C&D TECHNOLOGIES
Power Solutions

quikflex QFM SERIES

Configurable 400–1000W AC/DC Power Supplies for Medical Applications*

FEATURES

- EN60601-1, UL2601-1, IEC601-1 Approvals
- 12mm Creepage
- Low Leakage Current <300µA
- 1 to 12 isolated outputs with full configurability
- 1.45V to 28V standard output voltages
- Optional Isolated Bias Supply Voltage 5V @ 50mA
- Up to 1000 Watts of output power
- Series and parallel capability
- Zero load operation
- Power factor correction
- Universal input
- Modular construction
- Control signals on each module
- Industry standard package

DESCRIPTION

The Quikflex QFM range of configurable AC/DC power supplies are ideally suited to medical applications including:

- Medical and Dental Equipment
- Test and Measurement
- Chemical Analysis Equipment
- Drug Infusion Equipment

Delivering up to 1000W of output power in a extruded aluminium package, the units are delivered complete with CE and UL approval and are fully compliant to EN61000-3-2. Power connections are made using screw terminal connections and primary and secondary controls enable power channels to be individually voltage adjusted, enabled or connected in parallel or series to provide limitless power solutions.

c UL us CE (LVD)

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OUTPUT MODULE SPECIFICATIONS

	Output Configuration	No. of Slots	V_{OUT} Min	V_{OUT} Nom	V_{OUT} Max	I_{MAX}
Module Ref:			(V)	(V)	(V)	(A)
QFMOD1	Single	1	3.0	5.0	5.6	30.0
QFMOD2	Single	1	5.0	12.0	13.0	20.0
QFMOD3	Single	1	8.0	18.0	20.0	15.0
QFMOD4	Single	1	12.0	24.0	28.0	12.0
QFMOD5	Dual	1	10.0	24.0	28.0	3.0
			10.0	24.0	28.0	3.0
QFMOD6	Dual	1	3.0	5.0	5.6	10.0
			10.0	24.0	28.0	3.0
QFMOD70	Single	2	1.45	5.0	5.6	80.0

INPUT CHARACTERISTICS

Parameter	Conditions/Notes	MIN	NOM	MAX	Units
Voltage Range	Universal Input	88		264	VAC
Frequency		47		63	Hz
Inrush Current	230VAC at 30°C			50	A
Power Factor	Conforms to EN61000-3-2		0.98		

OUTPUT CHARACTERISTICS

Parameter	Conditions	MIN	NOM	MAX	Units
Maximum Power	4 Slot Power Level B			400	W
	4/6 Slot Power Level C			600	
	6 Slot Power Level D (See Note 1)			1000	
Voltage Adjustment	Outputs are user adjustable via multi-turn potentiometer or factory set to your requested voltage				
Efficiency			82		%
Line Regulation			±0.1		%
Load Regulation	50% Load Change		±0.2		%
Cross Regulation			±0.2		%
Transient Response	25% to 75% load change — Voltage Deviation		<10		%
	25% to 75% load change — Settling Time		<0.5		ms
Temperature Coefficient			–0.02		%/°C
Ripple & Noise	20MHz BW		100		mVp-p
	whichever is greater of:		1.0		%
Overvoltage Protection	Please refer to ACAN06				
Overcurrent Protection	Please refer to ACAN06				
Thermal Protection	Please refer to ACAN06				
Power Fail Warning	Option 003/5/6/7 or custom		5.0		ms
Minimum Load	Except module 70, 5% min load	0			A
Turn-on Delay			500		ms
Remote Sense	Single outputs only			0.5	V

GENERAL CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Hold-up time	Nominal output voltage, full load		20		ms
Isolation Voltage	Input/Output		4000		VAC
	Input/Chassis		1500		VAC
Switching Frequency			200		kHz
Leakage Current	250VAC, 60Hz		300		µA
MTBF	MIL-HDBK-217 F at 40°C		400		kHrs

Note 1. For input voltages less than 180VAC maximum power rating is 800W.

