OPEN FRAME AND DIN RAIL MOUNTING AC/DC POWER SUPPLY UNITS

CALEX
ELECTRONICS LTD

Contents

Calex 32000 Series

Open Frame AC/DC Linear Power Supplies

These high quality linear regulated power supplies provide outstanding value and are designed for ease of application and long trouble free life.

- Universal AC input 100 - 240VAC
- 3.75kV Isolation safety transformer
- TÜV approved
- Quality UK design and manufacture
- International industry standard sizes
- Overload protection on all units
- Exceeds the requirements of UL, CSA, VDE, IEC, BT, ECMA & CEE
- Safety earth tag
- 2 year warranty

SPECIFICATION

A.C. Input
100/120/220/240VAC +10%, -12%, 47 to 440Hz

D.C. Output
See Voltage/Current Rating Chart. Adjustment range ±5% minimum.

Line Regulation
±0.05% for a 10% line change.

Load Regulation
±0.05% for a 50% load change.

Output Ripple
2V to 15V units: 5.0mV PK-PK maximum
20V to 28V units: 0.02% PK-PK maximum

Transient Response
50µseconds for a 50% load change

Short Circuit and Overload Protection
Automatic current limit/foldback

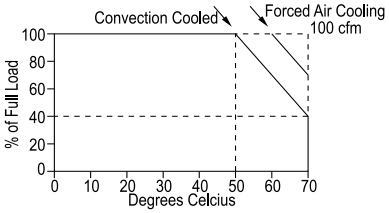
Overvoltage Protection
Built-in on all 5V outputs. Set at 6.2V ±0.4V
Other models use optional overvoltage protection. See Option 4 overleaf

Remote Sensing
Provided on most models, open sense load protection built in.

Stability
±0.3% for 24 hour period after 1 hour warm-up

Temperature Rating
Standard Range: 0°C to +50°C full-rated, derated linearly to 40% at 70°C
Extended Range: -40°C to +50°C full-rated, derated linearly to 40% at 70°C

TEMPERATURE DERATING CURVE



Temperature Coefficient
±0.03%/°C maximum

Efficiency (typical)
5V unit: 45%; 12V and 15V units: 55%; 24V units: 60%

Vibration
Per MIL-STD-810C, Method 514, Procedure X

Shock
Per MIL-STD-810C, Method 516, Procedure V

Isolation
Input to ground: 3750VAC min.
Input to output(s): 3750VAC min.
Output to ground: 500VAC min.
Leakage current (live to ground): 5µA max.

Safety
In accordance with EN60950

SINGLE OUTPUT MODELS

Model	Output Voltage Volts	Output Current Amps	Case
32005A	5	3.0	A
32005B	5	6.0	B
32005C	5	9.0	C
32005D	5	12.0	D
32005E	5	18.0	E
32012A	12 to 15	1.7	A
32012B	12 to 15	3.4	B
32012C	12 to 15	5.1	C
32012D	12 to 15	6.8	D
32012E	12 to 15	10.2	E
32024A	24 to 28	1.2	A
32024B	24 to 28	2.4	B
32024C	24 to 28	3.6	C
32024D	24 to 28	4.8	D
32024E	24 to 28	7.2	E
32024E/10	24 to 28	10.0	E
32048A*	48	0.5	A
32048B*	48	1.0	B
32048D*	48	3.0	D
32150A	120 to 200	0.150**	A

* No remote sensing

** Output current from 180 to 200V falls linearly from 150mA to 125mA

DUAL OUTPUT MODELS

Model	Output 1		Output 2		Case
	Voltage Volts	Current Amps	Voltage Volt	Current Amps	
32205A*	5	1.5	-5	1.5	AA
32212A	12 to 15	1.0	-12 to -15	1.0	AA
			or -5	0.4	
32212B	12 to 15	1.7	-12 to -15	1.7	BB
			or -5	0.4	
32212C	12 to 15	3.4	-12 to -15	3.4	CC
32212D	12 to 15	5.0	-12 to -15	5.0	E

