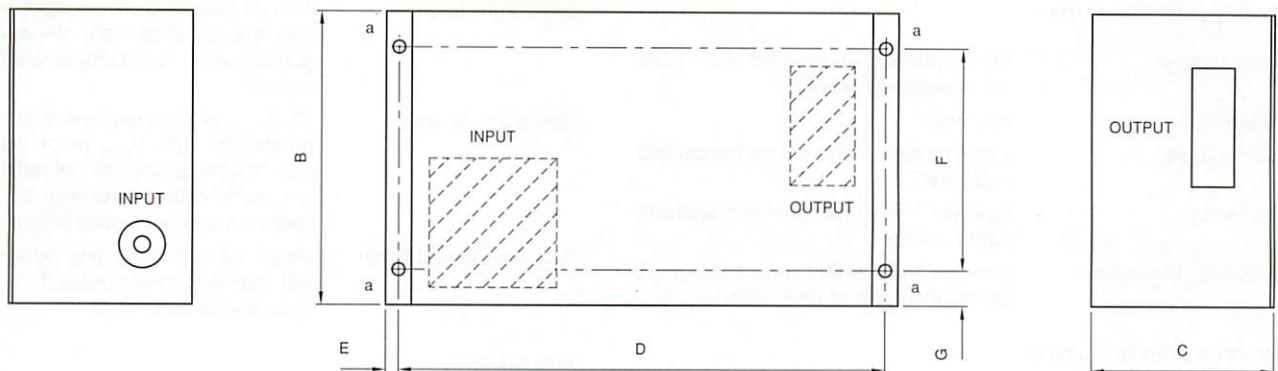
Units meet the requirements of EN50082-1.

OUTLINE DRAWING

All dimensions are nominal and are given in mm (inches).

External Dimensions 260 (10.24) x 113.6 (4.47) x 84.9 (3.34).

Mass 1.9kg (4.2lb).



Fixings

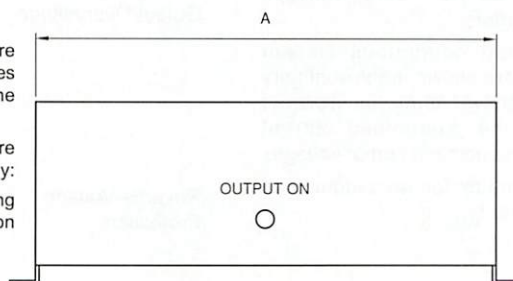
4 x 5mm diameter holes are provided on the chassis flanges and are marked 'a' on the outline drawing.

Connectors

The following connectors are provided on the power supply:

Input 1/4" Fast-on spades or flying lead with M option and on models 013, 027 and 054.

Output 1/4" Fast-on spades.



MECHANICAL SPECIFICATION

Mechanical Format

012, 024 and 048 models are supplied on chassis as standard. A metal mesh cover with mains lead is available and is specified by adding 'M' to the end of the model number.

Mounting Orientation

013, 027 and 054 models are supplied with cover and mains lead as standard.

Ventilation and Cooling

Units may be mounted in any orientation. Units are convection cooled and require free airflow over all faces.

ENVIRONMENTAL CONDITIONS

Operating Temperature

0 to 40°C at full rated output power.

Operating Humidity

0 to 90% R.H. non-condensing.

INTERNATIONAL SAFETY STANDARDS

Units have been designed in accordance with the requirements of EN60950 and EN60335-2-29 (where applicable).

CE marked to the Low Voltage Directive.

When fitted with a cover, units are **CE marked to the Low Voltage Directive and the EMC Directive** for stand alone battery chargers.

