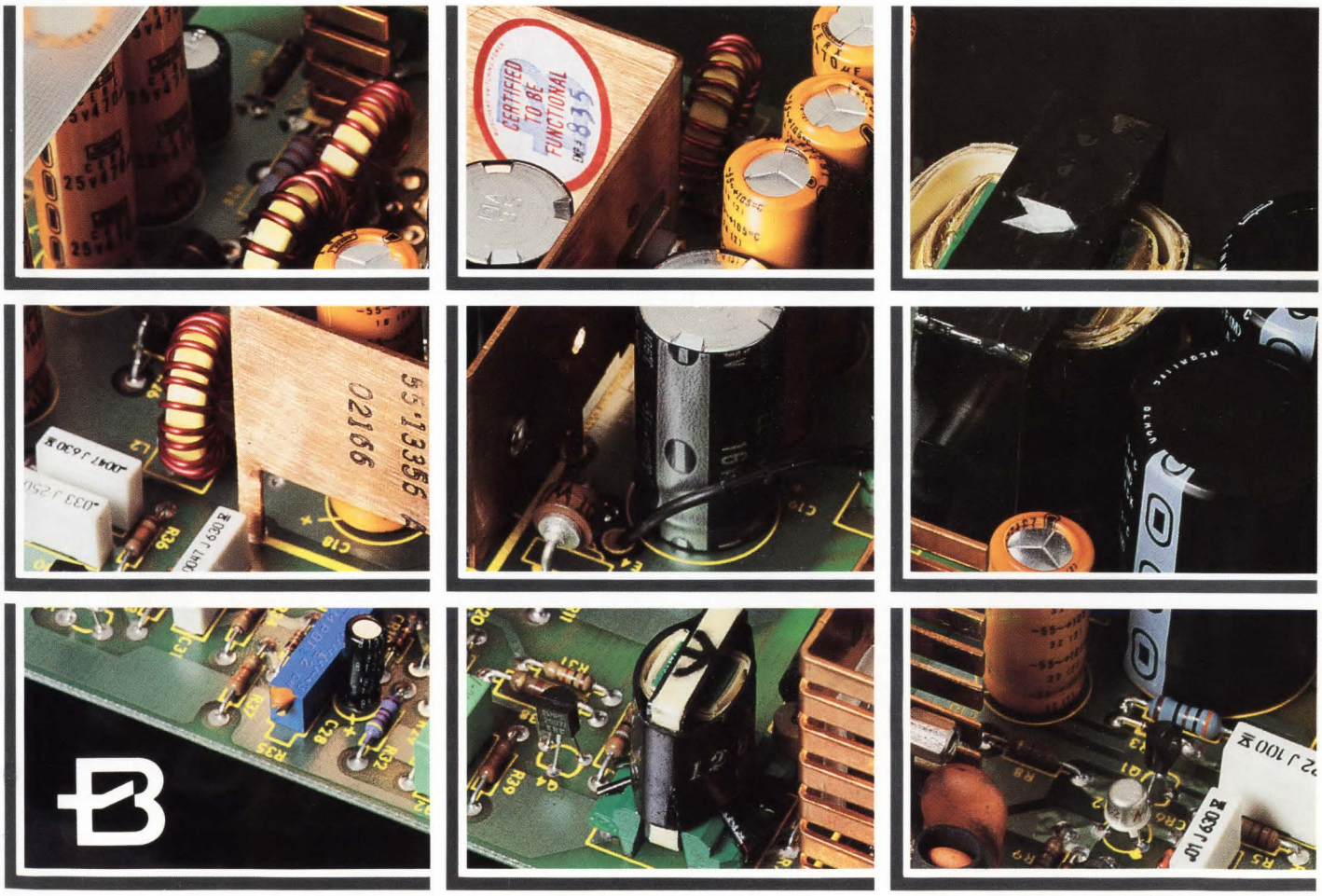
Boschert

AN INTERNATIONAL LEADER IN SWITCHING POWER SUPPLIES



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HOW TO ORDER

When ordering from this catalog, be sure to specify the complete model number. Small quantity orders for standard configurations may be placed with your local distributor. For custom requirements, please contact your local Boschert sales representative or Boschert sales office. You'll find addresses and phone numbers for all Boschert offices and sales outlets on the enclosed listing.

WARRANTY

All Boschert products carry at least a one-year warranty. Our high-power products (500–1500 watts) carry a two-year warranty.

SAFETY SPECIFICATIONS

All Boschert supplies are approved by, and/or designed to meet the standards of UL and CSA. The XL, SL and HL series are also approved by, and/or designed to meet the standards of VDE. Contact the factory for safety specifications on specific models.

In the Beginning, There Was the Technology, and An Idea

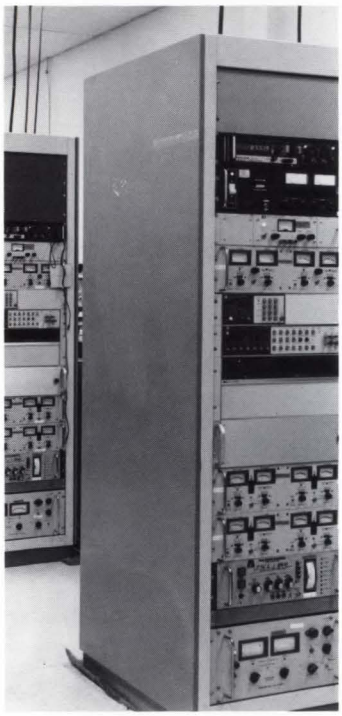
Boschert Incorporated is an industry leader in the design and manufacture of high-technology switching power supplies. In 1974 Boschert pioneered this market segment, previously supported by conventional linear design power supplies. Switchers were smaller, lighter, and more efficient than the linear models, but until Boschert entered the market, they were too expensive and noisy for commercial applications. Boschert produced switchers that were cost-effective and reliable. Now nearly all computer-related power supplies are switchers, and Boschert dominates the high-growth microprocessor-based market.

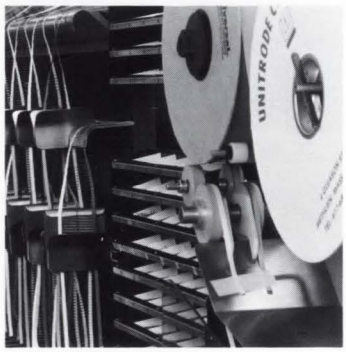
Boschert's success is a result of concentrating its expert design efforts exclusively on switching technology, developing the broadest line of standard switching power supplies, and producing these products in the most advanced manufacturing facilities in the industry.

In 1981 Boschert was acquired by BICC, a $3 billion London-based corporation. This acquisition guarantees Boschert the availability of the resources required to maintain and expand their leadership position.

Custom-Designed and Off-the-Shelf Standards of Excellence

Boschert's high-quality, cost-competitive power supplies range from 25





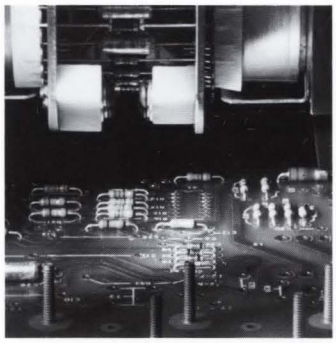
watts to 1500 watts, and are available open-framed or enclosed and with multiple or single outputs. Boschert's standard products are available off-the-shelf from local distributors. For special applications, the expert designers at Boschert can develop customized solutions from proven base designs.

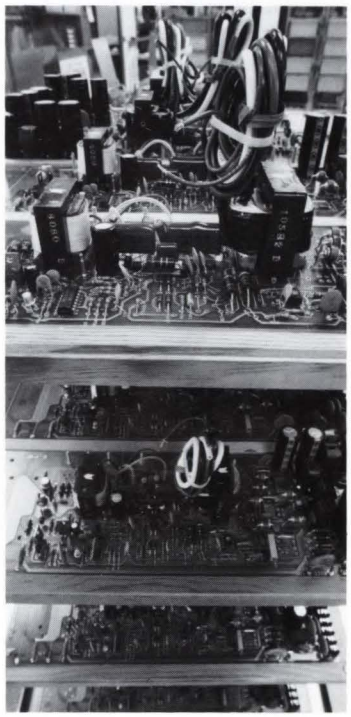
Satisfied Boschert customers can be found in all segments of the data-processing market including word-processors, terminals, disk drives, tape drives, test systems, printers, micro-computers, minicomputers, mainframe computers, computer memories, process control and medical instrumentation.

A Summary of Success

Boschert is the leading "total" supplier in the field of switching power processing, and in attaining this position has achieved a number of major milestones which include:

1. Delivery of more switching power supplies to data processing equipment manufacturers than any other vendor in the world. More than a million commercially-proven power systems have been shipped to a list of companies which read like Who's Who in the Data Processing Industry.
2. Implementation of a unique product design approach which simplifies custom design product development. This approach utilizes proven base designs,





computer-aided design (CAD) support and 90 percent common components, allowing fast response to OEMs with special needs.

3. Establishment of a nationwide distributor network in 1981, which has become the number one network in switching power supply sales.

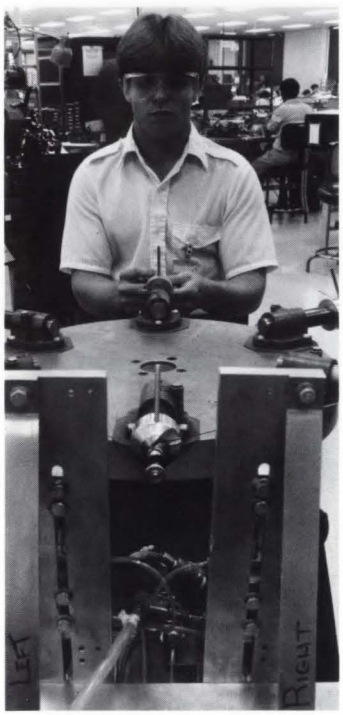
4. Meeting UL, CSA, IEC 380, VDE 0806 safety specs, as well as VDE 087 and FCC RFI specs.

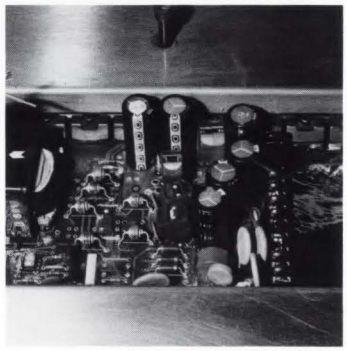
The Finest Facilities and Most Modern Manufacturing Methods from Silicon Valley to Hong Kong

Boschert facilities exemplify the most modern methods, practices and equipment in the industry. In order to keep the product cost low while keeping the quality high, Boschert believes that both manufacturing considerations and product design technology must keep pace.

Located in the heart of the Silicon Valley is the 50,000-square-foot Sunnyvale Corporate Headquarters and Design Center. There, a hand-picked staff works exclusively on developing leading-edge switching-regulated power supply products, utilizing the most advanced design techniques and computer-aided design (CAD) equipment.

Boschert's 50,000-square-foot production facility at Manteca, California contains automatic insertion equipment, an in-plant material transport



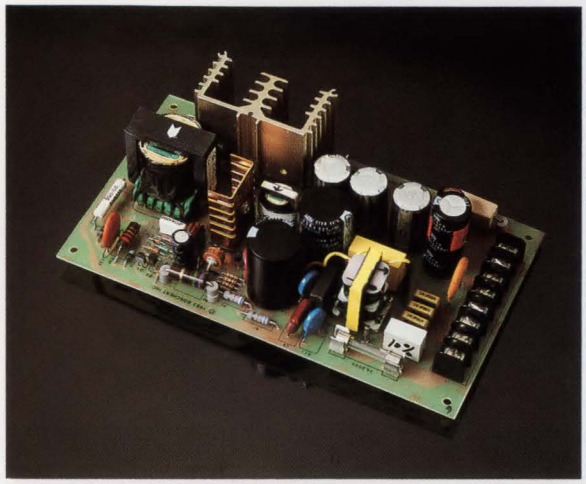


conveyor system, advanced semi-automatic winding equipment, state-of-the-art burn-in facilities, and automatic test equipment. The recently added, comparable 50,000-square-foot facility in Hong Kong complements Boschert's low-cost, high-volume production capability. The combined capacity of these facilities is over 800,000 units per year. These plants will be expanded during the next five years to a capacity of over 2,000,000 units per year. All plants use statistical process and quality control to maintain high quality and low cost.

