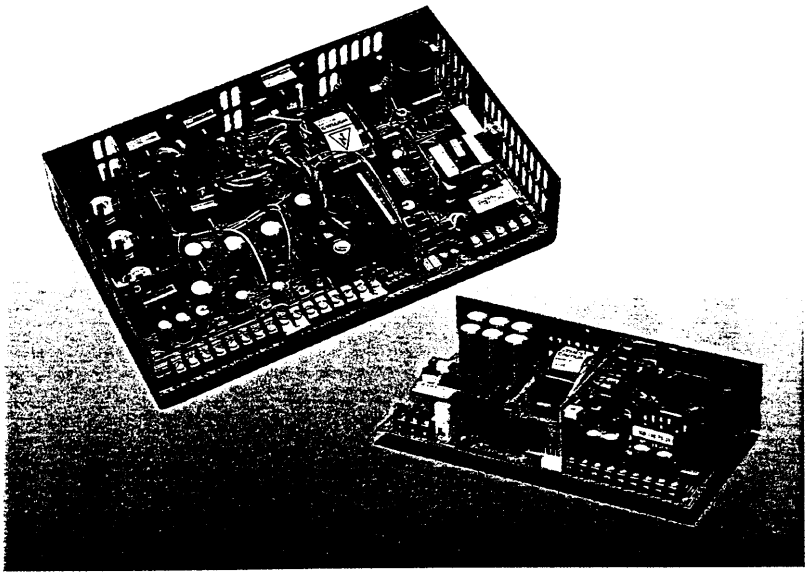
NA Series — 140 to 300 Watt Range



VDE

MODELS AVAILABLE

Model Number	Output 1	Output 2	Output 3	Output 4	Output 5
NA140P300	+5V 2 – 17A	+12V 0 – 7A (9A)	F12V 0 – 3A (4A)		
NA140P401	+5V 2 – 17A	+12V 0 – 7A (9A)	F12V 0 – 3A (4A)		F5V 0 – 1A
NA140P500	+5V 2 – 17A	+12V 0 – 5A (6.5A)	F12V 0 – 3A (4A)	F24V 0 – 3A (4A)	F5V 0 – 1A
NA140P501	+5V 2 – 17A	+12V 0 – 5A (6.5A)	F12V 0 – 3A (4A)	F12V 0 – 1.5A (4A)	F5V 0 – 1A
NA200P401	+5V 4 – 30A (32A)	+12V 0 – 7A (9A)	F12V 0 – 5A (7A)		F5V 0 – 1A
NA200P500	+5V 4 – 30A (32A)	+12V 0 – 7A (9A)	F12V 0 – 5A (7A)	F24V 0 – 3A (4.5A)	F5V 0 – 1A
NA200P502	+5V 4 – 30A (32A)	+12V 0 – 7A (9A)	F12V 0 – 5A (7A)	F12V 0 – 5A (7A)	F5V 0 – 5A
NA300R500	F5V 0[1] – 50A	F12V 0 – 6A	F12V 0 – 6A	F24V 0 – 5A	F5V 0 – 1.5A
NA300R505	F5V 0[1] – 50A	F12V 0 – 6A	F12V 0 – 6A	F48V 0 – 2.5A	F5V 0 – 1.5A

( ) Figures in parentheses denote surge ratings

(1) With output 1 at 0A, auxiliary outputs will provide up to 50% of rated output. for full power on auxiliaries a minimum current of 2.5A is required on output 1.

INPUT SPECIFICATION

Input Voltage 92 – 132V a.c. on 115V tap. 176 – 264V a.c. or 249 – 373V d.c. on 230V tap. An auto-ranging input facility is available by specifying option 'U'.

Frequency 45 – 440Hz.

Supply Type Single phase TN-S systems (as defined in IEC364). i.e. systems with a separate earth conductor which is directly connected to the neutral conductor at the source.

Efficiency Minimum 74% when loaded to maximum rated output power.

OUTPUT SPECIFICATION

Voltage Nominal output voltages and polarity are shown in the table of models above.

Current Recommended minimum operating current and maximum continuous current ratings (I_{MAX}) are shown in the table of models above. Values in parentheses are surge current ratings only. It may not be possible to draw the full rated current from all outputs simultaneously due to the total power rating of the unit. All maximum current ratings are applicable over the full operating temperature range of the units.

Power All units require free air convection cooling. See outline drawing and mechanical specification for ventilation requirements.

NA140P: 140W continuous up to 50°C ambient. From 50°C to 70°C derate by 2.5%/°C. 165W surge.

