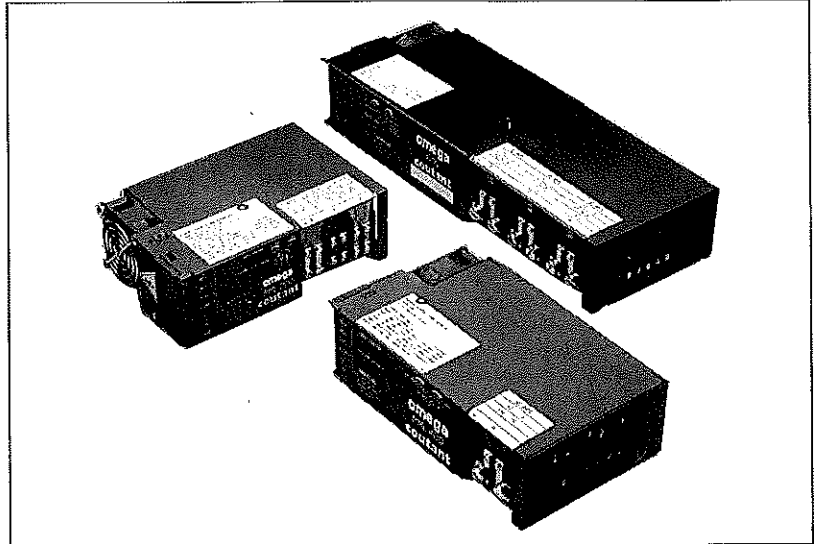


200W-600W SINGLE/MULTI OUTPUT

FEATURES

- Flexible modular design
- Compact - up to 4W/cu in
- Meets UL1950, CSA EB1402C, EN60950, BS6301, BS7002*
- RFI to EN55022
- Power factor correction on 600W model to IEC-555-2
- 85-264VAC wide range inputs



2

OUTLINE SPECIFICATION

Input

Input voltage range	200/400W: 90-132 or 180-264VAC strappable on input terminal block [†] 600W: 85V to 264V $\ddagger$
Input frequency	47-63Hz
Inrush current	200/400W: <15 Amps 600: <20 amps
Power factor	>0.99 (600W only)
Harmonic distortion	conforms to EN 60555-2 (600W only)

Input continued

Start-up time (max)	200W <400mSec 400W <700mSec 600W <1300mSec
Input protection	internal fuse
Thermal protection	standard
Switching frequency	100kHz

[†]Auto select option available - see options

$\ddagger$ 5 minutes max. continuous below 95V

Output

Module table (Specifications nominal unless stated)

Module type	A	B	C	D	E	F	G	H	J ⁵	K ⁵
Slots (width of module)										
1 slot=23mm	2	1	1	1	1	2	2	1	2	1
Output voltage (pre-set)	5V	5V	12V	24V	12V/12V	12V	12V	24V/24V	48V	12V/12V
Adjustment range	2-6V	2-6V	5-15V	12-28V	5-15V	5-15V	12-28V	12-28V	25-60V	5-15V
Output current	60A	25A	12A	7A	6A ²	24A	15A	3.5A ²	10.5A	6A ²
Load regulation (0-100% loading)	0.1%	0.1%	0.1%	0.1%	0.5% ¹	0.1%	0.1%	0.5% ¹	0.1%	0.5%
Adjustment	Multi-turn potentiometer for each output									
Setting accuracy	$\pm 1\%$									
Temperature coefficient	0.02%/°C									
Line regulation	0.1% (At $\pm 20\%$ of nominal mains)									
Noise and ripple (PARD)	50mV or 1% whichever is greater (A, B, C, D, F, G, J). 1% (E-H, twin O/P)									
Transient response (25%-75% load)	Max. deviation < 10% of set volts recovering to 1% within 300 micro-secs									
Overcurrent protection	Foldback from 110% to 60% at 0 volts (A,B,C,D,F,G,J) (24V output - 110% to 77%) constant current (E,H,K twin O/P)									
Overvoltage protection	Adjustable, multi-turn potentiometer one per output. Inhibits individual outputs ³									
Remote sense	0.5 volts total (Not on E,H,K)									
Output isolation	500VDC to ground									

1. 10 to 100% load
2. Total current shared between both outputs
3. Fixed OVP on twin O/Ps, modules E, H, K
4. 50mV up to 6A/channel
10mV up to 1A/channel
5. Preliminary specification

Note 4

OUTLINE SPECIFICATION continued

Output continued

Hold-up	200/400W: >20ms from 100 or 198VAC
	600W: >20ms from 85VAC
Rating (fan cooled)	200W to 600W