Power from the People, to the People

More than 1,500 employees strive to keep Boschert producing the highest quality switching power supplies at competitive prices. Behind every Boschert power supply stands the professional reputations of the finest design, test, components, manufacturing, product safety, quality assurance, and mechanical engineers, as well as numerous dedicated engineering and manufacturing support personnel. These professionals are proud of the low field incoming inspection rejection rate and a historical MTBF of 50,000 hours.

The past is impressive, and the future is bright at Boschert, where professional dedication to high quality, low cost and consistent performance is a company tradition.



STANDARD FEATURES

- All models are UL recognized (UL478), and CSA certified (C22.2,#154)
- All models are designed to meet FCC Docket 20708 EMI
- All models are designed to meet VDE 0806 safety and VDE 0871 Level B EMI
- All models are designed to meet IEC 380 safety standard
- All models are 110VAC/220VAC user changeable
- All models are brownout rated
- Overvoltage protection is standard on 5V models
- No power derating required up to 50°C
- Short circuit protection on all models
- Adjustable output voltages permit a single model to be used for both 12V and 15V applications or for both 24V and 28V applications
- Power supply output voltage may be used with either positive or negative polarity
- One-year warranty
- Remote sense on SL120 and SL220 models

ELECTRICAL CHARACTERISTICS

Parameters	*Conditions*	*Limits*
Input Voltage	47–440Hz	90–132VAC 180–265VAC User selectable
Hold-up Time	Nominal input line, full load	20msec typical
Input Surge Current	Nominal line, cold start	25A
Line Regulation	Low line to high line	±0.3%
Load Regulation: SL30 and SL60 SL120 and SL220	 20% to 100% load change 20% to 100% load change	 ±1% ±2%
Overvoltage Protection	5V units only	5.5–7V threshold
Efficiency	Nominal input line, full load	65% min.
Transient Response	50% to 100% output load change	0.5msec
Temperature Derating	50°C ambient 70°C ambient	No derating Linear derating to 50% rating
Temperature Coefficient of Output		0.02%/°C
Safety Ground Leakage Current	240VAC, 60Hz input	0.7mA
Relative Humidity Range: Non-condensing (operating) Non-condensing (non-operating)		 5% to 80% 5% to 95%
Temperature: Maximum heatsink temperature Maximum semiconductor case temperature Storage ambient temperature		 90°C 100°C –40°C to +85°C
Altitude: Operating Non-Operating		 10,000 ft. 30,000 ft.

SL30 ORDERING INFORMATION

Model	*Output Voltage Adjustment Range*	*Maximum Output Current (50°C, 70°C)*
SL30-3605	4.5V–5.5V	6A[1], 3A[1]
SL30-3612	11.5V–18V	2.5A[2], 1.25A[2]
SL30-3624	18V–30V	1.25A[3], 0.63A[3]

With output set at 5V[1], 12V[2], 24V[3].

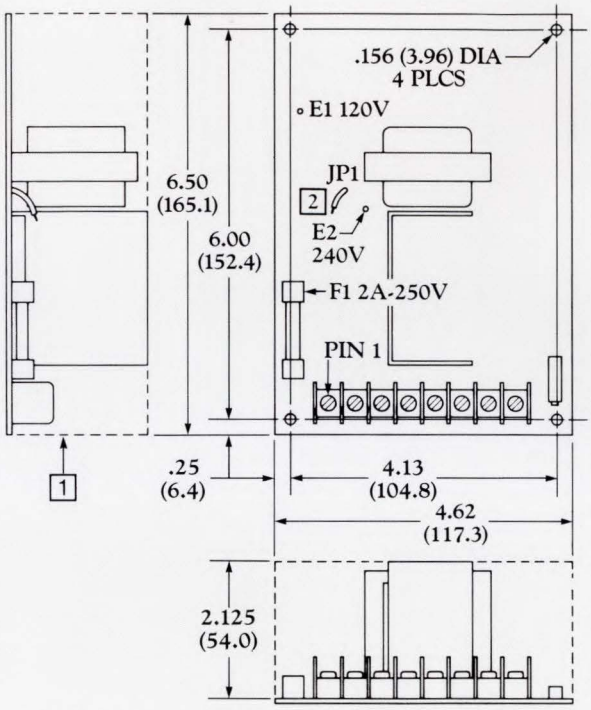
Note: Dimensions in inches and (mm).
For reference only.
1. Dashed line indicates minimum clearance
2. JP1 is used for 110/220VAC selection.

Pin Chart (SL30)

Pin 1 AC Hot
Pin 2 AC Neutral
Pin 3 AC Ground
Pin 4 No Connection
Pin 5, 6 DC Output Voltage
Pin 7, 8 Output Common

Note: Dimensions in inches and (mm).
For reference only.
1. Dashed line indicates minimum clearance.
2. Connect JP1 to either E1 (110V) or E2 (220V) as required.

Total Power 30W Weight: 0.97 lbs. (0.44 kg)



NOTE: JP1 is used for 110/220VAC selection.

SL60 ORDERING INFORMATION

Model	*Output Voltage Adjustment Range*	*Maximum Output Current (50°C, 70°C)*
SL60-3605	4.5V–5.5V	12A[1], 6A[1]
SL60-3612	11.5V–18V	5A[2], 2.5A[2]
SL60-3624	18V–30V	2.5A[3], 1.25A[3]

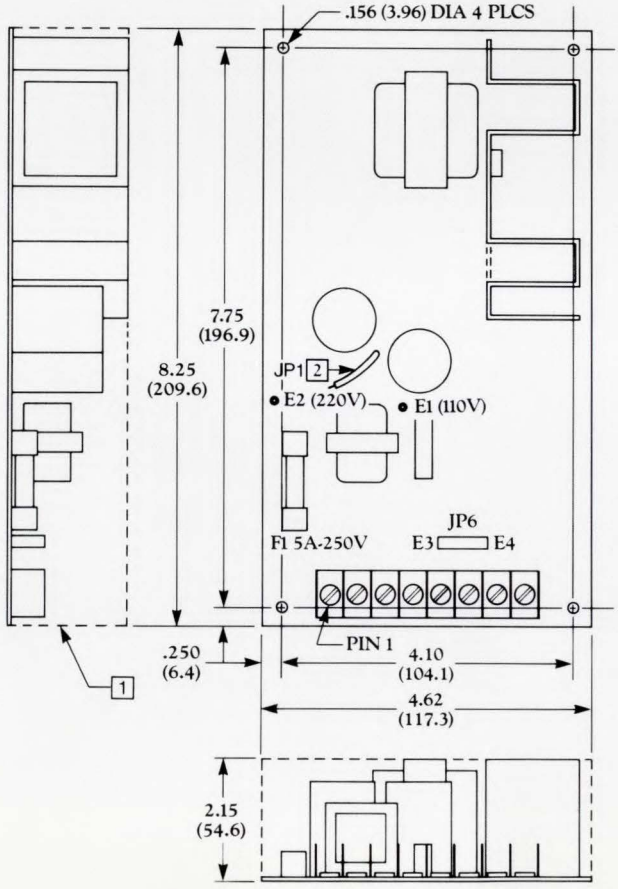
With output set at 5V[1], 12V[2], 24V[3].

Pin Chart (SL60)

Pin 1 AC Hot
Pin 2 AC Neutral
Pin 3 AC Ground
Pin 4 No Connection
Pin 5, 6 DC Output Voltage
Pin 7, 8 Output Common

Note: Dimensions in inches and (mm).
For reference only.
1. Dashed line indicates minimum clearance.
2. Connect JP1 to either E1 (110V) or E2 (220V) as required.

Total Power 60W Weight: 1.3 lbs. (0.61 kg)



SL120 ORDERING INFORMATION

Model	*Output Voltage Adjustment Range*	*Maximum Output Current (50°C, 70°C)*
SL120-3605	4.5V–5.5V	20A[1], 12A[1]
SL120-3612	11.5V–18V	10A[2], 5A[2]
SL120-3624	18V–30V	5A[3], 2.5A[3]

With output set at 5V[1], 12V[2], 24V[3].

Pin Chart

P1

Pin 1	AC Ground
Pin 2	AC Neutral
Pin 3	AC Hot

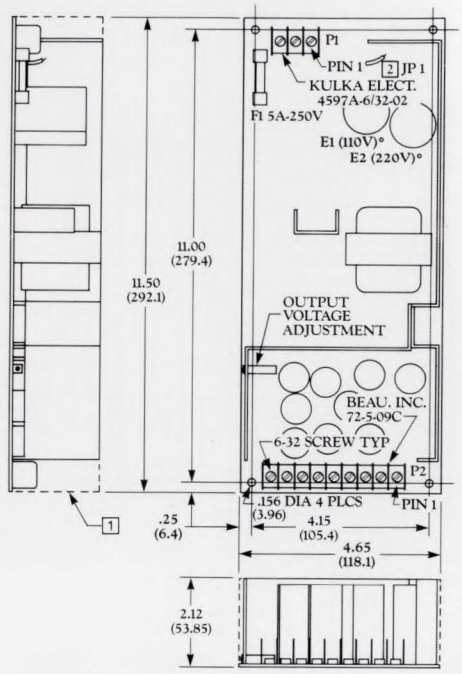
P2

Pin 1, 2, 3	DC Output Voltage
Pin 4, 5, 6	Output Common
Pin 7	No Connection
Pin 8	+ Remote Sense
Pin 9	–Remote Sense

Note: Dimensions in inches and (mm).
For reference only.

1. Dashed line indicates minimum clearance.
2. Connect JP1 to either E1 (110V) or E2 (220V) as required.

Total Power 120W Weight: 2.56 lbs. (1.16 kg)



SL220 ORDERING INFORMATION

Model	*Output Voltage Adjustment Range*	*Maximum Output Current (50°C, 70°C)*
SL220-3605	4.5V–5.5V	44A[1], 22A[1]
SL220-3612	11.5V–18V	18.5A[2], 9.25A[2]
SL220-3624	18V–30V	10A[3], 5A[3]

With output set at 5V[1], 12V[2], 24V[3].

Pin Chart

P1

Pin 1	AC Hot
Pin 2	AC Ground
Pin 3	AC Neutral

P2

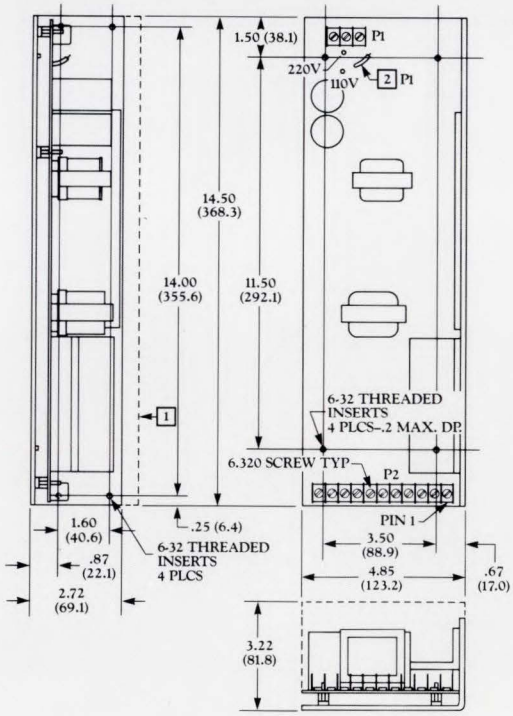
Pin 1, 2, 3	DC Output Voltage
Pin 4, 5, 6	Output Common
Pin 7	Auxiliary Output[1]
Pin 8, 9	No Connection
Pin 10	+Remote Sense
Pin 11	–Remote Sense

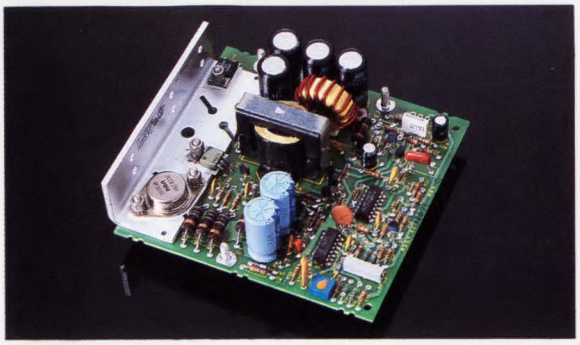
[1] Auxiliary Output:
5V and 12V models +24V, 2A
24V models +48V, 1A

Note: Dimensions in inches and (mm).
For reference only.