TRIPLE OUTPUT MODELS

Model	Output 1		Output 2		Output 3		Case
	Voltage Volts	Current Amps	Voltage Volts	Current Amps	Voltage Volts	Current Amps	
32305A	5*	2.0	9 to 15*	0.4	-9 to -15*	0.4	AA
					or -5		
32305B	5	3.0	12 to 15	1.0	-12 to -15	1.0	AAA
					or -5	0.4	
32305C	5	6.0	12 to 15*	1.0	-12 to -15*	1.0	D
					or -5	0.4	
32305D	5	6.0	12 to 15	1.7	-12 to -15	1.7	BBB
					or -5	0.7	
32305E	5	8.0	12 to 15	1.7	-12 to -15	1.7	BBB
					or -5	0.7	
32305F	5	12.0	12 to 15	1.7	-12 to -15	1.7	DBB
					or -5	0.7	
32305G	5	12.0	12 to 15	3.4	-12 to -15	3.4	DCC

OPTIONS

1 Tropicalisation – suffix code 'T'

2 Wide range output voltage adjustment – suffix code 'R' available on 12V and higher output voltages enabling adjustment down to 2V (derate linearly from full load to zero at 2V)

3 Low temperature operation -40°C to +50°C – suffix code 'LT'

4 Overvoltage Protection Modules – These optional Overvoltage Protection Modules are available for use with any power supply NOT supplied with built-in OVP. Each is adjustable from 6.4V to 34V and should be used when maximum load protection is of prime importance. Response time is 1mS. Mounting holes are provided on the chassis for these modules, which mount within the specified outline dimensions of each power supply.

OVP Selection Chart

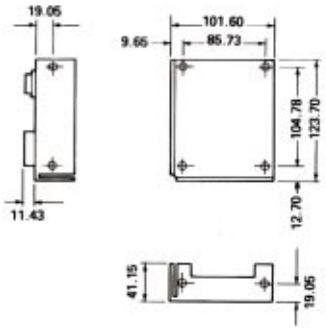
	Case	OVP Model Required
Single Output	A/B/C/D	32901A
	E	32901B
Dual Output	AA/BB/CC	32901A, protects both outputs
	E	32901B, protects both outputs
Triple Output	AA/AAA/D BBB/131	32901A, protects dual outputs OVP built-in on 5V outputs
Disk Drive	C/131/AAA BB	32901A, protects any output not supplied with built-in OVP