General

Efficiency	>73% (230VAC)
MTBF	>50,000 hrs
Isolation voltage:	
Input - output	3.0kV RMS
Input - ground	1.5kV RMS
Output - ground	500VDC
Input to output resistance	30M ohms/500VDC
Mains fail	opto isolated output. Standard on MML 600
Power Supply Inhibit	opto isolated output. Standard on MML 600

Environmental

Operating temperature range	0°C to 70°C
Derating 200W, 400W	100% at 50°C then 2.5%/°C
600W	100% at 45°C then 2%/°C
Storage temperature range	-40°C to 85°C
Operating/storage humidity (non condensing)	5% to 95% RH
Operating/storage pressure	1030 to 680mb
RFI	EN55022 Level A or B (Configuration dependent)

* Check with Technical Sales for current status of approvals.

2

ELECTRICAL SPECIFICATION

STANDARD UNITS			Maximum Power	Output 1		Output 2		Output 3		Output 4		Module Line-up
Model Number	Case Style	Case Length(mm)		Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	
MML 200 P1	200	143	150	5	25							B
MML 200 Q1	200	166	200	5	40							A
MML 200 P2	200	143	180	12	12							C
MML 200 P3	200	143	196	24	7							D
MML 200 Q3	200	166	200	5	25	12	12					B+C
MML 200 Q4	200	166	200	5	25	12	1.5	12	1.5			B+H
MML 200 Q2	200	166	200	5	25	12	3	12	3			B+E
MML 200 R1	200	189	200	5	25	12	3	12	3	2 x 24	1.75	B+E+H
MML 400 B1	400	212	360	5	60							A
MML 400 C1	400	235	400	5	80							A+B (Parallel)
MML 400 B2	400	212	400	24	15							G
MML 400 B3	400	212	360	12	24							F
MML 400 D1	400	258	400	5	60	12	12	12	12			A+C+C
MML 400 E1	400	281	400	5	60	12	12	12	12	24	7	A+C+C+D
MML 400 E2	400	281	400	5	60	12	12	12	12	5	12	A+C+C+B
MML 400 E3	400	281	400	5	60	12	12	12	12	12	12	A+C+C+C
MML 600 T1	600	304	600	5	120							A+A (Parallel)
MML 600 T2	600	304	600	24	25							G+G (Parallel)
MML 600 T4	600	304	600	48	12.5							J+J (Parallel)
MML 600 T5	600	304	600	5	60	12	12	12	12			A+C+C
MML 600 T6	600	304	600	5	60	2	25	12	3	12	3	A+B+E
MML 600 U1	600	327	600	5	120	12	12					A+A(PAR) +C
MML 600 U2	600	327	600	5	60	12	12	12	12	5	12	A+C+C+C
MML 600 U3	600	327	600	5	80	12	12	12	12			A+B(PAR) +C+C
MML 600 U4	600	327	600	5	60	24	15	12	3	12	3	A+G+E

Note: All outputs are user adjustable over the ranges shown in the Module Table. However, when reducing the output voltages from those shown above, it may not be possible to draw full O/P power. Request Omega Application Note 2 for further details.

Now available - 'Zero Up' remotely programmable modules. See Section 6 'Omega Programmable'

200W-600W SINGLE/MULTI OUTPUT continued

OPTIONS

Configured (Modular) Units (Not available on standard models)

If you cannot find a standard Omega unit which fully meets your requirements, the Coutant Lambda team will create a customised modular unit utilising the standard modules. If your requirements are straightforward you can even configure the unit yourself.

First, list all required output voltages and current ratings. (Because all outputs are fully floating, polarity can be ignored). Multiply the voltage and current together to calculate power in watts for each output. Add together all of the output powers to arrive at the total wattage. In this example, the total power output is 366 W.

Volts	Amps	Watts
28	3.25	91
5	25	125
5	6	30
12	4	48
24	3	72
Total Power		366

Now proceed as follows.

1. Select either the 200, 400 or 600 Watt converter. In the example, a 400 Watt would be required.

2. Now refer to the module table and select a unit to meet the requirements of the first output.

In the example, this is 28 volts at 3.25 Amps, so a 'D' module would be suitable. Prefix this with the required voltage (in this case 28). This gives the module specification as 28D.

3. Refer again to the module selection table and select modules to meet the requirements of each of the remaining outputs. Prefix each module with the voltage required. In the example, the complete list would read as follows.