1. Dashed line indicates minimum clearance.
2. Connect JP1 to either E1 (110V) or E2 (220V) as required.

Total Power 220W Weight: 4.4 lbs. (2 kg)





STANDARD FEATURES

- +DC input (3T12AP, 3T20AP, and 3T5AN).
- +DC output (3T12AP, 3T20AP).
- −DC output (3T5AN).
- 25kHz switching frequency.
- 75% typical efficiency.
- Overload protection.
- Short circuit protection.
- Low power dissipation.
- Adjustable output voltage.
- No external components needed.
- Remote sense.
- Inter-module sync.
- Parallelability.
- Remote on/off.
- Application Note #4 describing system construction and use of the 3T.
- Soft start. (AP models only)

ELECTRICAL CHARACTERISTICS

Parameters	*Conditions*	*Limits*	
Input Voltage		+10 to +60VAC	
Line Regulation	Input +10 to +60V	1%	
Load Regulation	0 to Max. Current	±1%	
Temperature Coefficient	0°C to 70°C	±3mV/°C	
Remote On/Off	Inhibit Operate	>3V <1V	
Maximum Source Impedance	Input +15 to +60V Input +10 to+15V	1 ohm 0.25 ohm	
Temperature Range		Ambient	Heat Sink
	Full Rating	0°C to 50°C	60°C
	60% Rating	0°C to 70°C	80°C
	Storage Ambient	−20°C to +85°C	
Relative Humidity Range	Non-condensing	5% to 95%	
Altitude	Operating Non-operating	10,000 ft. 30,000 ft.	
Efficiency	V_{OUT}<12V V_{OUT}>12V	65% min. 75% min.	
Ripple and Noise	0–25 kHz Total	100mV (p-p) max. 250mV (p-p) max.	

ORDERING INFORMATION

	Models		
Parameter	*3T12AP-6130*	*3T20AP-6115*	*3T5AN-6130*
Output Voltage Adjustment Range	+4.5V to +30V	+4.5V to +15V	−4.5V to −30V
Maximum Average Output Current	12A	20A	5A
Min. Input-Output	3V (V_{IN}≥15V)	V_{OUT} (V_{OUT}<10V)	N/A
Voltage Differential	5V (V_{IN}<15V)	10V (V_{OUT}≥10V)	
Current Limit (Factory Set)	17A	27A	8A
	±10%	±10%	±15%

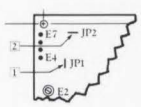
Pin Chart

3T12AP, 3T20AP	*3T5AN*
Pin 1 +Input	Pin 1 +Input
Pin 2 +Output	Pin 2 −Output
Pin 3 Return	Pin 3 Return
Pin 4 −Remote Sense	Pin 4 +Remote Sense
Pin 5 +Remote Sense	Pin 5 −Remote Sense
Pin 6 + Sync Out	Pin 6 Inhibit
Pin 7 − Sync Out	(Remote on/off)
Pin 8 Sync In	Pin 7 Sync In
Pin 9 Inhibit (Remote on/off)	

Note: Dimensions in inches and (mm). For reference only.

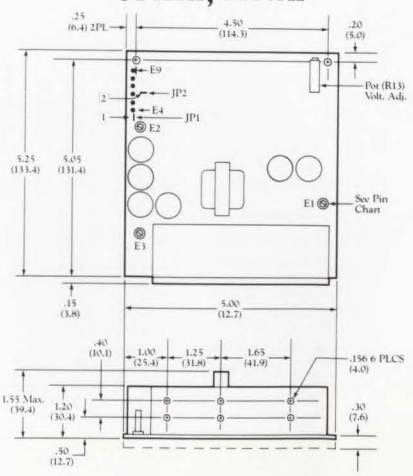
1. Remove JP1 for remote sense.
2. Remove JP2 to synchronize
3. Terminals are 8-32 studs, 8 to 12 in-lbs torque required.
4. E6 output is used as clock to synch other 3T12APs or 3T20APs to a single 3T12AP or 3T20AP. E7 is used to sync 3T5ANs to a single 3T12AP or 3T20AP.

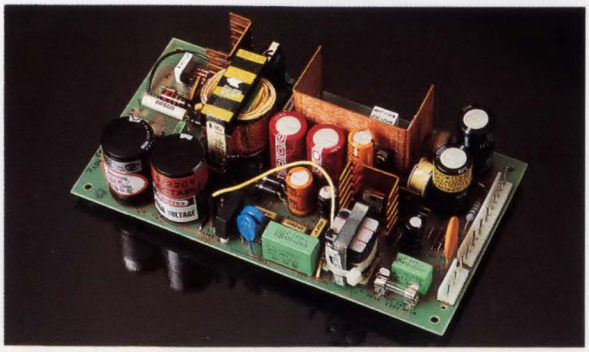
3T5AN



Weight:
3TAP 11 oz. (0.3 kg)
3T20AP 15 oz. (0.4 kg)
3T5AN 9 oz. (0.25 kg)

3T12AP, 3T20AP





STANDARD FEATURES

- 110VAC/220VAC user selectable input
- Overvoltage protection (+5V output)
- Output short circuit protection
- Excellent transient response
- Input surge current protection
- 20KHz switching frequency (minimum)
- CSA certified C22.2 #154
- UL478 recognized

XL40, 50 and 60 Only:

- Designed to meet VDE 0806 safety
- Designed to meet VDE 0871 Level B EMI
- Designed to meet FCC 20708 Level B EMI
- Designed to meet IEC 380 safety standard

ELECTRICAL CHARACTERISTICS

Parameters	*Conditions*	*Limits*
Input Voltage	47–440 Hz	90–132VAC 180–264VAC User selectable
Hold-up Time	110VAC input, full load	20msec min.
Input Surge Current	110VAC input, cold start, peak current	20A
Input Line Regulation	Low line to high line, full load	±0.3 all outputs
Output Power Range	50°C ambient	20% to 100% full-rated power
Overvoltage Protection	+5V output	6.25V±0.75V threshold
Ripple and Noise	Full load, all outputs	1% peak to peak
Efficiency	Nominal input, full load	65% min.
Temperature Coefficient of Outputs	All outputs	±0.02%°C max.
Safety Ground, Leakage Current	240VAC, 60Hz	0.7mA max.
Transient Response: XL40 and OL25 XL50 and XL60	+5V output, 1A to 2A load change +5V output, 2.5A to 5A load change	200mV peak transient settling to within regulation band in 1msec
Vibration	Three principal axes 2G cycling or dwell type	5Hz to 60Hz at 3 minutes per octave
Temperature: Operating ambient Derating Heatsink Semiconductor case Storage ambient	 Free air convection Forced air, 20 CFM Linear derating	 0°C–50°C 0°C–65°C Full-rated power in a 50°C ambient Half-rated power in a 70°C ambient 90°C max. 100°C max. –40°C to +85°C
Altitude	Operating Non-operating	10,000 ft. 30,000 ft.
Relative Humidity Range: Non-condensing Non-condensing	 Operating Non-operating	 5% to 80% 5% to 95%
Power Line Disturbances	Output supply unaffected through half cycle absence of input power during full load and 95VAC input	

OL25 ORDERING INFORMATION

Total Power 25W Weight: 0.91 lbs. (0.41 kg)

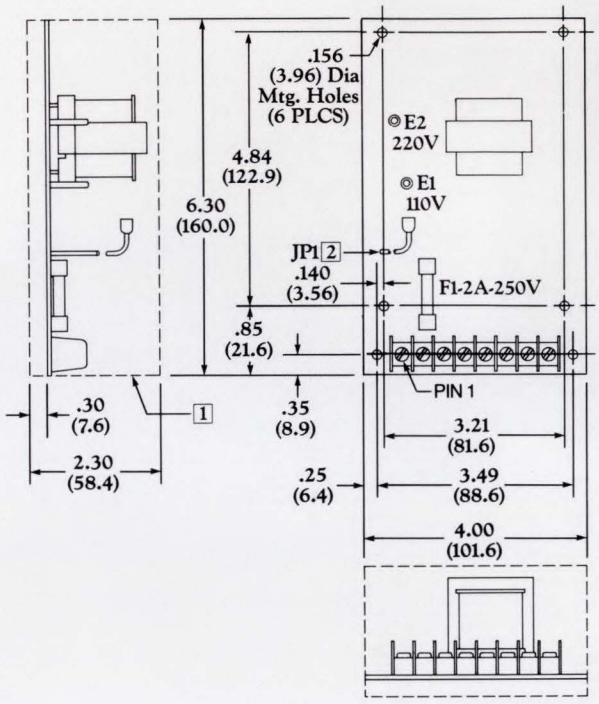
Model	*Output @ Min.–Max.*	*Tolerance*
OL25-3001	+5V @ 0.5A–3.5A	±2%
	+12V @ 0.2A–1A	±4%
	–12V @ 0.15A–0.5A	±8%
	–5V @ 0A–0.5A	±5%

Pin Chart

Pin 1 AC Ground
Pin 2 AC Neutral
Pin 3 AC Hot
Pin 4 –5V Output
Pin 5 –12V Output
Pin 6 Output Common
Pin 7 +5V Output
Pin 8 +12V Output

Connector Type
Beau, Inc.
Part No. 72-5-08C

Mating Connector Type
Cinch
No. 8-160-R or
No. 8-160-L



Note: Dimensions in inches and (mm).
For reference only.

1. Dashed line indicates minimum clearance.
2. Connect JP1 to E1 for 110V operation.
Connect JP1 to E2 for 220V operation.

XL40 ORDERING INFORMATION

Total Power 40W Weight: 0.9 lbs. (0.4 kg)

Model	*Output @ Min.–Max.*	*Tolerance*
XL40	+5V @ 0.45A–2.5A	±3%
	+12V @ 0.30A–2.0A	±5%
	–12V @ 0A–0.2A	±5%

Pin Chart

Input J1

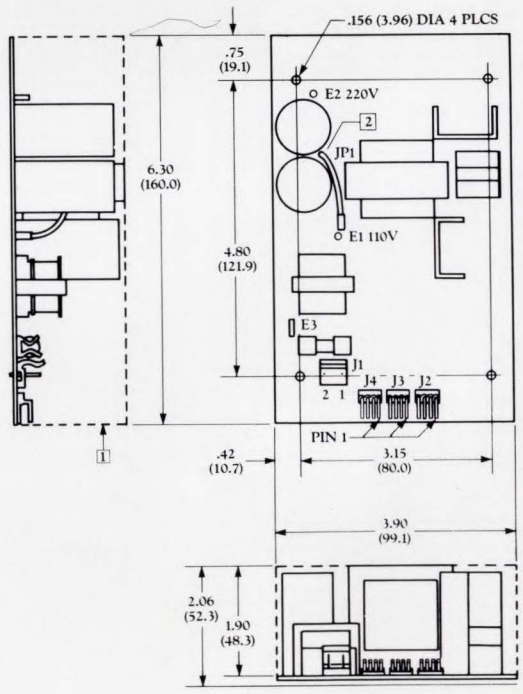
Pin 1 AC Hot/Neutral
Pin 2 AC Hot
Pin E3 AC Ground

Output J2, J3, J4

Pin 1 –12V
Pin 2 +12V
Pin 3 Return
Pin 4 +5V

Connector Type
Molex, Inc.
(J1) Part No. 29-74-1031
(J2, J3, J4) Part No. 22-05-1042

Mating Connector Type
Molex, Inc.
(J1) Part No. 09-50-3031
(J2, J3, J4) Part No. 22-01-1043



Note: Dimensions in inches and (mm).
For reference only.

1. Dashed line indicates minimum clearance.
2. Connect JP1 to E1 for 110V operation.
Connect JP1 to E2 for 220V operation.