NA200P: 200W continuous up to 50°C ambient. From 50°C to 70°C derate by 2.5%/°C.

NA300R: 300W continuous up to 50°C ambient. From 50°C to 70°C derate by 2.5%/°C. 250W surge.

Load Regulation An output load is varied by ±40% I_{MAX} from 60% IMAX with all other outputs loaded to 20% I_{MAX}. Maximum voltage deviation as a percentage of nominal is shown below:

Model	Output 1	Output 2	Output 3	Output 4	Output 5
NA140Pxxx (except as below)	±1%	±3%	±3%	±3%	±1%
NA140P501	±1%	±3%	±3%	±1%	±1%
NA200Pxxx (except as below)	±1%	±3%	±3%	±3%	±1%
NA200P502	±1%	±3%	±3%	±3%	±5%
NA300R	±1%	±1%	±1%	±1%	±1%

Line Regulation An input variation of from 198V to 264V or from 103.5V to 132V with all outputs proportionally loaded to provide maximum rated power causes a maximum output voltage variation of 0.4% of nominal on NA140P and NA200P models; 0.5% of nominal on NA300R models.

Cross Regulation The output voltage variation of any output when any other output is varied by ±25% I_{MAX} from 75% I_{MAX} is shown below:

Model	Output 1	Output 2	Output 3	Output 4	Output 5
NA140Pxxx (except as below)	±0.1%	±3%	±3%	±3%	±0.1%
NA140P501	±0.1%	±3%	±3%	±0.1%	±0.1%
NA200Pxxx (except as below)	±0.2%	±3%	±3%	±3%	±0.1%
NA200P502	±0.2%	±3%	±3%	±3%	±3%
NA300R	±0.25%	±0.25%	±0.25%	±0.25%	±0.25%

Ripple and Noise With all outputs proportionally loaded to provide maximum rated power: The differential ripple voltage over the frequency range 10Hz – 100kHz does not exceed 50mV pk-pk; the differential noise voltage over the frequency range 10Hz – 30MHz does not exceed 100mV pk-pk on NA140P and NA200P models, and 1% of nominal or 100mV, whichever is the larger on NA300R models.

PROTECTION

Input Overvoltage Units are protected by gas discharge devices which, under severe input overvoltage conditions, will break down and may cause the input fuse to rupture.

Hold Up All units have sufficient energy storage to ride through a missing mains cycle when supplying full rated output power at nominal mains input. At low mains input, 198V or 103.5V hold up >18ms; at nominal input, 240V or 115V hold up >28ms.

Output Overvoltage Output 1 is protected against overvoltage. Unit shutdown will occur at between 5.8V and 7.0V. Overvoltage protection is available on auxiliary outputs of NA300R models as option 'V'. Latching overvoltage protection levels are:

5V output	5.8 – 7.0V
12V output	13.5 – 15.0V
24V output	27.0 – 30.0V
48V output	54.0 – 60.6V

AUXILIARY FUNCTIONS

Remote Sense Available on the main output of NA300R models.

Parallel Operation The main output of NA200P and NA300R ranges are suitable for operation in parallel with other units from the same range.

External Inhibit The output currents of all units may be inhibited by a logic signal.

External Shutdown NA300R models may be shut down by a logic signal.

Power Fail Signal Available as standard on NA300R range, and available when option A or B is specified on NA140P and NA200P range units. A logic output providing warning of failure due to loss of input.

DC OK Signal Available when option B is specified. A logic output providing an indication of output presence.

ISOLATION

Primary to Secondary Input to output isolation barriers, including layout and wiring, are specified to 4kV a.c. r.m.s. for one minute. Where a safety earth is interposed between primary and secondary, this potential is applied as 2kV a.c. r.m.s. input to earth and 2kV a.c. r.m.s. output to earth. Complete units are tested to 1.5kV a.c. r.m.s. (2.3kV d.c. on NA300R models) between input and output, with all output terminals connected together and connected to earth.

Secondary to Earth Units are tested to 700V d.c. (500V a.c. r.m.s. on NA300R models) from output to earth, with all output terminals connected together.

Earth Leakage Current The earth current is measured as the voltage across a 1.5kΩ resistor in parallel with a 1.5nF capacitor, inserted in series with the earth line. Under full load, the leakage current does not exceed:

1mA at 50Hz;
1.2mA at 60Hz;
8.8mA at 440Hz.