Volts	Amps	Watts	Module	Width in slots
28	3.25	91	D	1
5	25	125	B	1
5	6	30	B	1
12	4	48	C	1
24	3	72	D	1

The width of each module is shown in slots occupied. The total width in slots determines the final case size.

4. Now list the converter followed by the modules selected (in descending order of current rating). In the example, it would read as MML 400 5B 5B 12C 28D 24D. This is the part number of your customised unit. It contains all the information Coutant Lambda need to produce the unit in our factory.

5. In addition, there are options available for either the converter or each of the modules separately. Consult the options table for details. If you need the converter or primary option, enter an 'X' after the converter, i.e., MML 400 X..... If you need the paralleling option on the 28 Volt output, enter 'Y5' after that module, i.e., MML 400 5B 5B 12C 28D Y5 24D.

Remember, the Technical Support Team are available to configure the outputs you require.

Dimensions Table - Configured Models

Model	No. of Slots	A (mm)	B (mm)	Weight (kg)
MML 200	1	143	87	1.1
MML 200	2	166	110	1.3
MML 400	2	212	156	1.6
MML 600	2	257	202	2.35
MML 200	3	189	133	1.5
MML 400	3	235	179	1.8
MML 600	3	280	225	2.55
MML 200	4	212	156	1.7
MML 400	4	257	202	2.0
MML 600	4	303	248	2.75
MML 400	5	280	225	2.2
MML 600	5	326	271	2.95
MML 600	6	349	294	3.15

Refer to Module Table for slot width.

Primary Options

Mains fail	Isolated signal from opto-coupler. Output signal can sink a max. of 10mA to allow a 5 milli-seconds hold-up from activation of mains fail signal until the power supply output drops out of limit.
Converter Inhibit	Power supply inhibited by applying 7.5 mA. through an opto-isolated input. N.B. It is also possible to control the power supply on/off by pulse control. Consult the technical support team at Coutant Lambda for more details.

GRADE 2 AC INPUT SWITCHED MODE **OMEGA SERIES**



OPTIONS continued

Secondary Options

Starpoint Paralleling*	Single wire interconnect forces paralleled modules to share current at greater than 25% load, modules share within 2% of current determined by current limit setting.
Power Good	Detects output voltage high or low ($\pm 9\%$) from set output volts. Open collector, grounded for output ok.
Inhibit/Enable	Factory configurable for module Inhibit/Enable - high or low. Pin is connected to 0 volts or +VE output to effect control.

Output connections are via a 4-way molex connector located above output terminals.

*Consult the technical support team at Coutant Lambda for more details.

Case Options

U Case: An alternative case form is available, with the output terminals along the 127mm and opposite the mains I/P and fan. See 'U' case mechanical drawing for details. (Not available on MML 200)

DD Case: 600W versions now available in a 127 x 127 x 241 mm case. See DD Case mechanical drawing for details.

Order Codes

Case Options 'U'	End connections (up to 5 slot only), suffix 'U', i.e., MML 400U....
'DD'	Shortcase for MML600, add suffix 'DD' i.e., MML600DD
Primary Options	(Standard on MML 600). Mains Fail and Power Supply Inhibit, suffix 'X', i.e., MML 400 X or MML 400 UX
	Auto-Input Option: 90-264VAC auto-select option available on MML 200, MML 400 versions. Takes up one slot width - 23mm of unit.
	Suffix 'W' i.e., MML 400 W.

Secondary Options

(Not available on twin output 'E', 'H' and 'K' modules).

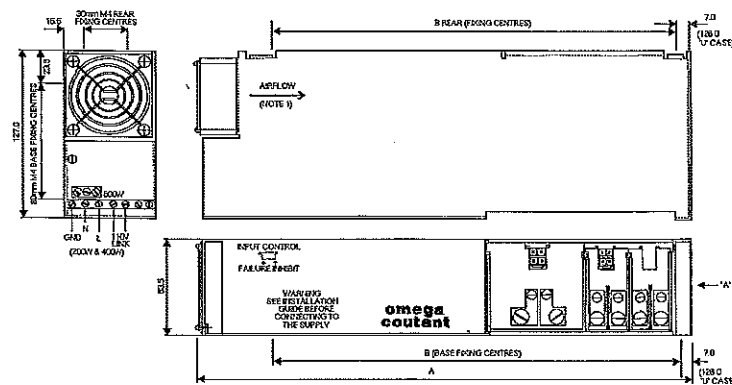
Suffix	Function
Y5	'Starpoint Paralleling' & 'Module Good' signal for parallel redundant applications
Y6	'Power Good', 'Inhibit' (active high and low)
Y7	'Power Good', 'Enable' (active high)
Y8	'Power Good', 'Enable' (active low)

Suffix added to individual module descriptions, i.e., 5AY6 = 5 volt 'A' module with Power Good and Inhibit.