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ENVIRONMENTAL CHARACTERISTICS

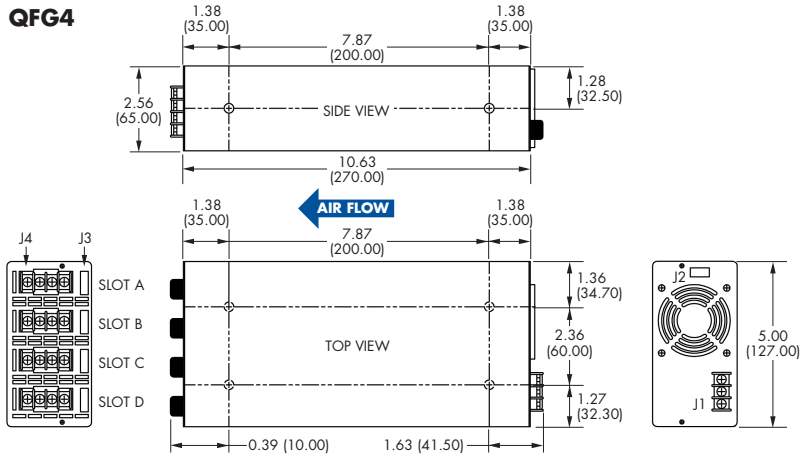
Parameter	Conditions	MIN	NOM	MAX	Units
Operating Temperature	See derating curve	–20		70	°C
Storage Temperature		–40		85	°C
Relative Humidity	Non-condensing	5		95	%

EMC CHARACTERISTICS

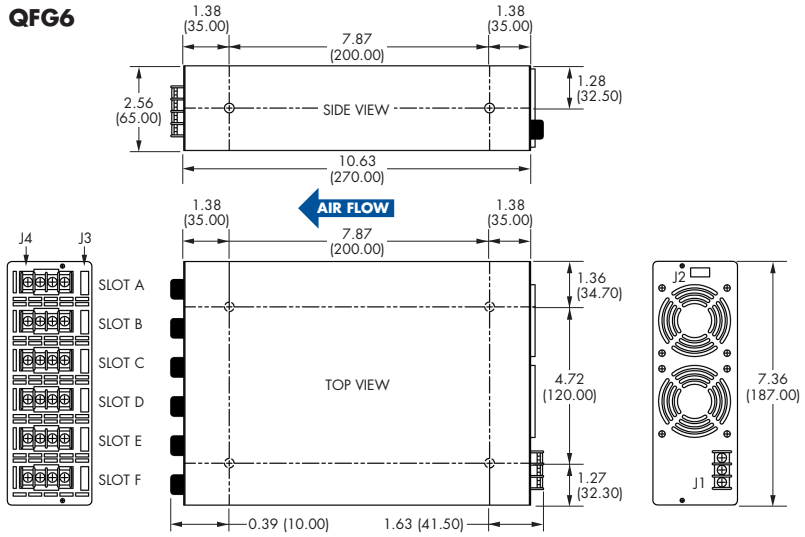
	Test	Standard	
Emissions	Conducted 4-Slot Power Level B/C	EN55022, FCC	Level A
	Conducted 6-Slot Power Level C/D	EN55022, FCC	Level B
Immunity	Electrostatic Discharge	EN61000-4-2	Level 4
	Radiated RFI	EN61000-4-3	Level 3
	Fast transients – burst	EN61000-4-4	Level 3
	Input line surges	EN61000-4-5	Class 3
	Conducted RFI	EN61000-4-6	Level 3
	Voltage dips	EN61000-4-11	Compliant

MECHANICAL DIMENSIONS

QFG4



QFG6



Typical weight: QFG4: 2.5kg QFG6: 3.5kg
All dimensions in Inches (mm) ± 0.01 (0.25)

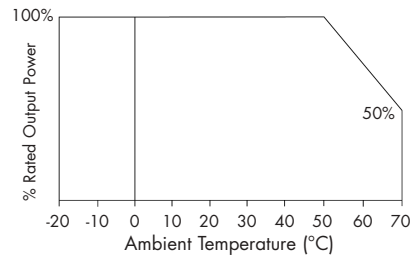
Mounting Holes (M4) on Base and Side
Max screw penetration is 4mm

OUTPUT FUNCTIONS

Modules 1 to 6	Module 70 Additional Features (see ACAN06)
Power Good Signal	Adjustable Current Limit
Remote Inhibit	Foldback or Straight Line Current Limiting
Output Voltage Adjustment	+5VDC Bias Voltage
	Factory Set Output Inhibit or Enable

(For dual output modules, QFMOD5 and QFMOD6 output functions are only available on first (top) output)

DERATING CURVE



CONNECTORS

J1	Input Power
J2	Optional Global Signals (see ACAN06)
J3	Output Signals Refer to ACAN06 for pinouts
J4	Output Terminals

QFG STANDARD OPTIONS

003	Mains Power Fail + Logic Enable
005	Mains Power Fail + Logic Inhibit
006	Mains Power Fail + Logic Enable + Bias Supply Voltage
007	Mains Power Fail + Logic Inhibit + Bias Supply Voltage

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PART NUMBERING

6 SLOT
4 SLOT

Q	F	M	X	X	A	B	C	D	E	F	–	X	X	X

SERIES

PACKAGE STYLE

4	4 Slots
6	6 Slots

POWER RATING

B	400W
C	600W
D	1000W

Please refer to ACAN06 for detailed information on module slot restrictions ad power calculation methodology.