GENERAL DIMENSIONS

All dimensions are in mm

A Case

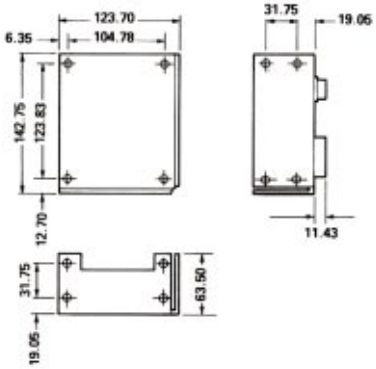
Weight: 0.9kg



Mounting holes 4.77mm diameter
Fuse at: 0.5/0.25 Amps for 100-120/220-240 VAC

B Case

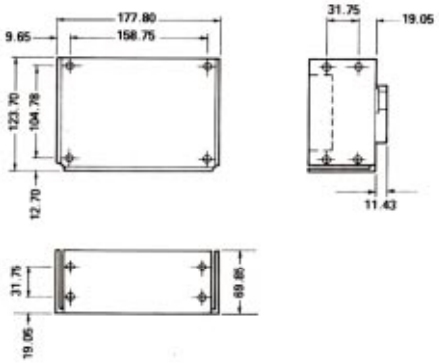
Weight: 1.8kg



Mounting holes 4.77mm diameter
Fuse at: 1.0/0.5 Amps for 100-120/220-240 VAC

C Case

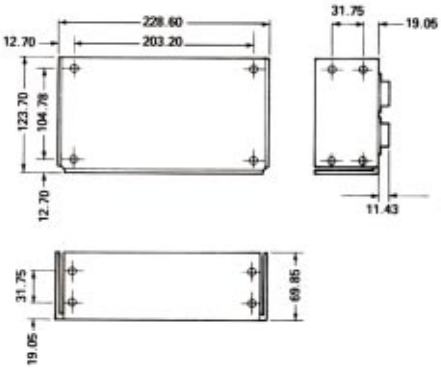
Weight: 2.7kg



Mounting holes 4.77mm diameter
Fuse at: 2.0/1.0 Amps for 100-120/220-240 VAC

D Case

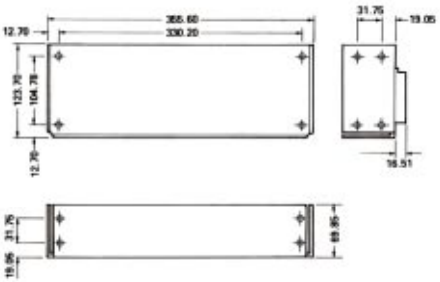
Weight: 3.4kg



Mounting holes 4.77mm diameter
Fuse at: 2.0/1.0 Amps for 100-120/220-240 VAC

E Case

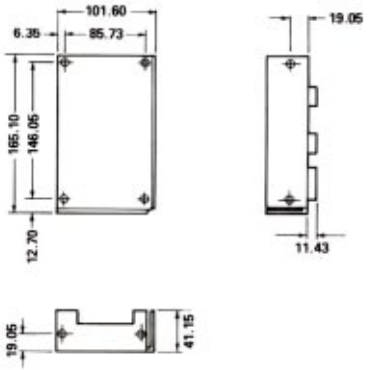
Weight: 4.5kg



Mounting holes 4.77mm diameter
Fuse at: 3.0/1.5 Amps for 100-120/220-240 VAC

AA Case

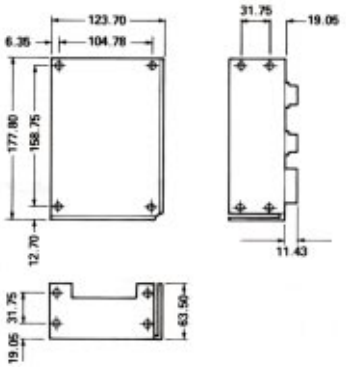
Weight: 0.9kg



Mounting holes 4.77mm diameter
Fuse at: 0.5/0.25 Amps for 100-120/220-240 VAC

BB Case

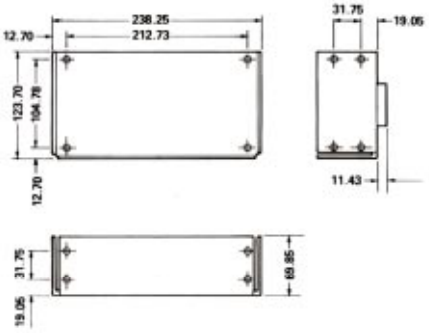
Weight: 1.8kg



Mounting holes 4.77mm diameter
Fuse at: 2.0/1.0 Amps for 100-120/220-240 VAC

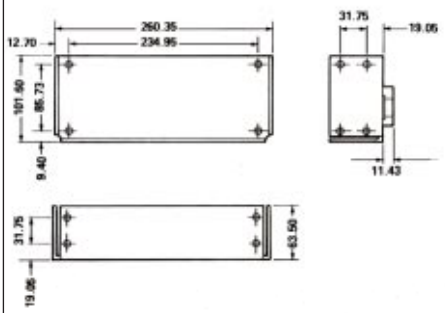
CC Case

Weight: 3.2kg



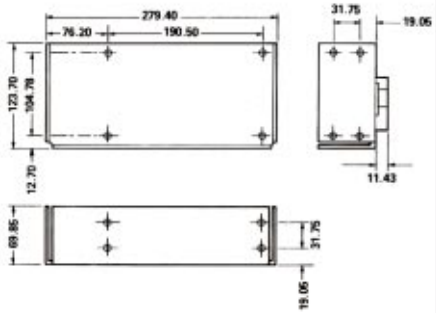
Mounting holes 4.77mm diameter
Fuse at: 2.0/1.0 Amps for 100-120/220-240 VAC

AAA Case
Weight: 2.3kg



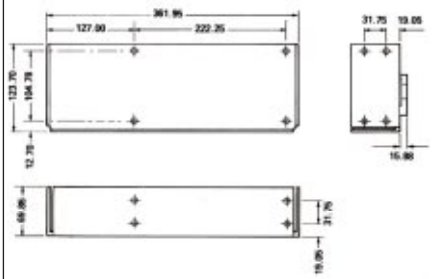
Mounting holes 4.77mm diameter
Fuse at: 1.0/0.5 Amps for 100-120/220-240 VAC

BBB Case
Weight: 3.6kg



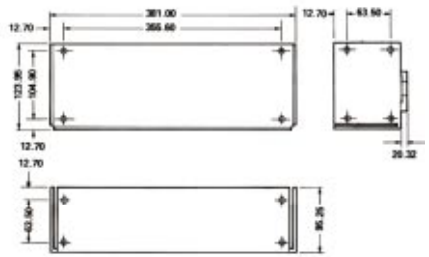
Mounting holes 4.77mm diameter
Fuse at: 2.0/1.0 Amps for 100-120/220-240 VAC