XL50 ORDERING INFORMATION

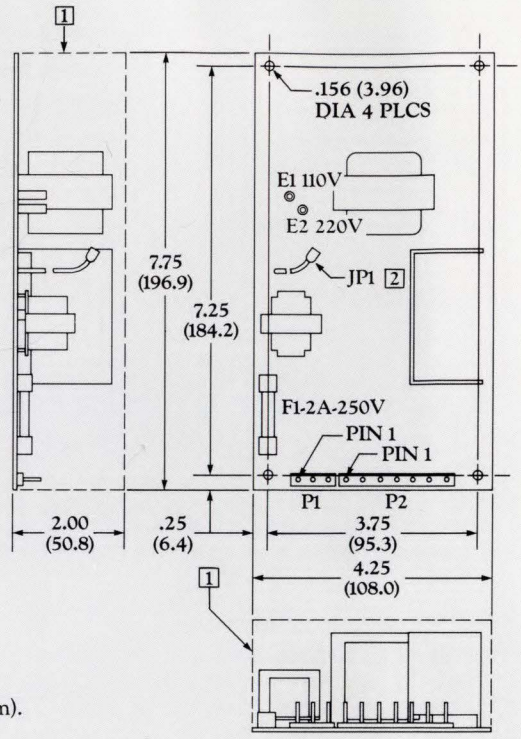
Model	*Output @ Min.–Max.*	*Tolerance*
XL50-3601	+5V @ 1A–6A	±3%
	+12V @ 0.5A–3A	±5%
	–12V @ 0A–0.7A	±5%
	–5V @ 0A–0.7A	±5%
XL50-3602	+5V @ 1A–6A	±4%
	+24V @ 0.4A–2A	±5%
	+12V @ 0A–0.7A	±5%
	–12V @ 0A–0.7A	±5%
XL50-3603	+5V @ 1.2A–6A	±3%
	+12V @ 0.4A–3A	±4%
	+12V @ 1.0A–1.5A	±5%
	–12V @ 0A–0.7A	±5%
XL50-3604	+5V @ 1A–6A	±4%
	+15V @ 0.4A–2A	±4%
	–15V @ 0A–0.7A	±5%
	–5V @ 0A–0.7A	±5%

Pin Chart

P1	*XL50-3601,-3602,-3603,-3604*
Pin 1	AC Hot
Pin 2	AC Hot/Neutral
Pin 3	AC Ground

P2	*XL50-3601,-3602,-3603,-3604*	
Pin 1	–5V	Pin 4, 5 Return
	+12V (-3602,-3603)	Pin 6, 7 +5V
Pin 2	–12V	
	–15V (-3604)	
Pin 3	+12V	
	+24V (-3602)	
	+15V (-3604)	

Total Power 60W Weight: 1.1 lbs. (0.5 kg)



Connector Type
Molex, Inc.
P1 Part No. 4313-5A51-4
P2 Part No. 4313-13A52

Mating Connector Type
Molex, Inc.
P1 Part No. 09-50-7051
P2 Part No. 09-50-7131
Pin Part No. 08-50-0106/0116

Note: Dimensions in inches and (mm).
For reference only.

1. Dashed line indicates minimum clearance.
2. Connect JP1 to E1 for 110V operation.
Connect JP2 to E2 for 220V operation.

XL60 ORDERING INFORMATION

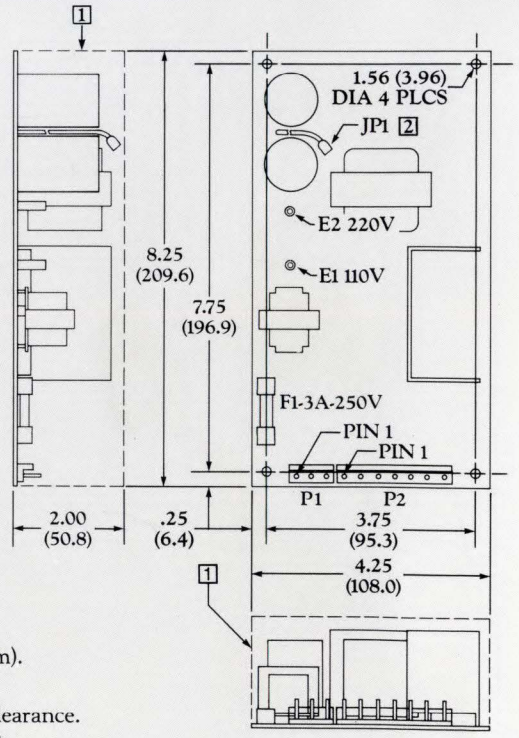
Model	*Output @ Min.–Max.*	*Tolerance*
XL60-3601	+5V @ 1A–6A	±3%
	+12V @ 0.5A–3.5A	±5%
	–12V @ 0A–0.7A	±5%
	–5V @ 0A–0.7A	±5%
XL60-3602	+5V @ 1A–6A	±4%
	+24V @ 0.4A–2A	±5%
	+12V @ 0A–0.7A	±5%
	–12V @ 0A–0.7A	±5%
XL60-3603	+5V @ 1A–6A	±4%
	+12V @ 0.5A–3.0A	±5%
	+12V @ 1A–1.5A	±5%
	–12V @ 0A–0.6A	±5%

Pin Chart

P1	*XL60-3601,-3602,-3603*
Pin 1	AC Hot
Pin 2	AC Hot/Neutral
Pin 3	AC Ground

P2	*XL60-3601,-3602,-3603*
Pin 1	–5V (-3601)
	–12V (-3602)
	+12V (-3603)
Pin 2	–12V
	+12V (-3602)
Pin 3	+12V
	+24V (-3602)
Pin 4, 5	Return
Pin 6, 7	+5V

Total Power 70W Weight: 1.2 lbs. (0.55 kg)

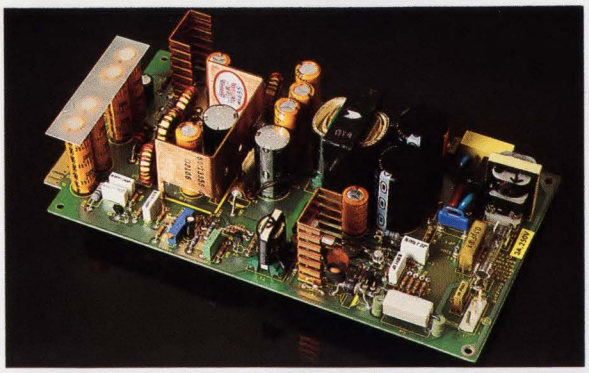


Connector Type
Molex, Inc.
P1 Part No. 4313-5A51-4
P2 Part No. 4313-13A52

Mating Connector Type
Molex, Inc.
P1 Part No. 09-50-7051
P2 Part No. 09-50-7131
Pin Part No. 08-50-0106/0116

Note: Dimensions in inches and (mm).
For reference only.

1. Dashed line indicates minimum clearance.
2. Connect JP1 to E1 for 110V operation.
Connect JP2 to E2 for 220V operation.



STANDARD FEATURES

- Designed to meet VDE 0806, IEC 380, UL478 and CSA C22.2#154 safety standards
- Designed to meet VDE 0871 Level B and FCC Level B EMI standards
- 110VAC/220VAC user selectable input
- Overvoltage protection (+5V output)
- 20msec hold-up time
- Input surge current protection
- Fast transient response

ELECTRICAL CHARACTERISTICS

Parameters	*Conditions*	*Limits*
Input Voltage	47–440 Hz	90–132VAC 180–264VAC User selectable
Hold-up Time	110VAC input 65W output power	20msec
Output Power Range	60°C ambient	5W to 65W
Overvoltage Protection	+5V output	6.25V ± 0.75V Threshold
Temperature Derating	Linear derating from 60°C to 70°C ambient	65W in a 60°C ambient 33W in a 70°C ambient
Power Limit Point	All line and load conditions	70W min.
Ripple and Noise	All outputs	1%

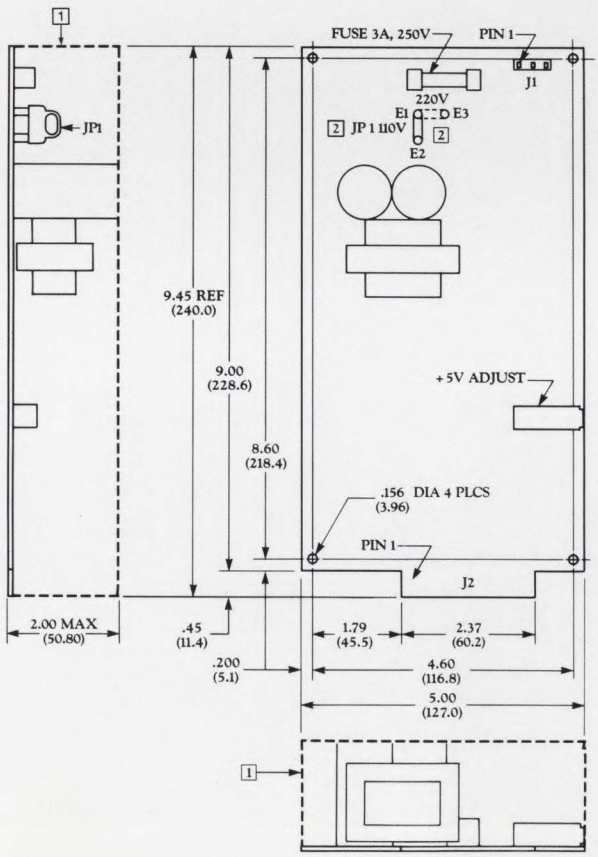
NOTE: Other characteristics of Series XL65 and Series XL50 and XL60 are similar.

XL65 ORDERING INFORMATION

Model	*Output @ Min.–Max.*	*Tolerance*
XL65-3620	+5V(I_1) @ 1.2A–6A*	± 3%
	+12V(I_2) @ 0.4A–3A*	± 5%
	–12V @ 0.3A–1.5A	±10%
	+24V @ 0.3A–1.2A	± 8%
	–5V @ 0A–0.5A	± 5%

*$I_1 + I_2 \leq 8A$

Total Power: 65W Weight: 1.2 lbs. (0.5 kg)



Pin Chart

J1	*J2*	
Pin 1 AC Input (Hot)	Pin 1, 3, 15	NC
Pin 2 Chassis	Pin 2	–5V
Pin 3 AC Input (Neutral)	Pin 4	–12V
	Pin 5	+12V
	Pin 6, 7, 8, 9	+5V
	Pin 10, 11, 12, 13	Return
	Pin 14	+24V

Connector Type
J1 (Mating)
Amp, Inc.
Part No. 2-87025-3
(Housing)
Part No. 87027-3
(Pins)

J2 (Mating)
Amp, Inc.
Part No. 1-640136-5
(Housing)
Part No. 350011-2
(Pins)

Note: Dimensions in inches and (mm).
For reference only.

1. Dotted line indicates maximum component height.
2. Connect JP1 to E1 & E2 for 110V operation, and #1 & E3 for 220V operation.