ORDERING INFORMATION

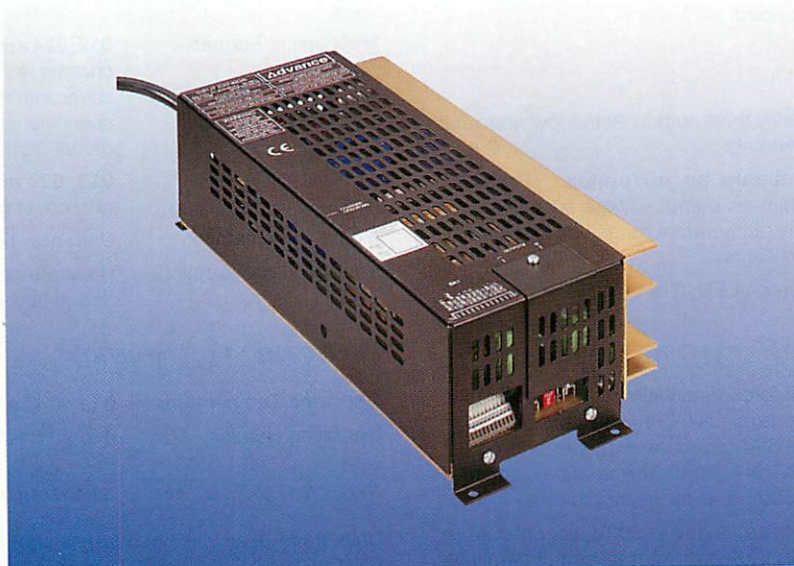
The order code consists of 4 fields:

1. Source code: 14
2. Series: F20172
3. Version: 012, 013, 024, 027, 048 or 054
4. Cover option M (standard on 013, 027 and 054)

e.g. to order model F20172 with 24V output and with a cover and mains lead, the order code is:

13 F20172 024 / M

Dim	mm	in
A	260.0	10.24
B	113.6	4.47
C	84.9	3.34
D	270.0	10.63
E	5.0	0.20
F	92.0	3.62
G	9.4	0.37



SUMMARY SPECIFICATION

Model Number	Input Voltage	Nominal Voltage	Adjustment Range	Output Current	Cooling	Dimensions
F20173-012	198 – 264V a.c. or 92 – 132V a.c.	12V	11 – 14.5V	0 – 25A	Convection	310 x 144.6 x 97.9 mm 12.20 x 5.69 x 3.85 in.
F20173-013		13.8V	11 – 14.5V	0 – 25A	Convection	
F20173-024		24V	23 – 28V	0 – 12.5A	Convection	
F20173-027		27.2V	23 – 28V	0 – 12.5A	Convection	
F20173-048		24V	23 – 28V	0 – 12.5A	Convection	
F20173-054		54.5V	46 – 56V	0 – 6.25A	Convection	

INPUT SPECIFICATION

Input Voltage	198 – 264V a.c. as standard. 92 – 132V a.c. available to order.
Frequency	45 – 65Hz.
Supply Type	Single phase TN-S systems (as defined in IEC364).
Efficiency	Typically 75%. Dependant on model and output voltage.
Harmonic Distortion	Units are input current corrected to meet the requirements of EN61000-3-2.

Line Regulation

100mV maximum for an input variation over the specified input range with the output loaded to maximum rated output current.

Ripple and Noise

1% V_{NOM} pk-pk maximum over 100kHz bandwidth. 2% V_{NOM} pk-pk maximum over 30MHz bandwidth. Measurements are made differentially with the output loaded to maximum rated output current.

Reverse Current Drain

When used for charging batteries but with the mains input turned off, the current drain is less than 2mA.

OUTPUT SPECIFICATION

Voltage	Nominal output voltages and adjustment ranges are shown in the summary specification above. Other voltages available to order.
Current	Recommended continuous current ratings (I_{MAX}) are shown in the summary specification above. All maximum current ratings are the guaranteed current available at the nominal output voltage.
Load Regulation	100mV maximum for an output load variation of 0 to I_{MAX} .

PROTECTION

Output Current Limit

All units have protection against output overload.

Output Overvoltage

The output is protected against overvoltage. Overvoltage protection levels are:

12V / 13.8V output	14.8V – 16V;
24V / 27.2V output	29V – 33V;
48V / 54.5V output	56V – 64V.

Reverse Voltage Protection

For battery charging applications, a diode is fitted across the output to rupture the external battery fuse on reverse connection.

Overtemperature Protection

Self resetting thermal protection is provided.

AUXILIARY FUNCTIONS

Output Fail	A relay drive output. Active low when unit operating.
Temperature Compensation	Available as an option. Provides automatic output voltage adjustment for wide temperature range battery charging applications.
Indicator	A green LED 'ON' indicator is provided.

ISOLATION

Input to Output	Reinforced insulation to 3kV a.c. r.m.s. for one minute. Complete units are tested to 1.5kV a.c. between input and output with all output terminals connected together and connected to earth
Output to Earth	Units are tested to 500V a.c. r.m.s. from output to earth, with all output terminals connected together.