DBB Case
Weight: 5.0kg



Mounting holes 4.77mm diameter
Fuse at: 3.0/1.5 Amps for 100-120/220-240 VAC

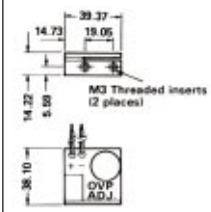
DCC Case
Weight: 5.5kg



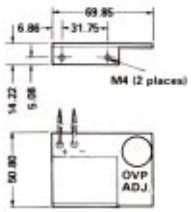
Mounting holes 4.77mm diameter

Overvoltage Protection Modules

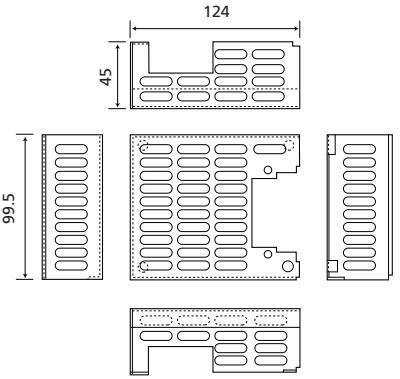
OVP–12
32901A



OVP–24
32901B



A Cover



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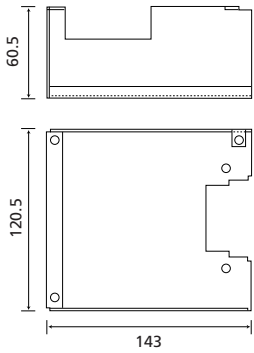
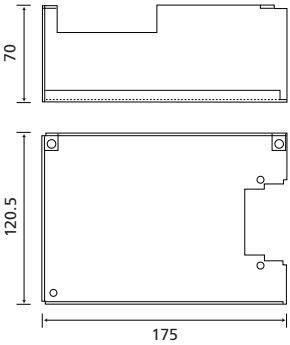
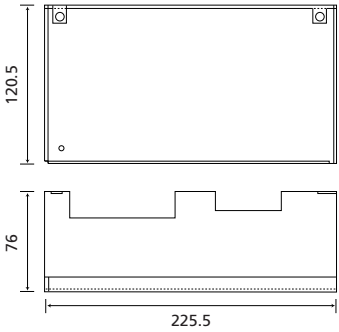


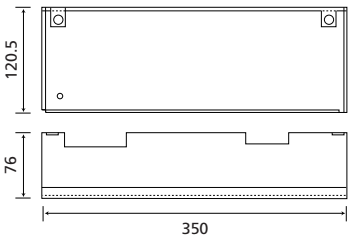
C Cover



D Cover

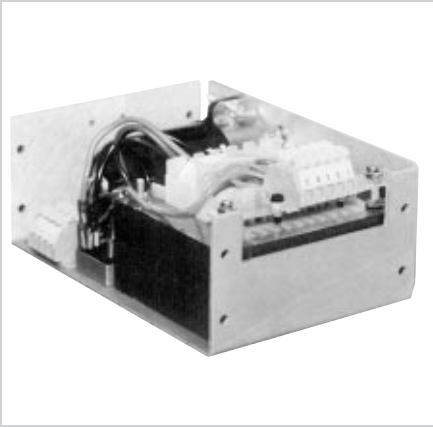


E Cover



Calex 33000 Series

AC/DC Unregulated Linear Power Supplies



These high quality unregulated linear power supplies are suitable for a wide range of applications where a fully regulated DC source is not required.

- Low cost
- Suitable for many industrial applications e.g. relays, solenoids, DC motors etc.
- Universal input
- 3.75kV isolation safety transformer
- Quality UK design and manufacture

SPECIFICATION

Input
115/230VAC 50/60Hz

D.C. Output
See Model Chart

Load Regulation
20% or 3V whichever is the greater for 20 to 100% load change

Output Ripple & Noise
1.5Vrms maximum

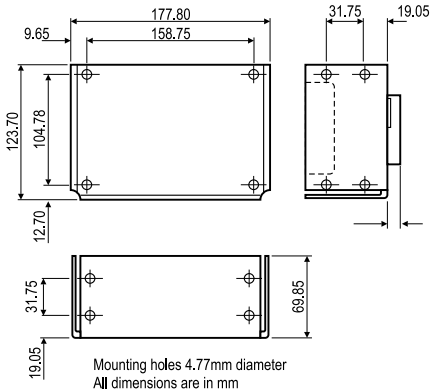
Operating Temperature
0°C to +50°C

Isolation
Input to ground: 3750VAC min.
Input to output: 3750VAC min.
Output to ground: 500VAC min.

