Технические характеристики на источники питания AC/DC серии QM

По вопросам продаж и поддержки обращайтесь:

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Эл. почта: adm@nt-rt.ru || Сайт: http://lambda.nt-rt.ru/

Medical Industrial Test Broadcast Comms Renewable

1200W / 1500W
Modular power supply

Features	Benefits
• Full medical isolation (MoPP)	Eases design into systems (including BF)
• Low speed, low audible noise fan	Enhanced patient / user experience
• Up to 16 outputs	Eliminates need for additional supplies
• Industry Leading Flexibility	Suits your application
• 7 Year Warranty	Low cost of ownership

Input

	1200W	1500W
Input Voltage	90-264Vac	150-264Vac
Frequency	47 - 63 Hz (440Hz with reduced PFC)	
Input Fuses	25A / 250Vac HBC Fast acting (not user accessible) in both Live and Neutral lines (single fusing optional)	
Inrush Current	<45A at 25°C and 264Vac (cold start)	
Leakage Current	See 'How To Create A Product Description' for details	
Touch current	<100µA (with 4 or fewer modules). For other configurations, see the individual module specifications for details.	
Power Factor	> 0.95 (with 50%-100% load)	

Isolation

Input to Output	Reinforced	2 x MoPPs (3rd edition 60601) 4kVac, 5.7kVdc type tested to 4kVac (equivalent to 5.7kVdc), production tested to 4.3kVdc.
Input to Earth	Basic	1 x MoPP 1.5kVac
Output to Earth	Basic	1 x MoPP, 1.5kVac
Output to Output	Basic	200Vdc

How To Create A Product Description

The extensive range of output modules and options make it possible to achieve almost any combination of Volts and Amps. You can create your own QM configuration online at https://config.emea.tdk-lambda.com/. This method checks your configuration and offers the optimum solution. Alternatively, you can do this manually by using the guide below.

1. Calculate total output power to select the appropriate converter, then select required Cooling, Connection, Leakage Current and Controls/ Signals from the following table:

QM7	F	S	D	L	T5H

Converter	**QM7**	7 slots wide

Cooling	**F**	**Variable speed Forward air - standard**
	R	**R**everse air (contact sales for details)
	C	**C**ustomer air - no fan

Input Connection	**S**	**S**crew

Input fuse	**D**	Dual AC fuses
	E	Single AC fuse in Live line (contact sales for details)

Standby / Signals	**blank**	none
	E5L	see specification page for details
	E5H	
	T5L	
	T5H	

Leakage Current (max leakage current at 264Vac, 63Hz)	**L**	300µA
	R	150µA (contact sales for details)

2. Select Output Modules using the output voltages tables and the module specifications.
3. Contact TDK-Lambda to validate configuration and issue a part number.

Possible Outputs - see individual module data for full specifications

Module name	Slots used	Output voltage range			Maximum Output Current	Maximum Output Power
DM (ch2)	1 of 2 outputs in single slot	2.8V	-	3.8V	10A	35W
DM (ch2)	1 of 2 outputs in single slot	4.25V	-	5.75V	10A	50W
SB	1	5V	-	5.5V	30A	150W
SC	2	5V	-	5.5V	60A	300W
ZD	3	5V	-	5.3V	80A	400W
ZF	4	5V	-	5.3V	110A	550W
YC	2	10V	-	11V	30A	300W
YF	4	10V	-	11V	60A	600W
DH (ch1 or ch2)	1 of 2 outputs in single slot	10.2V	-	13.8V	10A	120W
DM (ch1)	1 of 2 outputs in single slot	11.9V	-	16.1V	10A	120W
DM (ch2)	1 of 2 outputs in single slot	11.9V	-	16.1V	10A	120W
SB	1	12V	-	13.2V	25A	300W
SC	2	12V	-	13.2V	50A	600W
ZD	3	12V	-	12.8V	65A	780W
ZF	4	12V	-	12.8V	85A	1020W
DH (ch1 or ch2)	1 of 2 outputs in single slot	20.4V	-	27.6V	5A	120W
YB	1	20.4V	-	27.6V	9.8A	200W
DM (ch1)	1 of 2 outputs in single slot	20.8V	-	28.8V	5A	120W
DM (ch2)	1 of 2 outputs in single slot	23.5V	-	24.5V	4.2A	100W
SB	1	24V	-	26.4V	12.5A	300W
SC	2	24V	-	26.4V	25A	600W
ZD	3	24V	-	25.6V	30A	720W
YF	4	24V	-	26.4V	50A	1200W
YB	1	40.8V	-	55.2V	4.9A	200W
YC	2	48V	-	52.8V	12.5A	600W
YF	4	48V	-	52.8V	25A	1200W