STANDARD FEATURES

- Designed to meet VDE 0806 safety
- Designed to meet VDE 0871 Level B EMI
- Designed to meet FCC 20708 Level B EMI
- Designed to meet IEC 380 safety
- CSA certified C22.2#154 safety
- UL478 approved
- 110VAC/220VAC user selectable input
- Short circuit protection
- Overvoltage protection (+5V output)
- Input surge current protection
- 20KHz switching frequency (minimum)
- Power fail detect output. (Tailored option on XL80)

ELECTRICAL CHARACTERISTICS

Parameters	*Conditions*	*Limits*
Input Voltage	All rated load conditions 47–440 Hz	90–132VAC 180–264VAC User selectable
Input Surge Current	115VAC, cold start, peak current	32A max.
Input Frequency Range		47Hz to 440Hz
Input Line Regulation	Low line to high line, full load	±0.3% all outputs
Efficiency	115VAC, 100W output	65% min.
Output Power Range	50°C ambient 50°C ambient 20 CFM forced air	20W–130W (XL100, XL125) 20W–80W (XL80) 20W–100W (XL80)
Hold-up Time	Nominal line, full load	16msec min.
Overvoltage Protection	±5V output	6.25V±0.75V threshold
Temperature Coefficient of Outputs	All outputs	±0.04%/°C max.
Safety Ground Leakage Current	264VAC, 50Hz	0.5mA max.
Power Limit Point	All line and load conditions	140W min. (XL100, XL125) 110W min. (XL80)
Temperature	Operating ambient Heatsink Semiconductor case Storage ambient	0°C–50°C 90°C max. 100°C max. –40°C–85°C
Temperature Derating	Free air connection	Derate linearly from rated power at 50°C to half-rated power at 70°C ambient
Altitude	Operating Non-operating	10,000 ft. 30,000 ft.
Relative Humidity Non-condensing Non-condensing	 Operating Non-operating	 5%–80% 5%–95%
Vibration	Three principal axes 2G cycling or dwell type	5Hz to 60Hz at 3 min. per octave
Transient Response	+5V output. 5A to 10A load change +5V output, 5A to 7.5A load change	150mV peak transient setting to within the regulation band in 1msec. (XL100, XL125) 400mV peak transient setting to within the regulation band in 1msec. (XL80)
Power Fail Detect XL100, XL125	Maximum sinking current open collector output	30mA min., T≥5ms
Ripple and Noise	All outputs	1%

XL80 ORDERING INFORMATION

Model	*Output @ Min.–Max.*	*Tolerance*
XL80-3601	+5V @ 2A–8A	±4%
	+12V @ 1A–3.5A	±4%
	–12V @ 0A–0.7A	±5%
	–5V @ 0A–0.7A	±5%
XL80-3603	+5V @ 2A–8A	±4%
	+12V @ 1A–3A	+5%
	+12V @ 0A–1.5A	±3%
	–12V @ 0A–0.7A	±5%

Pin Chart (XL80)

TB2	*XL80-3601,-3603*
Pin 1	–5V (-3601) +12VB (-3603)
Pin 2	Key
Pin 3	–12V
Pin 4, 5	+12V (-3601) +12VA (-3603)
Pin 6, 7, 8, 9	Return
Pin 10, 11, 12, 13	+5V

Total Power 80W Weight: 2.2 lbs. (1.0 kg)

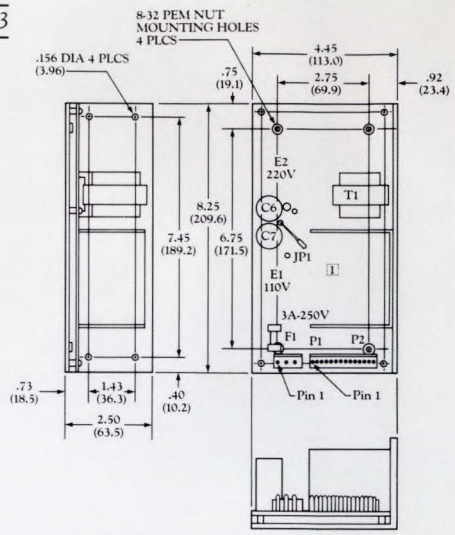
TB1	*XL-80-3601,-3603*
Pin 1	AC Hot
Pin 2	AC Hot/Neutral
Pin 3	AC Ground

Connector Type:
Molex Inc. TB1 Part #09-74-1051
TB2 Part #09-74-1131

Mating Connectors:
Molex Inc. TB1 Part #09-50-3051
TB2 Part #09-50-3131

Note: Dimensions in inches and (mm).
For reference only.

1. Connect JP1 to E1 for 110V operation.
Connect JP1 to E2 for 220V operation.



XL100 ORDERING INFORMATION

Model	*Output @ Min.–Max.*	*Tolerance*
XL100-3601	+5V @ 2A–10A	±4%
	+12V @ 0.8A–4A	±4%
	–12V @ 0A–0.7A	±5%
	–5V @ 0A–0.7A	±5%
XL100-3602	+5V @ 2A–10A	±3%
	+12V @ 0.4A–4A	+2%–6%
	–12V @ 0A–0.7A	±5%
	+24V @ 1.0A–3A	+8%–3%
XL100-3603	+5V @ 2A–10A	±4%
	+12V @ 0.8A–4A	±4%
	+12V @ 0.5A–1.5A	±6%
	–12V @ 0A–0.7A	±5%

Pin Chart (XL100 and XL125)

TB1		*-3601,-3602,-3603*	
Pin 1	P.F.D.	Pin 5, 6, 7	Return
Pin 2	–12V	Pin 8, 9	+5V
Pin 3	+12V		
Pin 4	–5V (-3601) +24V (-3602) +12V (-3603)		

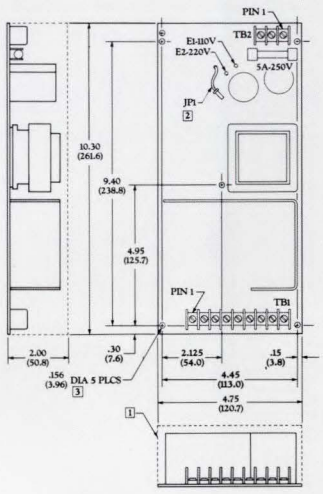
Total Power 100W Weight: 2.5 lbs. (1.1 kg)

TB2	*-3601,-3602,-3603*
Pin 1	AC Hot
Pin 2	AC Ground
Pin 3	AC Neutral/Hot

Connector Type, TB1 is Beau, Inc.,
Part #72-5-09C
TB2 is Beau, Inc., Part #72-5-03C
6-32 screws on 0.375 in. centers
Fuse Type, 5A,250VAC, 3AE, Normal Blow

Note: Dimensions in inches and (mm).
For reference only.

1. Dashed line indicates minimum clearance.
2. Connect JP1 to E1 for 110V operation.
Connect JP1 to E2 for 220V operation.
3. To meet UL, VDE safety, use non-metalic mounting hardware only.



XL125 ORDERING INFORMATION

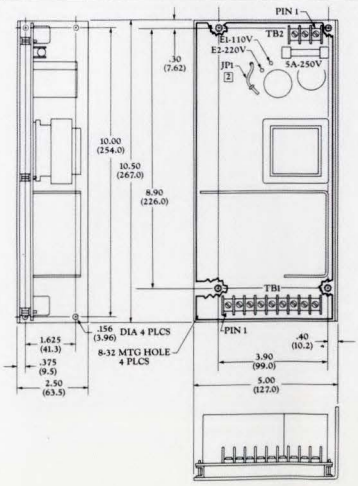
Model	*Output @ Min.–Max.*	*Tolerance*
XL125-3601	+5V @ 2A–15A[1]	±4%
	+12V @ 1.0A–5A	±4%
	–12V @ 0A–0.7A	±5%
	–5V @ 0A–0.7A	±5%
XL125-3602	+5V @ 2A–15A[1]	±4%
	+12V @ 0.4A–4A	+3%–6%
	–12V @ 0A–0.7A	±5%
	+24V @ 1.0A–4A	+11%–3%
XL125-3603	+5V @ 2A–15A[1]	±4%
	+12V @ 0.8A–4A	±4%
	+12V @ 0.5A–1.5A	±8%
	–12V @ 0A–0.7A	±5%

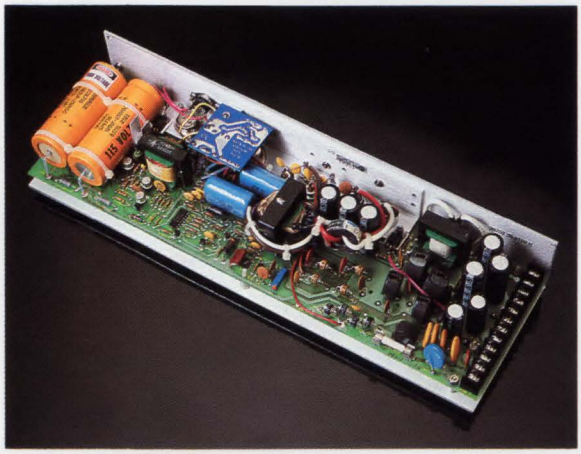
[1] If +5V does not exceed 10A, see the XL100 data above for Regulation and Ripple specifications. Pin out same as XL100 above.

Total Power: 130W Weight: 3.5 lbs. (1.6 kg)

Note: Dimensions in inches and (mm).
For reference only.

2. Connect JP1 to E1 for 110V operation.
Connect JP1 to E2 for 220V operation.
Connector and fuse same as XL100 above.





STANDARD FEATURES

- Open frame construction
- Short circuit protection
- Overvoltage protection (+5V output)
- Input surge current protection (soft start)
- Input EMI filtering
- 16ms hold-up time
- 20KHz switching
- "L" mounting bracket
- Brownout rated
- 110VAC/220VAC user selectable
- UL recognized
- CSA C22.2 #154 certified
- Over power shutdown
- Barrier strip connector

ELECTRICAL CHARACTERISTICS

Parameters	*Conditions*	*Limits*
Input Voltage User Selectable	All rated load conditions	95–132VAC 190–264VAC
Input Surge Current	High line, cold start, $110V_{in}$	68A peak (OL400) 35A peak (OL130, OL200)
Input Frequency Range		47Hz to 440Hz
Input Line Regulation	Low line to high line, all outputs	±0.3%
Safety Ground Leakage	240VAC, 60Hz	0.7mA max.
Efficiency	Nominal line, full load	70% typical
Hold-up Time	Nominal line, full load	16msec min.
Switching Frequency	20%–100% load	20KHz min.
Adjustability	+5V output	4.8V to 0VP
Overvoltage Protection	+5V output	6.25V±0.75V
Ripple and Noise	Full load, all outputs	2% peak to peak
Temperature Coefficient	+5V output Any other output	0.02%/°C typical 0.05%/°C typical
Output Power Range	See operating ambient below	20%–100% rated power
Transient Response	+5V output, 5A to 10A load change	200mV peak transient setting to within reg. band in 1.5msec
Temperature:		
Operating Ambient	Forced air, 80 CFM (400 LFM) Free air convection Forced air, 20 CFM	0°C–50°C (OL400) 0°C–50°C (OL130, OL200) 0°C–65°C (OL130, OL200)
Heatsink		90°C max.
Semiconductor case		100°C max.
Storage ambient		–20°C to +85°C
Altitude	Operating Non-operating	10,000 ft 30,000 ft
Relative Humidity	Non-condensing	5% to 95%
Safety	Designed to meet	UL478 and CSA C22.2#154
EMI	Meet conducted limits (with external filter)	FCC and VDE 0871
Vibration	Withstand 2G cycling or dwell-type vibration along each of three principal axes	5Hz to 60Hz at 3 min. per octave

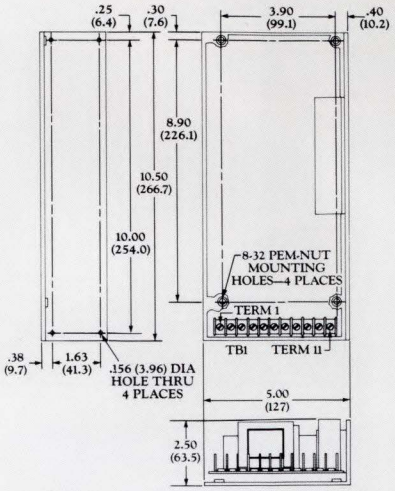
OL130 ORDERING INFORMATION

Total Power 130W Weight: 2.5 lbs. (1.1 kg)

Model	*Output @ Min.–Max.*	*Tolerance*
OL130-3001	+5V @ 3A–15A	±1%
	–5V @ 0A–0.7A	±5%
	+12V @ 0.6A–3A	±6%
	–12V @ 0.4A–2A	±6%
OL130-3022	+5V @ 3A–15A	±1%
	+24V @ 0.4A–2A	±6%
	+12V @ 0.6A–3A	±6%
	–12V @ 0.4A–2A	±6%

Pin Chart

TB1		*OL130-3001,-3022*	
Pin 1, 2	AC Input	Pin 7, 8, 9	Return
Pin 3	Chassis	Pin 10, 11	+5V
Pin 4	–12V		
Pin 5	+12V		
Pin 6	–5V (-3001) +24V (-3022)		



Connector Type, TB1, Beau, Inc.,
Part #72-5-11C

Note: Dimensions in inches and (mm).
For reference only.