Safety
In accordance with EN60950 (Construction uses safety bobbin approved to VDE 0551)

Overall Dimensions
l x w x h: 177.8 x 123.7 x <86.0mm

Model	Output Voltage Volts	Output Current Amps
33012A	12	10
33012B	12	20
33024A	24	5
33024B	24	10
33024C	24	20
33048B	48	5



Calex 41000 Series

DIN Rail Mounting Power Supplies for Instrumentation Applications

The 41000 Series range of power supplies are designed for quick and trouble-free installation onto 35mm profile DIN rails. With outputs ranging from 5V to 24V and maximum current capabilities from 100mA to 500mA, these units are ideal for most instrumentation and control systems.

Every model in the range is provided with output current foldback limiting and is fully short-circuit protected. Great attention has been taken to usability and safety. A green "supply on" LED is provided to clearly indicate the presence of power, and link selection allows the use of 110 or 230V supplies without derating.

SPECIFICATION

Input
115VAC or 230VAC (±10%) link selectable

DC Output
See model chart

Ripple & Noise
less than 5mV rms.

Output Voltage Tolerance
±0.5% max.

Load Regulation
±0.2% for 50% load change

Line Regulation
±0.05% for 10% line change

Isolation: Input to output
3750VAC min.

Temperature Rating
Standard Range: 0°C to +50°C full-rated, derated linearly to 40% at 70°C

Safety
In accordance with EN60950; IEC950; UL1950; and CSA 22.2

Transformer
VDE 0551

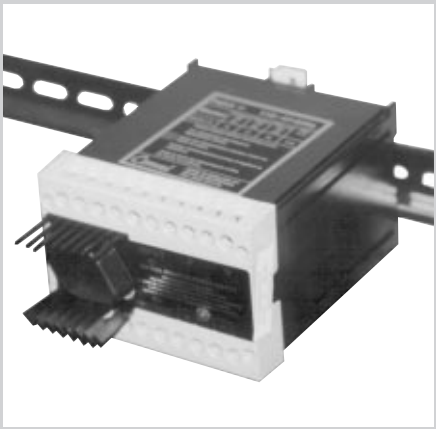
Case Size
(l x w x h) 119.2 x 45 x 73.2mm
The case is rated to IP20

Case Material
Polycarbonate (self extinguishing to UL 94V-0)

Model	Output Voltage Volts	Output Current mA
41052	5	200
41055	5	500
41121	12	100
41122	12	200
41124	12	400
41151	15	100
41153	15	300
41241	24	100
41242	24	200
41245	24	500

Calex 42000 Series

DIN Rail Mounting Linear Power Supplies



The 42000 Series DIN rail mounting power supplies are supplied ready for connection. The unit has only to be snapped on to the 35mm profile rail (DIN 46277-3) and connected to the clearly marked terminal screws. A status LED indicates power OK.

For increased power two or more units may be connected in parallel. The output of these units is fully protected against short circuits and overload

SPECIFICATION

Input
110/220VAC 50/60Hz

DC Output
See model chart

Ripple & Noise
<5mV rms

Output Voltage Tolerance
±0.5% max.

Load Regulation
±0.2% for 50% load change

Line Regulation
±0.05% for 10% line change

Isolation: Input to output
3750Vac min.

Temperature Rating
Standard Range: 0°C to +50°C full-rated, derated linearly to 40% at 70°C

Safety
In accordance with EN60950, IEC 950, UL 1950 and CSA22.2

Transformer
VDE 0551

Case Size
'A' l x w x h 100 x 70 x 112mm
'B' l x w x h 150 x 72 x 112mm
The case is rated to IP20

Case Material
Polycarbonate (self extinguishing to UL 94V-0)

Model	Output Voltage Volts	Output Current Amps	Case
42012A	12	1.0	A
42012A/2	12	2.0	A
42015A	15	1.0	A
42015A/2	15	2.0	A
42024A	24	1.0	A
42024A/2	24	2.0	A
42024B	24	4.0	B

Calex 42000 H & J Series

DIN Rail Mounting Switch Mode Power Supplies – 60 and 120 Watt

A range of high grade, low noise, regulated switch mode power supplies designed to fit standard 35mm DIN rail to BS5584:1978 (EN50 022, DIN 46277-3).