Output Specification		
Turn on time	2s max	at 90Vac (150Vac for 1500W) and 100% rated output power
Efficiency	up to 91%	240Vac & above 50% rated power, configuration dependent
Hold up	20ms min 16ms min	at 1200W output power. 1 cycle ride-through option available, contact sales for details. at 1500W output power
Over Temperature Protection	Yes	converter protection shuts down all outputs (except standby supplies) and fan, auto restarts. Shutdown temperature varies according to ambient, output power and input voltage.

Environment	
Temperature	-20°C to 70°C operational, -40°C to 70°C storage (max 12 months).
Derating	50°C to 70°C derate total output power and each output current by 2.5% per °C
Low Temp Startup	-40°C
Humidity	5 - 95% RH non condensing
Shock	±3 x 30g shocks in each plane, total 18 shocks 30g shock = 11ms (+/-0.5msec), half sine Conforms to EN60068-2-27, EN60068-2-47, IEC68-2-27, IEC68-2-47, JIS C0041-1987. Conforms to MIL-STD-810G, Method 516.6, Pro I, IV
Vibration	Single axis 10 - 500 Hz at 2g (sweep and endurance at resonance) in all 3 planes Conforms to EN60068-2-6, IEC68-2-6 Conforms to MIL-STD-810G, Method 514.6, Pro I
Altitude	5000 metres operational, 5000 metres storage/transportation
Pollution	Degree 2, Material group IIIb
IP Rating	IP 10

Emissions EN61000-6-3:2007, EN60601-1-2:2015 - see handbook for best installation practice		
Radiated Electric Field	EN55011, EN55022	(as per CISPR.11/22) Class B, FCC47 part 15 subpart B
Conducted Emissions	EN55011, EN55022	(as per CISPR.11/22) Class B, FCC47 part 15 subpart B
Conducted Harmonics	EN61000-3-2	Class A and Class C
Flicker	EN61000-3-3	Compliant - d_{max} only

Immunity EN61000-6-2:2005, EN60601-1-2:2015 - see handbook for best installation practice				Criteria
Electrostatic Discharge	EN61000-4-2	Level 4	F type cooling only	A
Electromagnetic Field	EN61000-4-3	Level 3	Proximity fields, EN60601-1-2, Levels as defined in standard, Criteria A	A
Fast / Burst Transient	EN61000-4-4	Level 4	Tested at 5kHz and 100kHz	A
Surge Immunity	EN61000-4-5	Level 3		A
Conducted RF Immunity	EN61000-4-6	Level 3		A
Power Frequency Magnetic Field	EN61000-4-8	Level 4		A
Voltage Dips, Variations, Interruptions	EN61000-4-11	Class 3	Criteria B for 5s and 1 cycle interruptions	A
Voltage sags	Semi F-47	compliant	above 150Vac input	
Ring wave	EN61000-4-12	Level 3		A
	ANSI C62.41	Level 2		A
Voltage fluctuations	EN61000-4-14	Class 3		A

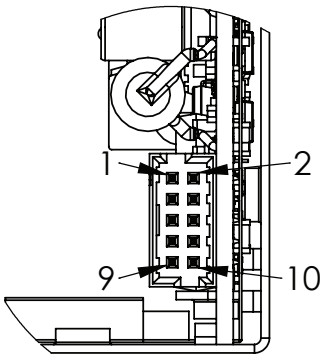
Approvals / Accreditations	
IEC/EN 60950-1, UL60950-1 / CSA 22.2 No 60950-1	File E135494
IEC/EN 60601-1, UL/CSA 60601-1, ANSI/AAMI ES60601-1 CAN/CSA-C22.2 No 60601-1-08	File E349607
IEC/EN 61010-1	Results included in 60950 report
CE Mark (EN60950-1)	Low Voltage Directive (LVD)
CB certificate and Report available on request	*Please check with technical sales for status of approvals*
Designed and manufactured under the control of ISO9001 and ISO13485 (including risk management).	