OL200 ORDERING INFORMATION

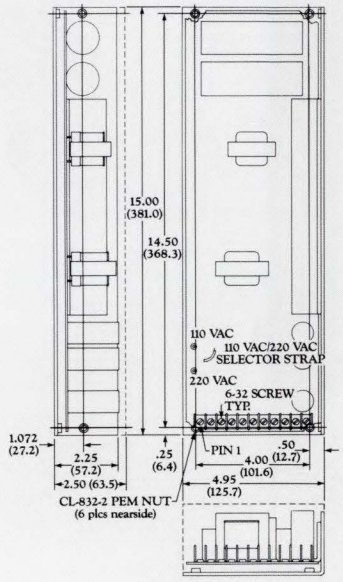
Total Power: 200W Weight: 4 lbs. (1.8 kg)

Model	*Output @ Min.–Max.*	*Tolerance*
OL200-3006	+5V @ 5A–20A*	±1%
	–5V @ 1A–3A	±9%
	+12V @ 1A–3A†	±6%
	–12V @ 1A–3A†	±6%
OL200-3024	+5V @ 5A–20A*	±1%
	+24V @ 1A–3A	±6%
	+12V @ 1A–3A†	±5%
	–12V @ 1A–3A†	±5%

*25A with Forced Air.
†4A with Forced Air.

Pin Chart

TB1		*OL200-3006,-3024*	
Pin 1, 2	AC Input	Pin 7, 8, 9	Return
Pin 3	Chassis GND	Pin 10, 11	+5V
Pin 4	+12V		
Pin 5	–12V		
Pin 6	+24V (-3024) –5V (-3006)		



Connector Type, TB1, Beau, Inc.,
Part #72-5-11C

Note: Dimensions in inches and (mm).
For reference only.
Dashed line indicates the maximum unit height because of wires or components above "L" bracket.

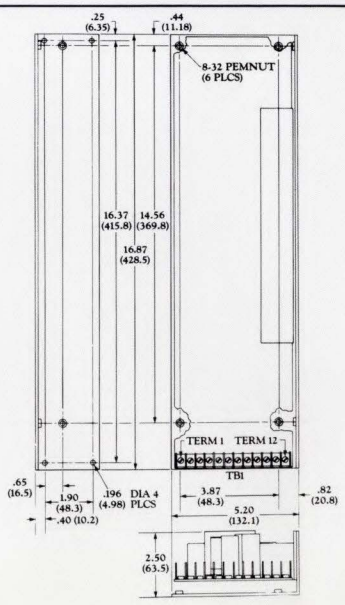
OL400 ORDERING INFORMATION

Total Power: 400W Weight: 5 lbs. (2.3 kg)

Model	*Output @ Min.–Max.*	*Tolerance*
OL400-3015	+5V @ 10A–45A	±2%
	–5V @ 2A–4A	±8%
	+12V @ 2A–10A	±6%
	–12V @ 2A–10A	±6%
	+24V @ 2A–4A	±5%
OL400-3026	+5V @ 10A–45A	±2%
	–5V @ 2A–4A	±8%
	+15V @ 2A–10A	±6%
	–15V @ 2A–10A	±6%
	+24V @ 2A–4A	±5%

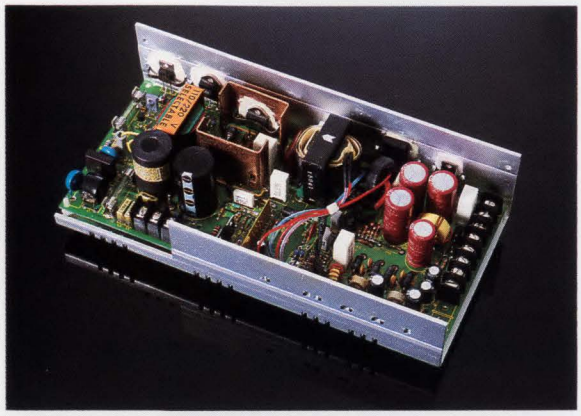
Pin Chart

TB1		*OL400-3015,-3026*	
Pin 1, 2	AC Input	Pin 7, 8, 9	Return
Pin 3	–5V	Pin 10, 11, 12	+5V
Pin 4	+24V		
Pin 5	–12V (-3015) –15V (-3026)		
Pin 6	+12V (-3015) +15V (-3026)		



Connector Type, TB1, Beau, Inc.,
Part #72-5-12C

Note: Dimensions in inches and (mm).
For reference only.



STANDARD FEATURES

- Designed to meet VDE 0806 safety
- Designed to meet VDE 0871 level B EMI
  XL160 requires external filter
- Designed to meet FCC 20708 level B EMI
  XL160 requires external filter
- Designed to meet IEC 380 safety
- CSA certified C22.2#154 safety
- UL478 approved
- 110VAC/220VAC user selectable input
- Short circuit protection
- Overvoltage protection (+5V output)
- Input surge current protection
- 20KHz switching frequency (minimum)
- Power fail detect output (XL200)

ELECTRICAL CHARACTERISTICS

Parameters	*Conditions*	*Limits*
Input Voltage	All rated load conditions	90–132VAC 180–265VAC User selectable
Inrush Current	132/265VAC, cold start, peak current	22A max.
Input Frequency Range		47Hz to 440Hz
Efficiency	Nominal line, full load	Typical 70%
Output Power Range	50°C, convection cooled 25 CFM forced air	30W–160W (XL160) 35W–180N (XL200) 30W–185W (XL160) 35W–210W (XL200)
Hold-up Time	Nominal line, 160W load 180W load	20 msec min. (XL160) 32 msec min. (XL200)
Overvoltage Protection	+5V output	6.25V±0.75V
Safety Ground Leakage Current	265VAC, 50Hz	0 (XL160) 0.6mA max. (XL200)
Power Limit Point	All line and load conditions	190W min. (XL160) 210W min. (XL200)
Temperature	Operating ambient, convection cooling Operating ambient, forced air cooling 25CFM	XL160 @ 160W 0–50°C XL200 @ 180W 0–50°C XL160 @ 185W 0–50°C XL200 @ 210W 0–50°C
Temperature Coefficient	+5V Output Other Outputs	+0.02%/°C max. ±0.04%/°C max.
Temperature Derating	Forced Air Cooling	Derate linearly from rated power at 50°C to half-rated power at 70°C ambient
Altitude	Operating Non-operating	10,000 ft. 30,000 ft.
Relative Humidity	Non-condensing	5%–95%
Vibration	Three principal axes 2G cycling or dwell type	5Hz to 60Hz at 3 min. per octave
Transient Response	+5V output, 10A–15A load change (XL160) +5V output, 15A to 20A load change (XL200)	180mV peak transient setting to within the regulation band in 1.0 msec. (XL160) 200mV peak transient setting to within the regulation band in 1.0 msec. (XL200)
Power Fail Detect, XL200	Maximum sinking current open collector output	40 mA max.
Ripple and Noise	All outputs	2%
MIL 217D MTBF	25°C ground benign	100,000 hrs.

XL160 ORDERING INFORMATION

Model	Output	Min.–Max.[1]	Max.[2]	Peak	Tolerance
XL160-3401	+5V	@ 3.0A–15A	22.0A	22A	±1%
	+12V	@ 0.5A–4A	5.0A	8A	±5%
	−12V	@ 0.5A–2A	2.5A	5A	±5%
	−5V	@ 0.0A–1.0A	1.0A	1.0A	±5%
XL160-3402	+5V	@ 3.0A–15A	22.0A	22A	±1%
	+12V	@ 0.5A–4A	5.0A	8A	±5%
	−12V	@ 0.5A–2A	2.5A	5A	±5%
	+24V	@ 0.5A–2A	2.5A	5A	±5%
XL160-3403	+5V	@ 3.0A–15A	22.0A	22A	±1%
	+12V(B)	@ 0.5A–4A	5.0A	8A	±5%
	−12V	@ 0.5A–2A	2.5A	5A	±5%
	+12V(A)	@ 0.5A–2A	2.5A	5A	±5%
XL160-3411	+5V	@ 3.0A–15A	22.0A	22A	±1%
	+12V(B)	@ 0.5A–5A	6.0A	8A	±2%
	−12V	@ 0.0A–0.7A	1.0A	1.0A	±5%
	+12V(A)	@ 0.0A–1.0A	1.0A	1.0A	±5%

Pin Chart **(XL160)**

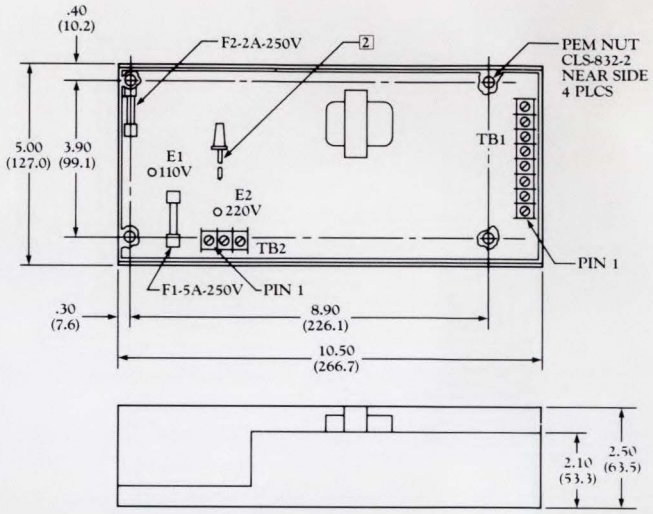
TB1	-3401	-3402	-3403	-3411
Pin 1	−12V	−12V	−12V	−12V
Pin 2	+12V	+12V	+12V(B)	+12V(B)
Pin 3	−5V	+24V	+12V(A)	+12V(A)
Pin 4, 5, 6	RETURN	RETURN	RETURN	RETURN
Pin 7, 8	+5V	+5V	+5V	+5V

TB2

Pin 1 AC Hot
Pin 2 AC Neutral
Pin 3 AC Ground

(1) Convection cooling (2) Forced air cooling

Total Power 160W,[1] 185W[2] Weight: 3.0 lbs. (1.4 kg)



Connector Type
TB1 Kulka P/N 4597A-6/32-09
TB2 Kulka P/N 4597A-6/32-03

XL200 ORDERING INFORMATION

Model	Output	Min.–Max.[1]	Max.[2]	Peak	Tolerance
XL200-3601	+5V(A)	@ 3A–20A	30A	30A	±1%
	+12V	@ 1A–5A	6A	8A	±5%
	−12V	@ 0.2A–2A	3A	4A	±5%
	±5V(B)	@ 0.8A–3A	4A	4A	±6%
XL200-3602	+5V	@ 3A–20A	30A	30A	±1%
	+12V	@ 1A–5A	6A	8A	±5%
	−12V	@ 0.2A–2A	3A	4A	±5%
	±24V	@ 0.8A–4A	5A	7A	±5%
XL200-3603	+5V	@ 3A–20A	30A	30A	±1%
	+12V(B)	@ 1A–5A	6A	8A	±5%
	−12V	@ 0.2A–2A	3A	4A	±5%
	±12V(A)	@ 0.2A–3A	5A	8A	±5%

Pin Chart **(XL200)**

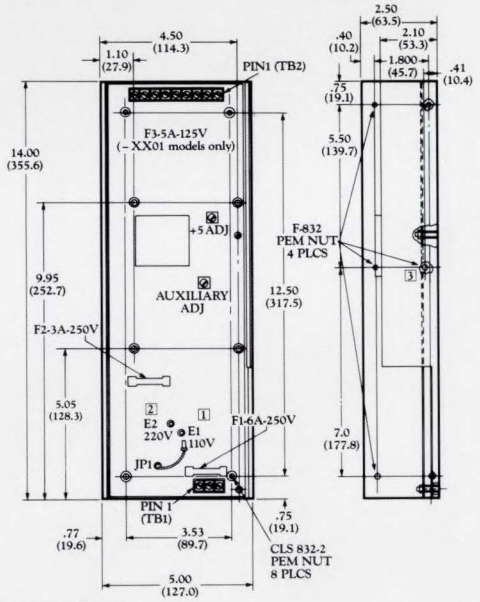
TB1	-3601	-3602	-3603
Pin 1	PFD	PFD	PFD
Pin 2	−12V	−12V	−12V
Pin 3	+12V	+12V	+12V(B)
Pin 4	5V(B)	24V	12V(A)
Pin 5	Ret 5V	Ret 24V	Ret 12V(A)
Pin 6, 7	Ret Comm	Ret Comm	Ret Comm
Pin 8, 9	+5V(A)	+5V	+5V

TB2

Pin 1 AC Hot
Pin 2 AC Neutral
Pin 3 AC Ground

(1) Convection cooling (2) Forced air cooling

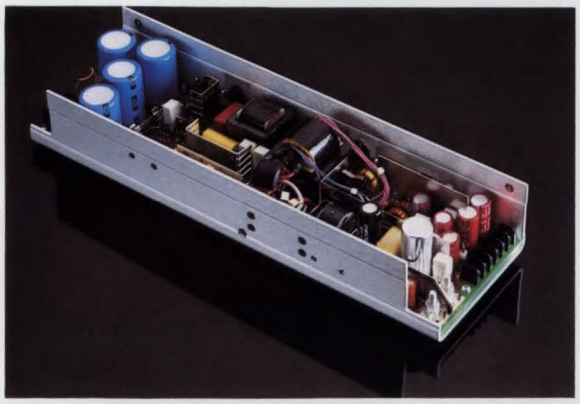
Total Power 180W,[1] 210W[2] Weight: 4.5 lbs. (2.05 kg)



Connector Type
TB1 Kulka P/N 4597A-6/32-08
TB2 Kulka P/N 4597A-6/32-03

Note: Dimensions in inches and (mm).
For reference only.