Front facing, clearly identified screw terminals provide easy access for connection. Input of either 110 or 230VAC can be used and the range has a choice of output voltage and current combinations. The DC output is fully protected for short circuit and overload conditions using pulse by pulse current limiting.

- Inbuilt EMI filter, meets VDE curve B
- Status LED indicates power OK
- Compliant with relevant EU directives

SPECIFICATION

Input Voltage
93 - 132 & 187 - 264VAC

Frequency
47 - 63Hz

DC Output
See model chart

Output Hold-up
20mS typ. at nominal line, full load

Output Voltage Tolerance
±0.5% max.

Efficiency
>80% typ.

Load Regulation
1%

Line Regulation
±0.05% for 10% line change

Output Ripple
<50mV p-p

Short Circuit Protection
Electronic

Isolation
SELV to EN60 950

RFI
Class B

Safety
In accordance with EN60950; IEC950; UL1950; and CSA 22.2

Operating Temp
0 - 50°C (Derate linearly to 40% of rated output at 70°C)

Dimensions (h x w x l)
73 x 100 x 118mm

Case Material
Polycarbonate (self extinguishing to UL 94V-0)

Model	Output Voltage Volts	Output Current Amps
42012H	12	5
42024H	24	2.5
42012J	12	10
42024J	24	5

Calex 44000 Series

DIN Rail Mounting Switch Mode Power Supplies – 240 and 480 Watt

A range of switch mode power supplies engineered for ease of installation, efficient operation and long term reliability.

The enclosure is a two part metal design. The base consists of a robust but light weight aluminium extrusion which combines rigidity and strength with good thermal conductivity and forms the DIN-rail mounting channel. The cover is made of folded sheet steel and is ventilated to assist thermal convection. Overall the enclosure also provides exceptional RFI protection. The terminals are heavy duty screw clamp connectors capable of supporting identification markers.

- Pulse-by-pulse overcurrent/short circuit protection
- Green LED to indicate power output OK
- Ease of installation onto type T35 DIN-rail

SPECIFICATION

Input Voltage
93 - 132 & 187 - 264VAC

Frequency
47 - 63Hz

DC Output
See model chart

Output Hold-up
20mS typ. at nominal line, full load

Output Voltage Tolerance
±0.5% max.

Efficiency
>85% typ.

Load Regulation
1%

Line Regulation
±0.05% for 10% line change

Output Ripple
<50mV p-p

Short Circuit Protection
Electronic

Isolation
SELV to EN60 950

RFI
Class B

Safety
In accordance with EN60950; IEC950; UL1950; and CSA 22.2

Operating Temp
0 - 50°C (Derate linearly to 40% of rated output at 70°C)

Dimensions (h x w x l)
107 x 167 x 107mm

Terminal Size
10mm^2 max cable

Model	Output Voltage Volts	Output Current Amps
44024K	24	10
44024L	24	10

Calex Custom Power Supplies

Our flexible approach to manufacturing and wide product range often enables us to provide solutions which meet our customers' specific power supply needs. If you have a requirement which cannot be met by one of our standard units do call us. Our team of highly qualified and experienced engineers will always be happy to discuss your application with you and will try to put forward a proposal that meets your budget.

The list below describes just some of the custom power supplies we have developed in the past.

1. 150W power supply in 1U high, 19" chassis. Built for the telecommunications industry. 230VAC input; 48VDC output.

2. 120W power supply built to withstand severe vibration. Military application. 115VAC, 60Hz input; 5, 8 and +/-12VDC outputs.

3. Miniature encapsulated unit for the automotive industry. Operates at ambient temperatures as low as -40°C.12VDC input; 7.2VDC, 600mA output.

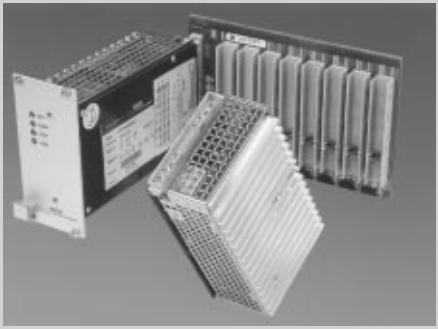
4. Open frame linear power supply for industrial application. 230 or 415VAC input; 24VDC output.