Standby / Signals

Maximum power per channel	see table below
Available signals	PSU inhibit (Txx type) or enable (Exx type), AC Good

AVAILABLE OUTPUT VOLTAGES (at PSU signal connector output terminals)

Option type	Standby 1			Standby 2			PSU on/off
	V	Max Current	Power	V	Max Current	Power	
E5L	5V	250mA	1.25W	not available			Enable
E5H	5V	250mA	1.25W	5V	2A	10W	Enable
T5L	5V	250mA	1.25W	not available			Inhibit
T5H	5V	250mA	1.25W	5V	2A	10W	Inhibit



Pin	5L	5H
1	Do not connect	Standby 2 +
2		Standby 2 -
3	Standby 1 +	Standby 1 +
4	Standby 1 -	Standby 1 -
5	PSU on/off+	PSU on/off+
6	PSU on/off-	PSU on/off-
7	AC fail Out	AC fail Out
8	AC fail Rtn	AC fail Rtn
9	Do not connect	
10		

Output Specification

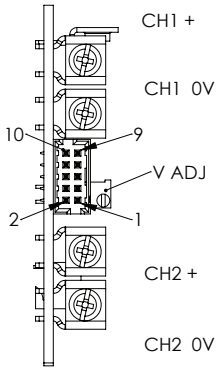
	Standby 1	Standby 2	
Rise time	TBC	<30ms	(with resistive load) to 90% of voltage, monotonic rise above 10%
Turn on overshoot	TBC	TBC	Load type dependent, no overshoot at full load with resistive load
Ripple and Noise	<1%	<1%	pk-pk, using EIAJ test method & 20MHz bandwidth
Voltage Setting Accuracy	<3%	<3%	of set voltage
Remote Sense	No	No	
Minimum Load	0W	0W	on any output
Temperature Coefficient	TBC	TBC	of rated voltage per °C
Load Regulation	<1%	<1%	for 0-100% load change
Line Regulation	<0.1%	<0.1%	for 90-264Vac input change
Cross Regulation	TBC	TBC	for 100% load change on any output
Transient Deviation	<5%	<5%	of set voltage for 25-50% load change
Recovery	1ms	1ms	for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes	Yes	Latching, output shuts down, cycle ac to reset
Over Current Protection	Constant Current		Auto recovers
Short Circuit Protection	Constant Current		Auto recovers

DH Module - single slot width, 1 or 2 output channels

Maximum module power	200W	Total power from channel 1 + channel 2
Maximum power per channel	see table below	
Available signals	Module good, module inhibit	

AVAILABLE OUTPUT VOLTAGES (at PSU output terminals)

V1 Adjustment Range (Volts)			Current	Output power	V2 Adjustment Range (Volts)			Current	Output power
10.2_a	-	13.8	10A	120W	10.2	-	13.8	10A	120W
					20.4	-	27.6	5A	120W
20.4_c	-	27.6	5A	120W	20.4	-	27.6	5A	120W



Pin	Connection
1	Do not connect
2	
3	Module good collector
4	Module good emitter
5	Module inhibit anode
6	Module inhibit cathode
7	Do not connect
8	
9	
10	

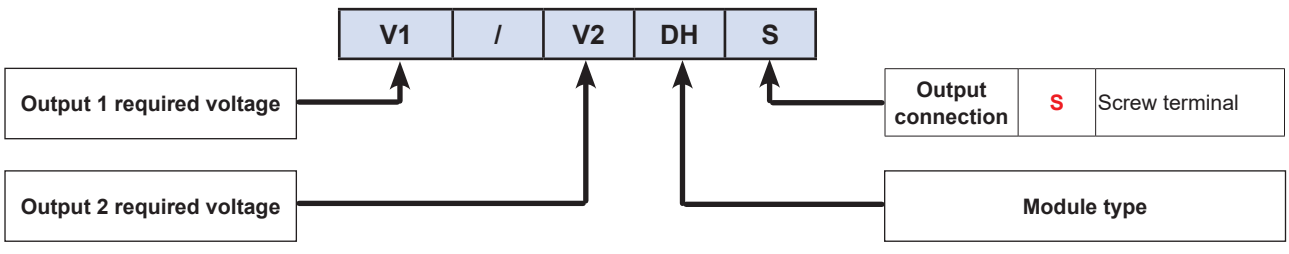
Channel 1 and channel 2 of DH are both adjusted by single potentiometer. The V2 set = V2max x V1set / V1max
a, b, c, d - for output voltages below 10.8V(a), 13.5V(b), 21.6V(c) or 24.4V(d)