1. Connect JP1 to E1 for 110V operation.
2. Connect JP1 to E2 for 220V operation.
3. Maximum screen penetration 0.125 inches (3.2 mm).



STANDARD FEATURES

- Designed to meet VDE 0806 safety
- CSA certified C22.2#154 safety
- UL478 approved
- 110VAC/220VAC user selectable input
- Power fail detect output
- Remote sense on main 5V output
- Overtemperature protection
- 32 msec holdup time
- Short circuit protection
- Overvoltage protection (+5V output)
- Input surge current protection
- Requires external filter

ELECTRICAL CHARACTERISTICS

Parameters	*Conditions*	*Limits*
Input Voltage (User selectable)	All rated load conditions	90–132VAC, 147VAC surge 180–265VAC, 294VAC surge
Input Current	110V in full load 220V in full load	7.6A RMS max. 3.8A RMS max.
Inrush Current	132/265VAC, cold start, peak current	90A max.
Input Frequency Range		47Hz to 63Hz
Efficiency	Nominal line, full load	Typical 75%
Output Power Range (continuous) (peak)	500 LFM forced air Duration ≤1 min., duty factor ≤10%	45W–450W 500W
Hold-up Time	Nominal line	32msec min.
Overvoltage Protection	+5V output	6.05V±0.55V
Safety Ground Leakage Current	265VAC, 50Hz	0.1mA max.
Temperature	Operating ambient, forced air cooling 450W load (500 LFM)	0–50°C
Temperature Coefficient	+5V Output Other Outputs	0.02%/°C max. 0.03%/°C max.
Altitude	Operating Non-operating	10,000 ft. 30,000 ft.
Relative Humidity	Non-condensing	5%–95%
Vibration	Three principal axes 2G cycling or dwell type	5Hz to 60Hz at 3 min. per octave
Transient Response	+5V output, 20A to 30A load change	180mV peak transient setting to ±1% in 1.0 msec.
Power Fail Detect	Maximum sinking current open collector output	40mA max.
Ripple and Noise	All outputs	2%
MIL 217D MTBF	25°C ground benign	>70,000 hrs.

XL450 ORDERING INFORMATION

Model	*Output*	*Min.–Max.*	*Peak*	*Tolerance*
XL450-3406	+5V	3A–60A	60A	±1%
	−5V	1A–4A	4A	±6%
	+12V	1A–15A	20A	±5%
	−12V	1A–10A	12A	±5%
	+24V	1A–12A	20A	±5%
XL450-3407	+5V	3A–60A	60A	±1%
	+12V	1A–15A	20A	±5%
	−12V	1A–10A	12A	±5%
	+24V	1A–12A	20A	±5%
	−24V	—	—	±5%
XL450-3415	+5V	3A–60A	60A	±1%
	−5V	1A–4A	4A	±6%
	+15V	1A–12A	16A	±5%
	−15V	1A–8A	10A	±5%
	+24V	1A–12A	20A	±5%

Pin Chart (XL450)

Stud 1	+5V, 60A max.	¼-20 Studs
Stud 2	+5V Return	

TB1

Pin 1	AC Hot
Pin 2	AC Neutral
Pin 3	AC Ground

TB2 Kulka P/N 4597A-05

	-3406	*-3407*	*-3415*
Pin 1	Aux. Return	Aux. Return	Aux. Return
Pin 2	Aux. Return	Aux. Return	Aux. Return
Pin 3	−5V	−24V	−5V
Pin 4	+24V	+24V	+24V
Pin 5	−12V	−12V	−15V
Pin 6	+12V	+12V	+15V

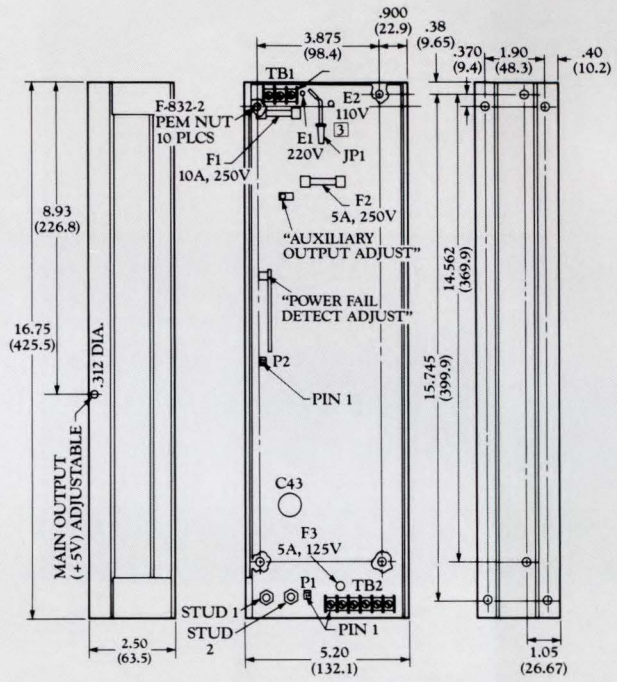
P1 Molex P/N 22-23-2021

Pin 1	+5V Sense
Pin 2	+5V Ret. Sense

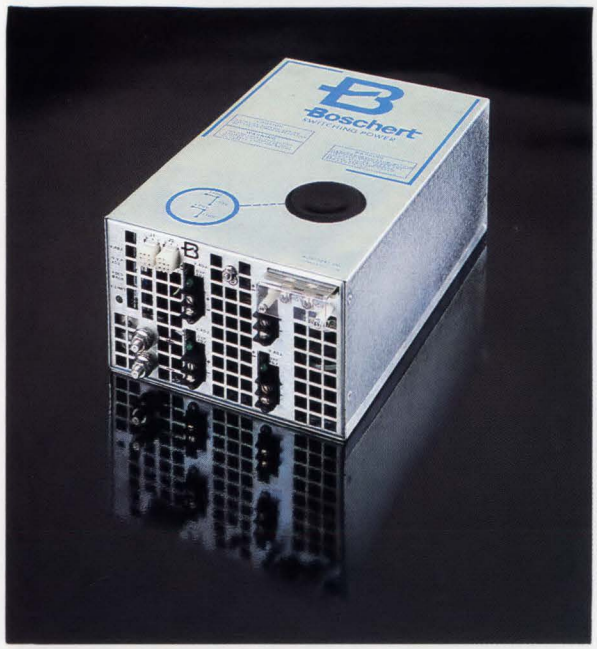
P2 Molex P/N 22-23-2021

Pin 1	PFD
Pin 2	PFD Return

Total Power 450W Weight: 7.3 lbs. (3.3 kg)



Note:
1. Dimensions are for reference only.
2. Dashed lines indicate maximum clearance.
3. Connect JP1 to E2 for 110V operation.
   Connect JP1 to E1 for 220V operation.



STANDARD FEATURES

- 750 watts, 2–5 outputs (1000W peak power)
- Modular design
- UL recognized, CSA certified
- Certified by TUV to VDE 0806/8.81 and IEC 380
- Meets FCC and VDE Class A conducted EMI
- 110/220 externally strappable
- 100msec hold-up, typical
- Brownout to 65VAC/130VAC low line, typical
- Power fail detect
- Single wire parallelability
- Remote sense each output
- All outputs are adjustable
- Overcurrent protection, each output
- Overvoltage protection, each output, user adjustable
- Overvoltage crowbar disable
- Overvoltage protection trigger
- Status indicators, each output
- Overtemperature protection
- Built-in cooling
- Advance thermal warning
- Main output undervoltage warning
- Output fault signal
- Remote inhibit
- Current monitor output signal
- Proportional drive
- Current mode control
- All outputs may be used with either polarity
- Isolated control ground
- Two-year warranty
- Out-of-Tolerance Shutdown

OPTIONAL FEATURES

- Remote margining, all outputs
- Auxiliary shutdown/sequencing
- Output undervoltage shutdown
- Overtemperature shutdown indicator
- Overvoltage shutdown indicator
- Three inhibit options

ELECTRICAL CHARACTERISTICS

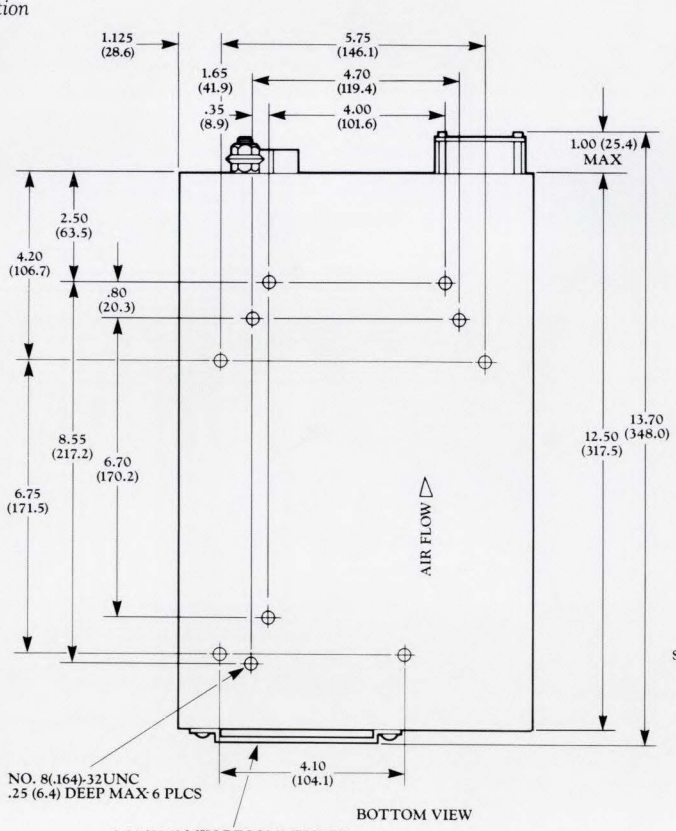
Parameters	*Conditions*	*Limits*
Input Voltage	User selectable	90–134VAC 180–268VAC
Input Frequency Range		47Hz to 63Hz
Input Surge Current	Cold start, peak current	7.5A nominal
Hold-up Time	P_{out}=750 watts, low line (90V)	30msec min.
Efficiency	Full rated load	65% nominal
Line Regulation		0.1%
Load Regulation		0.1%
Overshoot/Undershoot	At turn-on	None
Noise and Ripple		50mV p.p. max.
Output Voltage Adjustability	All outputs, adjustable	±10%
Temperature Coefficient	Using remote sense	±0.02%/°C
Remote Sense Line Drop	Each sense line	0.25V max.
Parallelability	Main outputs Auxiliary outputs	To within 10% of full-rated load To 20% of full-rated load
Dynamic Response	Peak excursion for 25% load step, 1A/μsec slew rate (from 50% load) Settling time to .5%	2% 100μsec
Output Polarity	All outputs	Float
Overvoltage Protection Threshold (user adjustable)	Main output, user adjustable, factory preset (crowbar) Auxiliaries, user adjustable, factory preset (auxiliary shutdown)	6.25V±100mV (5V) 6.25V±100mV (5V) 13.5V±100mV (12V) 16.5V±100mV (15V) 26V±100mV (24V)
Output Current Limit	Main output, user adjustable, factory preset Auxiliary output, factory preset	120A typ 5V and 12V aux 15A typ 15V aux 12A typ 24V aux 8A typ
Short Circuit Current	Main output, factory preset (foldback), user adjustable Auxiliaries, factory preset (foldback)	50% of full-rated load 20% to 80% of full-rated load 4A min. (5V) 3A min. (12V) 2.4A min. (15V) 1.5A min. (24V)
Reverse Voltage Protection	Main output Auxiliaries	To full-rated current To 3A reverse current