ELECTROMAGNETIC COMPATIBILITY

Exported Noise All units meet the requirements of BS800; BS6527 Class B; EEC Directive 82/499/EEC; FCC Rules Part 15 Subpart J Class B; VDE0871 Class B

MECHANICAL SPECIFICATION

Mechanical Format All units are supplied on 'L' chassis as standard. A metal mesh cover is available and is specified by adding 'M' to the end of the model number.

Mounting Orientation Units may be mounted in any orientation.

Ventilation and Cooling All faces requiring free air flow are indicated on the outline drawing. Faces marked 'A' are fully ventilated; faces marked 'B' are partially ventilated. Units are convection cooled.

ENVIRONMENTAL CONDITIONS

Operating Temperature	0 to 70°C. See current and power ratings in output specifications for any deratings required.
Operating Humidity	0 to 95% R.H. non-condensing.

INTERNATIONAL SAFETY STANDARDS

Units indicated below have been tested by the following approval bodies to the standards listed and have been approved as being compliant with those standards or with the relevant sections of those standards.

NA140P range:

For BSI, CSA, UL and VDE approval, the maximum power is reduced to 120W when the unit is fitted with a cover.

BABT	EN41003.
BSI	BS5850; BS6204; IEC380; IEC435.
CSA	C22.2 #234.
UL	UL1950.
VDE	VDE0805; VDE0806.

NA200P range:

BABT	BS6301, BS6484.
BSI	BS5850, BS6204; IEC380; IEC435.
CSA	Bulletin 1402C.
UL	UL1950.
VDE	EN60950.

NA300R range:

BABT	BS6301, BS6484.
CSA	C22.2 #234.
UL	UL1950.
VDE	EN60950; VDE0805.

More detailed information is available on these units from your local sales office or agent. Please refer to Section L at the end of your catalogue for your local contact.

ORDERING INFORMATION

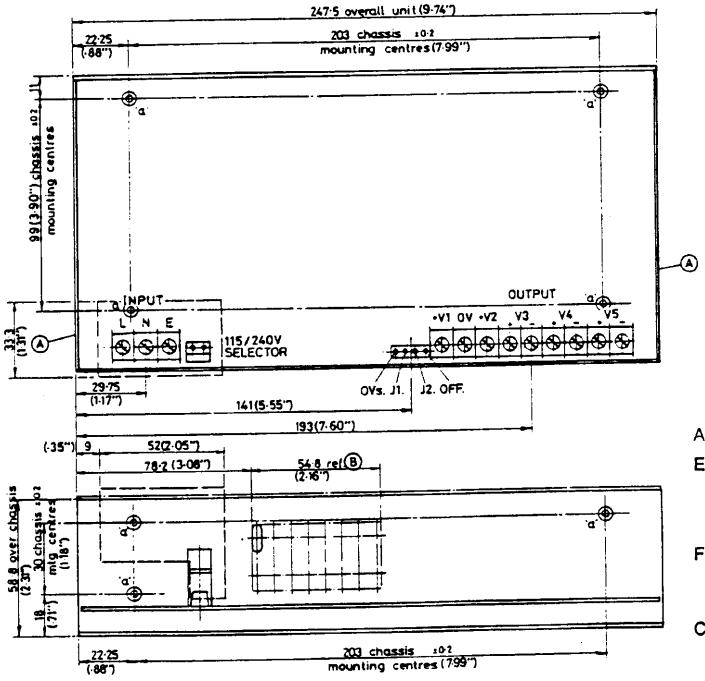
The order code consists of 5 fields:

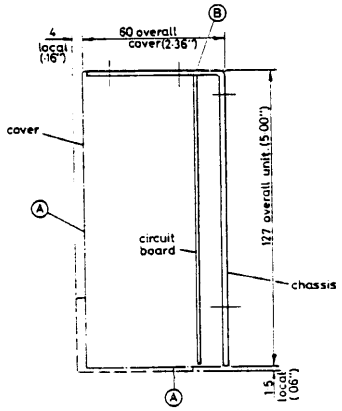
1. Source code:	13	
2. Series:	NA	
3. Range:	140P, 200P or 300R	
4. Version:	From table of models	
5. Options (as required)	a) Auto-ranging input:	U
	b) Signals option:	A or B
	c) Auxiliary OVP:	V (NA300R only)
	d) Mechanical options:	M

Note that fields 2, 3 and 4 comprise the basic model number of the unit. e.g. to order model NA140P500 with power fail warning and with mesh cover fitted, the order code is:

13 NA 140P 500 AM

NA140P RANGE OUTLINE DRAWING



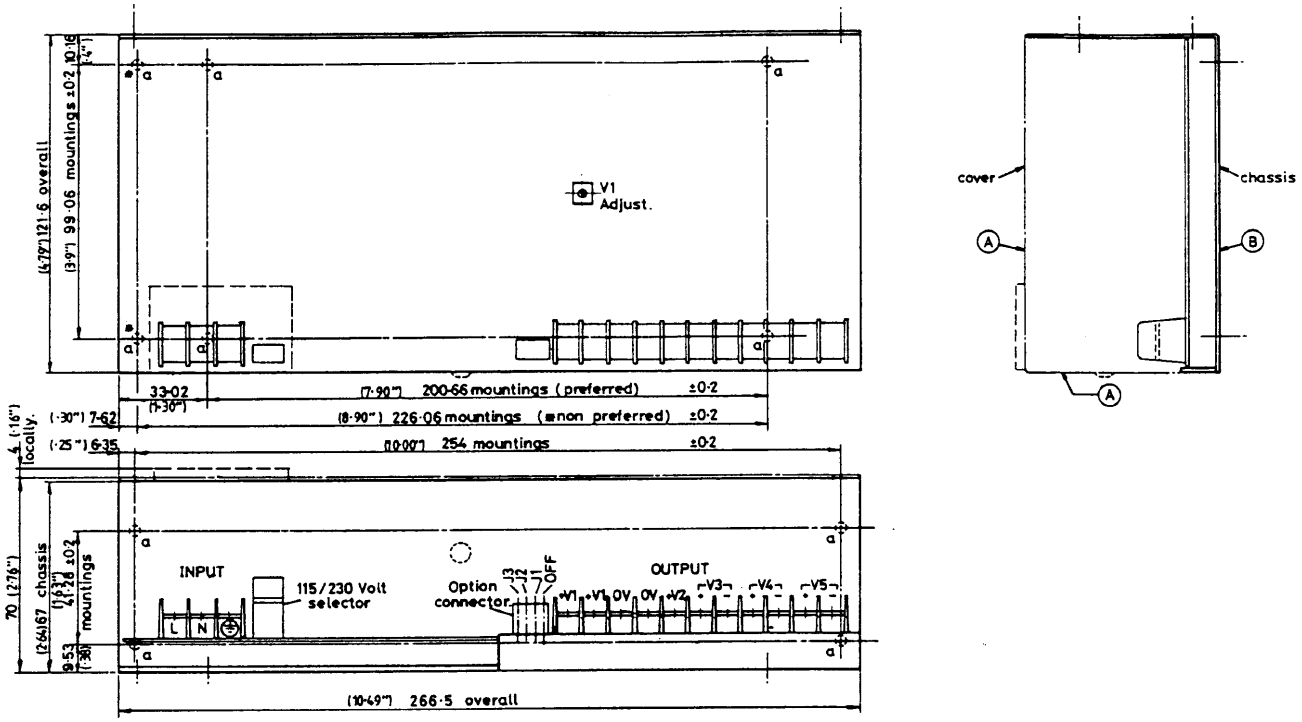


All dimensions are nominal and are in mm (inches).

External Dimensions and Mass

Chassis form:	247.5(9.74) x 127(5.00) x 58.8(2.31).
Enclosed form:	247.5(9.74) x 127(5.00) x 60 (2.36). 1.36kg (3.0lb).
Fixings	7 x M3 ISO standard threaded inserts are provided on the chassis and are marked 'a' on the outline drawing.
Connectors	The following connectors are provided on the power supply:
Input	Beau 72000 series, ref. 72503CV.
Output	Beau 72000 series, ref. 72509C.
Input Voltage Selector	Tap changer link supplied.
Auxiliary Functions	AMP ref. 640445-4.