Output Specification

Rise time	<50ms	(with resistive load) to 90% of voltage, monotonic rise above 10%
Turn on overshoot	zero	at full load with resistive load. Load type dependent, <7% overshoot with capacitive load
Ripple and Noise		pk-pk, using EIAJ test method & 20MHz bandwidth
0°C - 70°C	1.5%	
-20°C - 0°C	2.25%	
Voltage Setting Accuracy	<1%	of set voltage (3% for channel 2)
Remote Sense	No	
Minimum Load	0W	
Temperature Coefficient	TBC	of rated voltage per °C
Load Regulation	<6%	for 5-100% load change
Line Regulation	<0.1%	for 90-264Vac input change
Cross Regulation	3%	for 5-100% load change on any output
Transient Deviation	<4%	of set voltage for 50% load change (above 25% load)
Recovery	3ms	for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes	Latching, module shuts down (both outputs), cycle ac to restart.
Module Current Protection level	Hiccup	Protects channel 1 and channel 2, shuts down both outputs, auto-recovers when fault clears.
Short Circuit Protection	Hiccup	Shuts down both outputs, auto recovers.
Over Temperature Protection	Yes	Module protection shuts down both outputs, cycle ac to restart. Shutdown temperature varies according to ambient, output power and input voltage.
Maximum Capacitive load	1000µF/A	

How To Create A Product Description

Choose your required channel 1 and channel 2 voltages (from the table above)
For example, if you need 12V / 10A and 24V / 3A, you would choose **12/24DHS** as your required module.

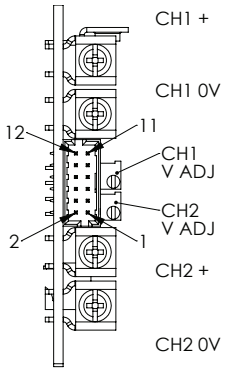


DM Module - single slot width, 1 or 2 output channels

Maximum module power	200W	Total power from channel 1 + channel 2
Maximum power per channel	see table below	
Available signals	Remote sense (channels 1 & 2), channel 1 good, channel 2 good, Channel 2 inhibit, module inhibit	

AVAILABLE OUTPUT VOLTAGES (at PSU output terminals)

V1 Adjustment Range (Volts)			Current	Output power	V2 Adjustment Range (Volts)			Current	Output power
Channel 1 unused					2.8	-	3.8	10A	35W
					4.25	-	5.75	10A	50W
11.9	-	16.1	10A	120W	Channel 2 unused				
20.8	-	28.2	5A	120W					
11.9	-	16.1	10A	120W	2.8	-	3.8	10A	35W
					4.25	-	5.75	10A	50W
					11.9	-	16.1	8.3A	100W
					23.5	-	24.5	4.2A	100W
20.8	-	28.2	5A	120W	2.8	-	3.8	10A	35W
					4.25	-	5.75	10A	50W
21.6	-	28.2	5A	120W	23.5	-	24.5	4.2A	100W