5. 750W unit in 3U high, 19" chassis, to power medical equipment. 230VAC input; 48VDC output.

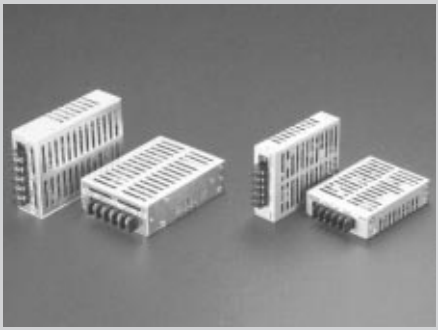
6. Standby power supply for battery powered instrument. 230VAC input; 1.5VDC output.

7. DIN rail mounted unit to energise strain gauge bridge. 115/230VAC input; +/-10VDC outputs.

Other great power conversion products available from Calex Electronics:

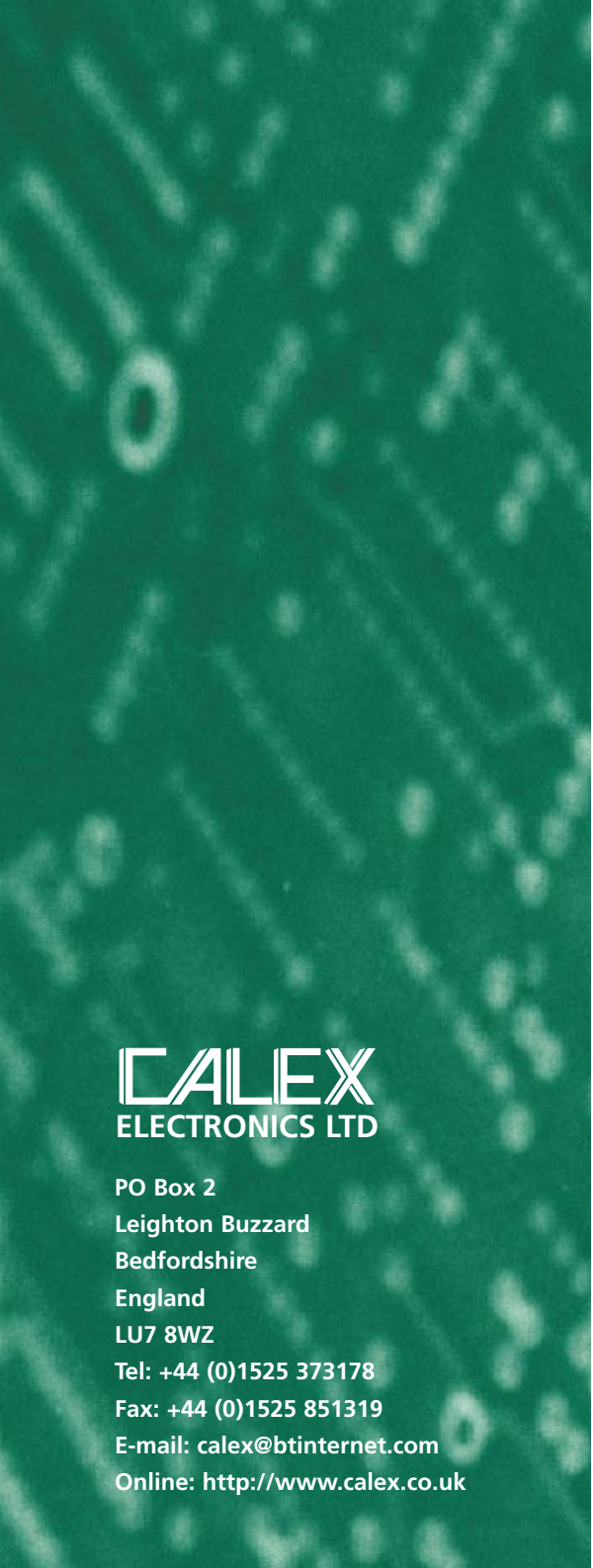


Eurocard AC/DC Switch Mode Power Supplies and DC/DC Converters



Modular AC/DC Switch Mode Power Supplies and DC/DC Converters

Encapsulated AC/DC Switch Mode Power Supplies and DC/DC Converters



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