NA200P RANGE OUTLINE DRAWING



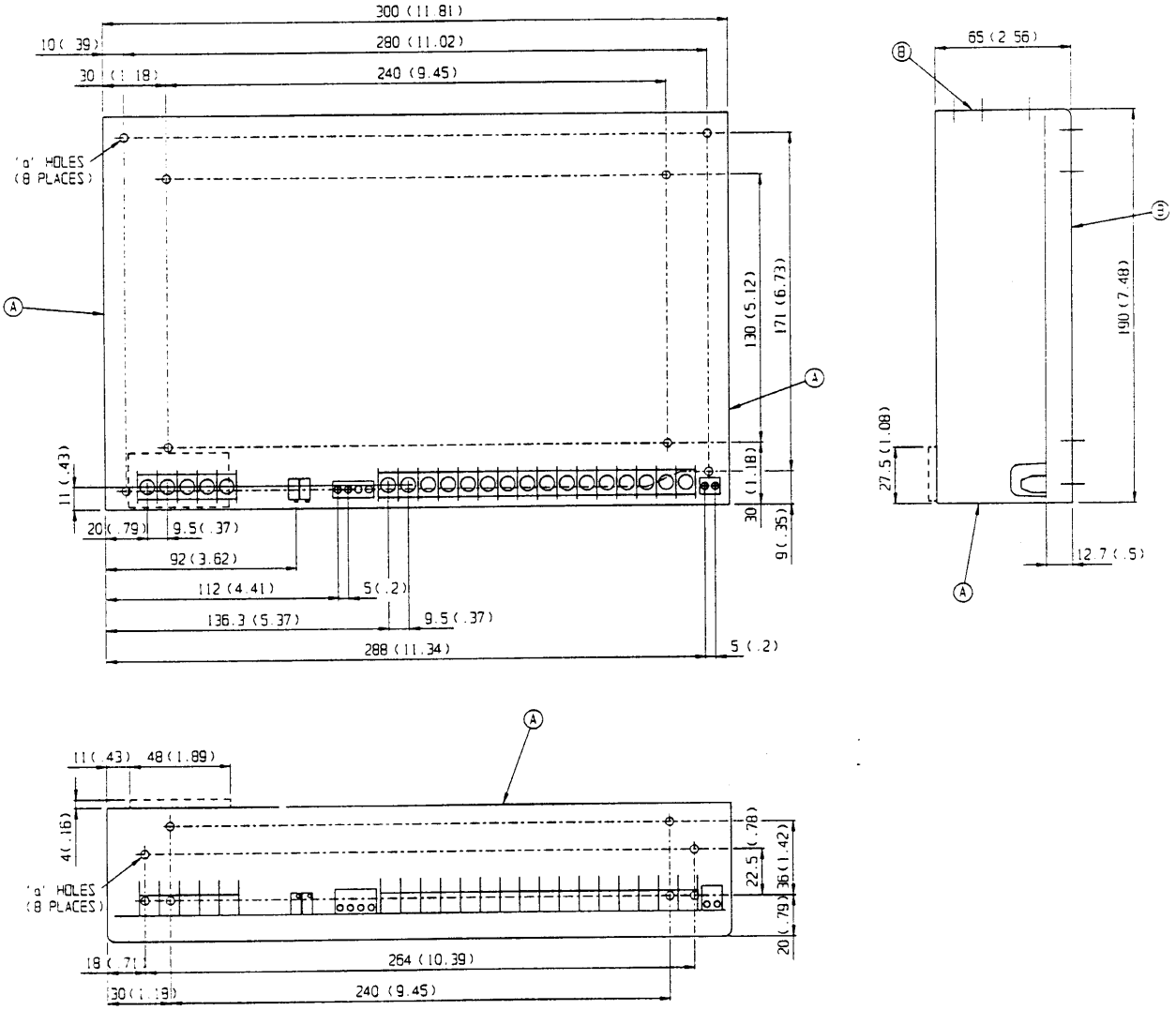
All dimensions are nominal and are in mm (inches).

External Dimensions and Mass

Chassis form:	266.5(10.49) x 121.6(4.79) x 67(2.64).
Enclosed form:	266.5(10.49) x 121.6(4.79) x 70(2.76) 1.73kg (3.81lb).
Fixings	10 x M3 ISO standard threaded inserts are provided on the chassis and are marked 'a' on the outline drawing.
Connectors	The following connectors are provided on the power supply:
Input	Beau 72000 series, ref. 72503CV.
Output	Beau 72000 series, ref. 72511C.
Input Voltage Selector	Tap changer link supplied.
Auxiliary Functions	AMP ref. 640445-4.

NA300R RANGE OUTLINE DRAWING

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



External Dimensions and Mass

Chassis form:	300(11.81) x 190(2.48) x 65(2.56).
Enclosed form:	300(11.81) x 190(2.48) x 69(2.72).
	3.7kg (8.14lb).

Fixings 16 x M3 ISO standard threaded inserts are provided on the chassis and are marked 'a' on the outline drawing.

Connectors The following connectors are provided on the power supply:

Input	Beau 72000 series, ref. 72505CV.
Output	Beau 72000 series, ref. 72516CV.
Input Voltage Selector	Included on input connector.
Auxiliary Functions	Metway P95 series, ref. P95/4 and ref. P95/2.