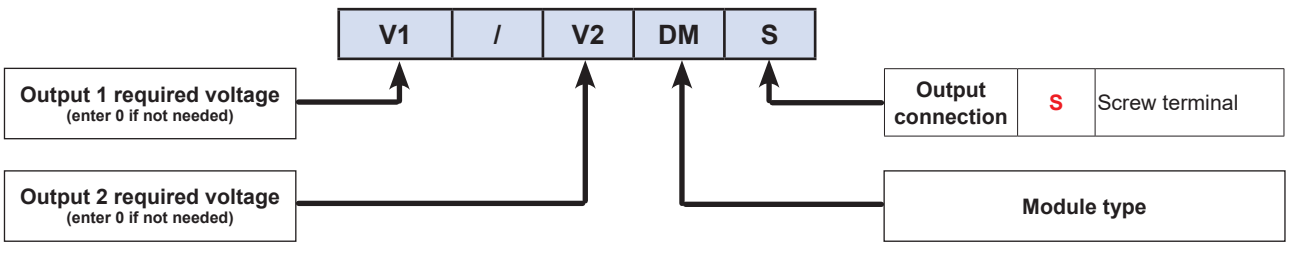


Pin	Connection
1	Ch2 sense +
2	Ch2 sense -
3	Ch2 inhibit anode
4	Ch2 inhibit cathode
5	Ch2 good collector
6	Ch2 good emitter
7	Ch1 good collector
8	Ch1 good emitter
9	Module inhibit anode
10	Module inhibit cathode
11	Ch1 sense +
12	Ch1 sense -

Output Specification	Ch1	Ch2	
Rise time	<20ms	<50ms	(with resistive load) to 90% of voltage, monotonic rise above 10%
Turn on overshoot	<5%	<5%	Load type dependent, no overshoot at full load with resistive load
Ripple and Noise			pk-pk, using EIAJ test method & 20MHz bandwidth
0°C - 70°C	1.5%	50mV	1.2% for ch2 outputs >10V (TBC)
-20°C - 0°C	2.25%	75mV	2% for ch2 outputs >10V (TBC)
Voltage Setting Accuracy	<1%	<1%	of set voltage
Remote Sense	Yes		0.5V (voltage at the output terminals must be within the specified adjustment range)
Minimum Load	0W		
Temperature Coefficient	TBC	TBC	of rated voltage per °C
Load Regulation	max of 50mV or <1% of set voltage		for 0-100% load change
Line Regulation	<0.1%		for 90-264Vac input change
Cross Regulation	1.5%		for 100% load change on any output
Transient Deviation	<4%	<5%	of set voltage for 50% load change (above 25% load)
Recovery	3ms	7ms	for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes		Latching, module shuts down (both outputs), cycle ac to restart.
Over Current Protection	Hiccup	Constant current	Ch1 protection shuts down both outputs.
Short Circuit Protection	Hiccup	Constant current	Auto recovers. Ch1 protection shuts down both outputs.
Over Temperature Protection	Yes	Yes	Ch1 protection shuts down both outputs, cycle ac to restart. Ch2 protection shuts down ch2 only, auto recovers when fault clears. Shutdown temperature varies according to ambient, output power and input voltage.
Maximum Capacitive load	500µF/A	500µF/A	

How To Create A Product Description

Choose your required channel 1 and channel 2 voltages (from the table above)
For example, if you need 12V / 10A and 3.3V / 10A, you would choose **12/3.3DMS** as your required module.

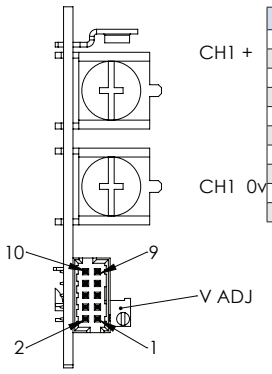


SB Module - single slot width, 1 output channel

Maximum power per channel	see table below
Available signals	Remote sense, module good, module inhibit

AVAILABLE OUTPUT VOLTAGES (at PSU output terminals)

Adjustment Range (Volts)			Current	Output power
5	-	5.5	30A	150W
12	-	13.2	25A	300W
24	-	26.4	12.5A	300W