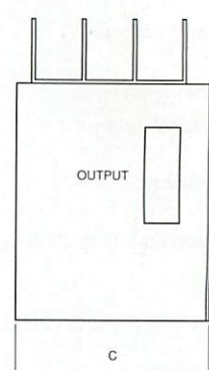
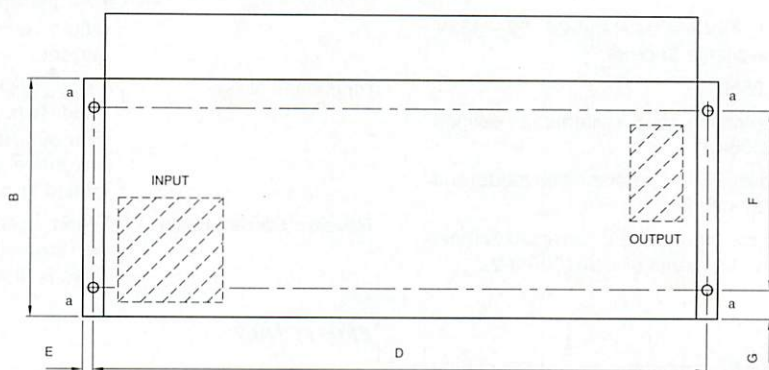
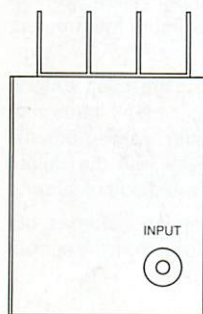
ELECTROMAGNETIC COMPATIBILITY

Exported Noise	Units meet the requirements of EN55022 curve B and EN55014 (where applicable) for both conducted and radiated noise.
Immunity	Units meet the requirements of EN50082-1.

OUTLINE DRAWING

All dimensions are nominal and are given in mm (inches).

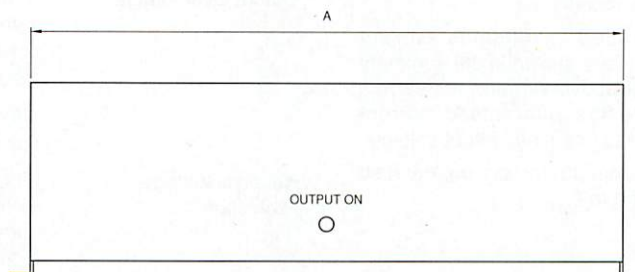
External Dimensions	310 (12.20) x 144.6 (5.69) x 97.9 (3.85).
Mass	2.5kg (5.5lb).
Fixings	4 x 5mm diameter holes are provided on the chassis flanges and are marked 'a' on the outline drawing.



Connectors The following connectors are provided on the power supply:

Input 1/4" Fast-on spades or flying lead with option M and on 013, 027 and 054 models.

Output M4 screws.



MECHANICAL SPECIFICATION

Mechanical Format	012, 024 and 048 models are supplied on chassis as standard. A metal mesh cover with mains lead is available and is specified by adding 'M' to the end of the model number.
Mounting Orientation	013, 027 and 054 models are supplied with cover and mains lead as standard.
Ventilation and Cooling	Units may be mounted in any orientation. Units are convection cooled and require free airflow over all faces.

ENVIRONMENTAL CONDITIONS

Operating Temperature	0 to 40°C at full rated output power.
Operating Humidity	0 to 90% R.H. non-condensing.

INTERNATIONAL SAFETY STANDARDS

Units have been designed in accordance with the requirements of EN60950 and EN60335-2-29 (where applicable).

CE marked to the Low Voltage Directive.

When fitted with a cover, units are **CE marked to the Low Voltage Directive and the EMC Directive** for stand alone battery chargers.

ORDERING INFORMATION

The order code consists of 4 fields:

1. Source code: 14
2. Series: F20173
3. Version: 012, 013, 024, 027, 048 or 054
4. Cover option M (standard on 013, 027 and 054)

e.g. to order model F20173 with 24V output with a cover and mains lead, the order code is:

13 F20173 024 / M

Dim	mm	in
A	310.0	12.20
B	144.6	5.69
C	97.9	3.85
D	320.0	12.60
E	5.0	0.20
F	92.0	3.62
G	9.4	0.37