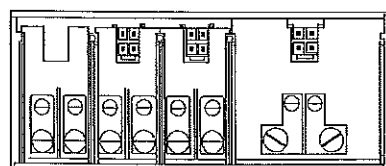
2

PHYSICAL SPECIFICATION

CASE 200-400-600



CASE U

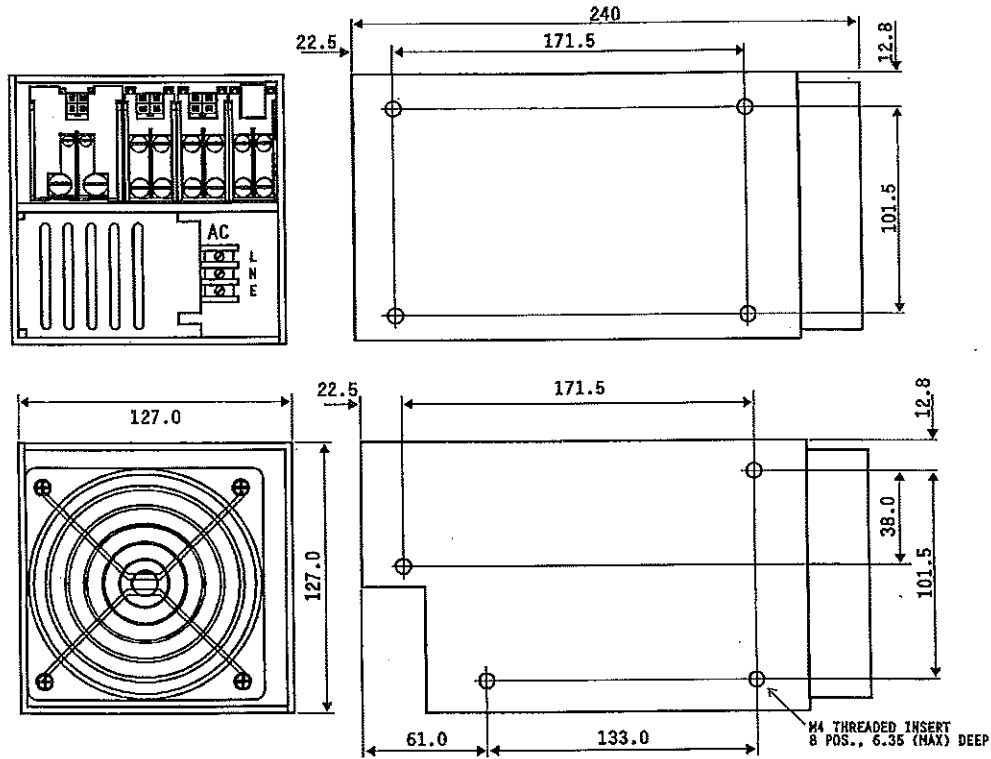


VIEW ON 'A'

NOTE 1: ALLOW 50mm CLEARANCE AT BOTH ENDS FOR CORRECT AIRFLOW
NOTE 2: REFER TO PAGE 72 FOR DIMENSIONS OF CONFIGURED MODELS

200W-600W SINGLE/MULTI OUTPUT continued

CASE 600DD



2

CONNECTION DETAILS

Input connections	terminal block 6-32 screws (200W, 400W) 8-32 (600W)
Output connections DC	screw terminals (M6 2 slot modules) (M4 1 slot modules) (M3 twin modules)
Output connections sense	screw terminals M3
Option connections primary	4 pin Molex 5268-4A
Option connections Secondary	4 pin Molex 5569-NA1

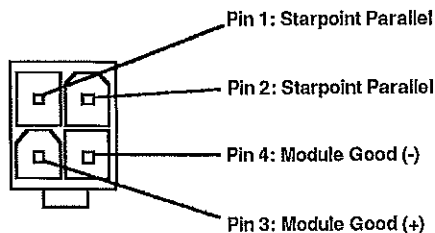
PRIMARY OPTION 'X'



Pin No. 4 3 2 1

Pin 4	Power Fail -
Pin 3	Power Fail +
Pin 2	Power Supply Inhibit +
Pin 1	Power Supply Inhibit -

SECONDARY Y5 OPTION



SECONDARY Y6, Y7, Y8 OPTIONS