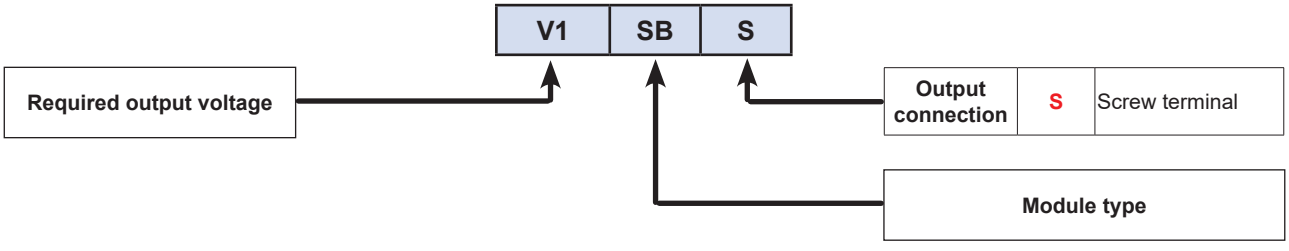
Pin	Connection
1	Do not connect
2	
3	Module good collector
4	Module good emitter
5	Module inhibit anode
6	Module inhibit cathode
7	Remote sense +
8	Remote sense -
9	Do not connect
10	

Output Specification

Rise time	<75ms	(with resistive load) to 90% of voltage, monotonic rise above 10%
Turn on overshoot	<5%	Load type dependent
Ripple and Noise	max of	pk-pk, using EIAJ test method & 20MHz bandwidth
0°C - 70°C, >20% load	1% or 50mV	TBC
-20°C - 0°C, >20% load	1.5% or 75mV	
0°C - 70°C, ≤20% load	1.5% or 75mV	
-20°C - 0°C, ≤20% load	2.5% or 125mV	
Voltage Setting Accuracy	<1%	of set voltage
Remote Sense	Yes	0.5V (voltage at the output terminals must remain within the adjustment range specified above)
Minimum Load	0W	
Temperature Coefficient	TBC	of rated voltage per °C
Load Regulation	<1%	for 0-100% load change
Line Regulation	<0.1%	for 90-264Vac input change
Cross Regulation	TBC	for 100% load change on any output
Transient Deviation	<5%	of set voltage for 50% load change (above 25% load)
Recovery	1ms	for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes	Latching, module shuts down, cycle ac to restart.
Over Current Protection	Hiccup	Auto recovers after removal of load
Short Circuit Protection	Yes	Indefinitely protected
Over Temperature Protection	Yes	Module protection shuts down output, cycle ac to restart. Shutdown temperature varies according to ambient, output power and input voltage.
Maximum Capacitive load	1000µF/A	750µF/A for 24-26.4V module.

How To Create A Product Description

Choose your required output voltage (from the table above)
For example, if you need 12.2V / 24.5A, you would choose **12.2SBS** as your required module.

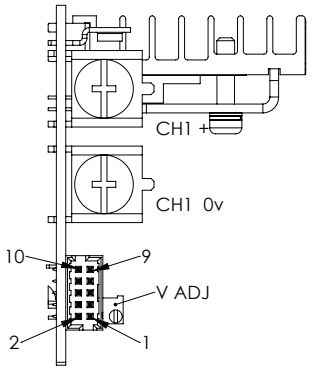


SC Module - two slots width, 1 output channel

Maximum power per channel	see table below
Available signals	Remote sense, module good, module inhibit

AVAILABLE OUTPUT VOLTAGES (at PSU output terminals)

Adjustment Range (Volts)			Current	Output power
5	-	5.5	60A	300W
12	-	13.2	50A	600W
24	-	26.4	25A	600W



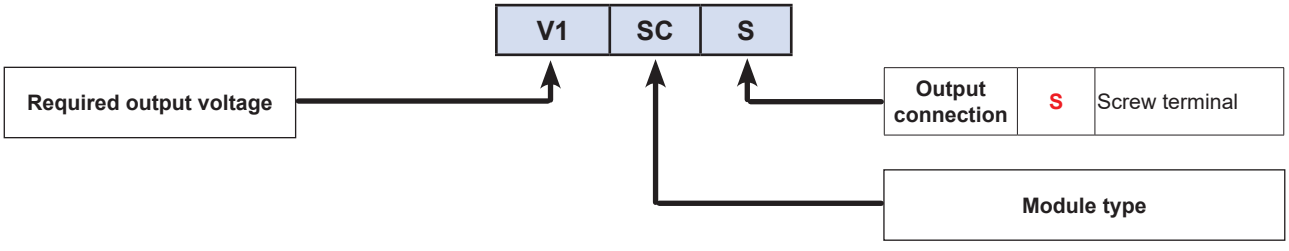
Pin	Connection
1	Do not connect
2	
3	Module good collector
4	Module good emitter
5	Module inhibit anode
6	Module inhibit cathode
7	Remote sense +
8	Remote sense -
9	Do not connect
10	