MODULES

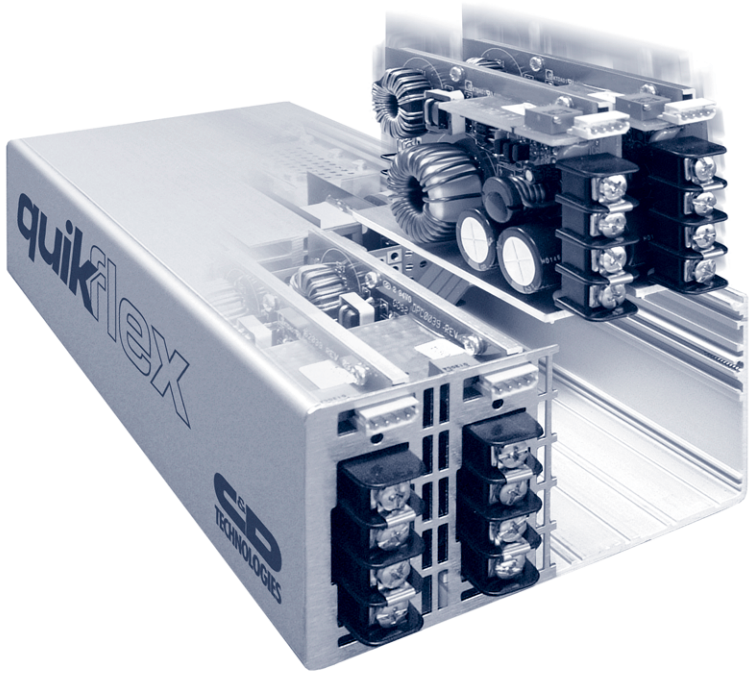
0	Empty Slot
1	QFMOD1
2	QFMOD2
3	QFMOD3
4	QFMOD4
5	QFMOD5
6	QFMOD6
70	QFMOD70

OPTIONAL FEATURES...

003	Mains Power Fail & Global Enable
005	Mains Power Fail & Global Inhibit
006	Mains Power Fail & Global Enable & Isolated Bias Supply Voltage
007	Mains Power Fail & Global Inhibit & Isolated Bias Supply Voltage

...OR CUSTOM CONFIGURATION

Units are shipped with factory set nominal output voltages. Quikflex power supplies can be factory configured to user specifications e.g. voltage adjustment, parallel and/or serial connections. A unique custom part number will be assigned by the factory for each configuration (please refer to examples below). For further information please refer to ACAN06.



Example Part Numbers:

QFM4B1240

Series:	Quikflex Medical
Package Style:	4 Slot
Power Rating:	400W
Modules: Slot A:	5V @ 6A
Slot B:	12V @ 18A
Slot C:	24V @ 5A
Slot D:	Empty
Optional Features:	None

QFM6D014440-101

Series:	Quikflex Medical
Package Style:	6 Slot
Power Rating:	750W
Modules: Slot A:	Empty
Slot B:	5V @ 6A
Slot C:	24V @ 5A
Slot D:	28V @ 9A
Slot E:	28V @ 9A
Slot F:	Empty
Optional Features:	Mains Power Fail, Global Enable

The above custom configuration utilizes parallel and serial connections to generate 28V at 18 Amps. The output voltage of QFMOD4 has been factory set to 28V with the the additional options of Mains Power Fail and Global Enable.

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Instructions for use are available from www.cdpoweronline.com

C&D Technologies (NCL) Ltd
Tanners Drive, Blakelands North
Milton Keynes MK14 5BU, England
Tel: +44 (0)1908 615232
Fax: +44 (0)1908 617545
email: info@cdtechno-ncl.com

C&D Technologies Inc.
3400 E Britannia Drive, Tucson,
Arizona 85706, USA
Tel: +1 (800) 547-2537
Fax: +1 (520) 741-4598
email: sales@cdtechno.com

www.cdpoweronline.com