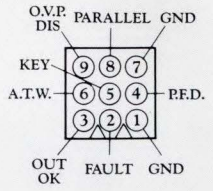
ELECTRICAL CHARACTERISTICS

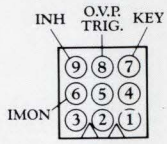
Parameters	*Conditions*	*Limits*
Turn-on Time	Outputs within regulation limits	1000msec after AC power applied
Advance Thermal Warning	High level	2sec ±25% before overtemperature shutdown
Power Fail Warning (user adjustable)	Low level	2msec before outputs will go out of regulation limits

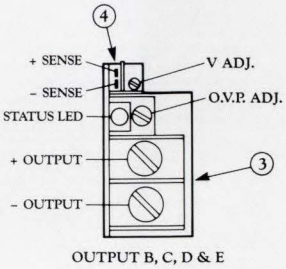
XL750 ORDERING INFORMATION

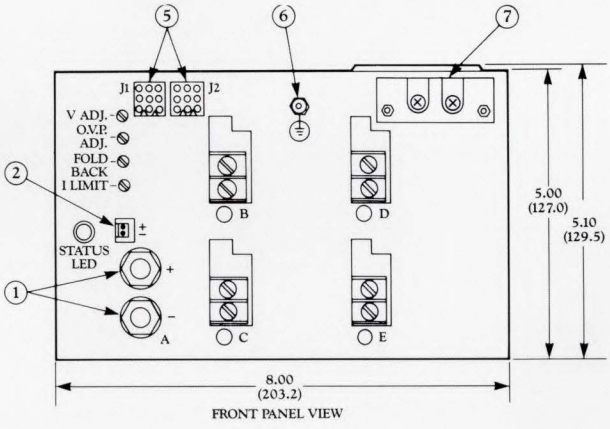
Model	*Output @ Min.–Max.*	*Position*
XL750-4601	±5V @ 10A–100A	A
	±5V @ 0A–10A	D
	±12V @ 0A–10A	C
	±12V @ 0A–6A	E
XL750-4602	±5V @ 10A–100A	A
	±12V @ 0A–10A	C
	±12V @ 0A–6A	E
	±24V @ 0A–4A	D
XL750-4604	±5V @ 10A–100A	A
	±5V @ 0A–10A	D
	±15V @ 0A–8A	C
	±15V @ 0A–8A	E
XL750-4605	±5V @ 10A–100A	A
	±15V @ 0A–8A	C
	±15V @ 0A–8A	E
	±24V @ 0A–4A	D
XL750-4606	±5V @ 10A–100A	A
	±5V @ 0A–10A	D
	±12V @ 0A–6A	C
	±12V @ 0A–6A	E
	±24V @ 0A–4A	B
XL750-4607	±5V @ 10A–100A	A
	±12V @ 0A–6A	C
	±12V @ 0A–6A	E
	±24V @ 0A–4A	B
	±24V @ 0A–4A	D
XL750-4608	±5V @ 10A–100A	A
	±12V @ 0A–10A	C
	±12V @ 0A–10A	E
XL750-4609	±5V @ 10A–100A	A
	±15V @ 0A–8A	C
	±15V @ 0A–8A	E
XL750-4610	±5V @ 10A–100A	A
	±12V @ 0A–10A	E
	±24V @ 0A–5A	C











Connectors

1. Main Output Studs (5/16–18)
2. Main Output Sense (Molex 22-05-3021) Mating Connector (Molex 22-01-2025 and 08-50-0114 Terminal)
3. Auxiliary Output Terminal Block (Kulka 4591A-2)
4. Auxiliary Sense (Molex 22-05-3021)
5. External Control Interface (Molex 03-06-1091) Mating Connector (Molex 03-06-2092 and 02-06-2103 with 02-06-1103 loaded inkeying position)
6. Safety Ground (8/32 Stud)
7. AC Input (8/32 Screw Terminals)

STANDARD FEATURES

- 1000 watts, single output
- Modular design
- UL recognized, CSA certified
- Certified by TUV to VDE 0806/8.81 and IEC 380
- Meets FCC and VDE Class A conducted EMI
- 110/220 strappable
- 50msec hold-up, typical
- Brownout to 65VAC/130VAC low line
- Overvoltage shutdown indicator
- Overtemperature protection
- Built-in cooling
- Overtemperature shutdown indicator (hot)
- Advance thermal warning
- Output undervoltage warning
- Remote inhibit, four options
- Current monitor output signal
- Proportional drive
- Current mode control
- Triple loop control
- Output may be used with either polarity
- Isolated control ground
- Overvoltage/overtemperature reset
- Power fail detect
- Single wire parallelability
- Remote sense
- Adjustable output
- Remote margining
- Overcurrent protection
- Overvoltage protection
- Overvoltage crowbar disable
- Two-year warranty

ELECTRICAL CHARACTERISTICS

Parameters	*Conditions*	*Limits*
Input Voltage	User selectable, single phase	90–132VAC 180–264VAC
Input Frequency Range		47Hz to 63Hz
Input Surge Current	Cold start, peak current, nominal line	75A
Line Regulation		0.1%
Load Regulation		0.1%
Parallelability		To within 10% of full-rated load
Noise and Ripple		1% p.p. or 50mV
Remote Margin		±5%
Remote Sense Line Drop	Each sense line	0.25V max.
Dynamic Response	Peak excursion for 25% load step/1A/μsec slew rate (from 50% load) Settling time to .5%	 2% 100μsec
Overvoltage Protection Threshold	Factory preset, user adjustable (crowbar)	6.25±100mV
Output Current Limit	Factory preset, user adjustable	220A
Short Circuit Current	Factory preset (foldback) User adjustable (foldback)	50% of full-rated load 20% to 80% of full-rated load
Reverse Voltage Protection		To full-rated current
Turn-on Time	Output within regulation limits	1000msec after AC power applied
Overshoot/Undershoot	At turn-on	None
Hold-up Time	P_{out}=1000 watts, low line (90V)	30msec min.
Efficiency	Full-rated load	70% nominal
Advance Thermal Warning	High level output	3sec±25% before overtemperature shutdown
Power Fail Warning (user adjustable)	Low level output	10msec min. before output will go out of regulation limits

HL1000 ORDERING INFORMATION

Model	*Output @ Min.–Max.*
HL1000-4605	+5V @ 0A-200A (strapped for 220V_{in})
HL1000-3605	+5V @ 0A-200A (strapped for 110V_{in})

For other outputs, consult Boschert.

1. AC Input ($^{8}/_{32}$ Screw Terminals)
2. Safety Ground ($^{8}/_{32}$ Studs)
3. External Control Interface (Molex 03-06-1091). Mating Connector (Molex 03-06-2092 and 02-06-1103)
4. Output Terminal Studs ($^{3}/_{8}$–16)
5. Supplementary Control Interface (24 Pin Connector, 0.025" Square Pins, 0.1" Centers)

INTERFACE PIN-OUT INFORMATION

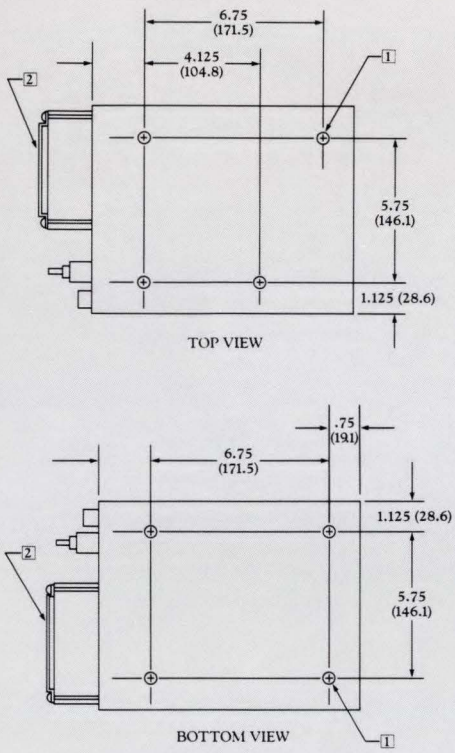
External Control Interface Pin-out

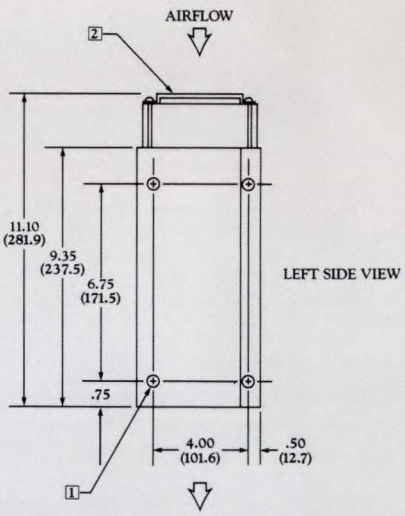
1. + Sense
2. High Margin
3. Low Margin
4. – Sense
5. $\overline{\text{Power Fail Detect}}$
6. $\overline{\text{Inhibit A}}$
7. Control Ground
8. Advance Thermal Warning
9. Parallel

Supplementary Control Interface Pin-out

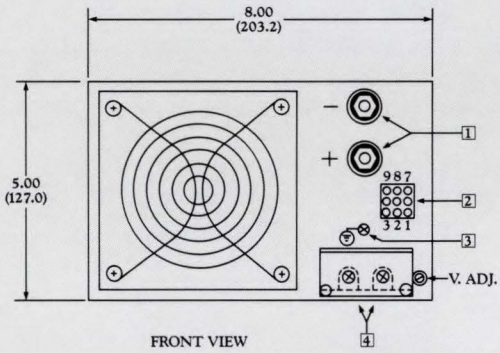
1. ATW
2. OV
3. OVP TRIG
4. OVP DIS
5. UV SHUTDOWN ENABLE
6. $\overline{\text{OUT OK}}$
7. $\overline{\text{PFD}}$
8. + SENSE
9. – SENSE
10. INH B,C
11. INH SEL
12. $\overline{\text{INHA}}$
13. INV OUT
14. +5V
15. LOW MARGIN
16. PARALLEL
17. INV IN
18. HIGH MARGIN
19. } CONTROL GND
20. }
21. I MON
22. HOT
23. $\overline{\text{INHD}}$
24. RESET

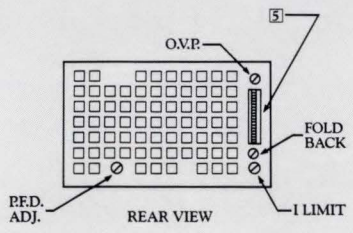
Total Power 1000W **Weight: Less than 20 lbs.**





1 OUTPUT STUDS (3/8-16)
2 EXTERNAL CONTROL INTERFACE (MOLEX 03-06-1091) MATING CONNECTOR IS MOLEX 03-06-2092 & 02-06-2103.
3 SAFETY GROUND (8-32 SCREW)
4 A.C. INPUT (8-32 SCREW TERMINALS)
5 SUPPLEMENTARY CONTROL INTERFACE (BERG 65532-424) MATING CONNECTOR IS BERG 65039-013 WITH 47649-000 OR 47750-000 PINS.





NOTES:
1 NO. 8 (164)-32 UNC .25 DEEP MAX. 12 PLCS
2 2.00 MIN. RECOMMENDED AIRSPACE ALLOWANCE FOR FAN.

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