Output Specification

Rise time	<75ms		(with resistive load) to 90% of voltage, monotonic rise above 10%
Turn on overshoot	<5%		Load type dependent
Ripple and Noise	V_{out}<10V	V_{out}>10V	pk-pk, using EIAJ test method & 20MHz bandwidth
0°C - 70°C, >20% load	1.5%	1%	
-20°C - 0°C, >20% load	3%	2%	
0°C - 70°C, ≤20% load	TBC	TBC	
-20°C - 0°C, ≤20% load	TBC	TBC	
Voltage Setting Accuracy	<1%		of set voltage
Remote Sense	Yes		0.5V (voltage at the output terminals must remain within the adjustment range specified above)
Minimum Load	0W		
Temperature Coefficient	TBC		of rated voltage per °C
Load Regulation	<1%		for 0-100% load change
Line Regulation	<0.1%		for 90-264Vac input change
Cross Regulation	TBC		for 100% load change on any output
Transient Deviation	<5%		of set voltage for 50% load change (above 25% load)
Recovery	1ms		for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes		Latching, module shuts down, cycle ac to restart.
Over Current Protection	Hiccup		Auto recovers after removal of load
Short Circuit Protection	Yes		Indefinitely protected
Over Temperature Protection	Yes		Module protection shuts down output, cycle ac to restart. Shutdown temperature varies according to ambient, output power and input voltage.
Maximum Capacitive load	TBC		

How To Create A Product Description

Choose your required output voltage (from the table above)
For example, if you need 12.2V / 49A, you would choose **12.2SCS** as your required module.

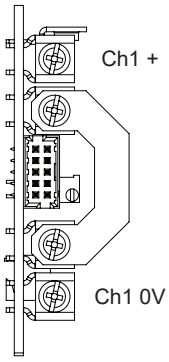


YB Module - single slot width, 1 output channel

Maximum power per channel	see table below
Available signals	Module good, module inhibit

AVAILABLE OUTPUT VOLTAGES (at PSU output terminals)

Adjustment Range (Volts)			Current	Output power
20.4	-	27.6	9.8A	200W
40.8	-	55.2	4.9A	200W



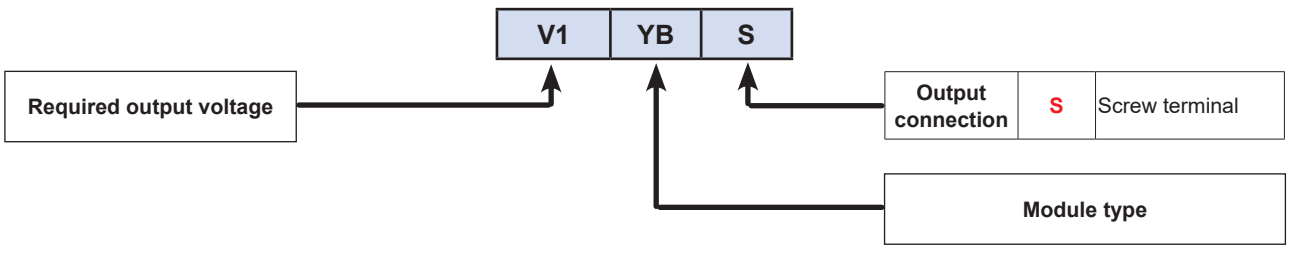
Pin	Connection
1	Do not connect
2	
3	Module good collector
4	Module good emitter
5	Module inhibit anode
6	Module inhibit cathode
7	Do not connect
8	
9	
10	

Output Specification

Rise time	<75ms	(with resistive load) to 90% of voltage, monotonic rise above 10%
Turn on overshoot	zero	at full load with resistive load. Load type dependent, <7% overshoot with capacitive load
Ripple and Noise		pk-pk, using EIAJ test method & 20MHz bandwidth
0°C - 70°C	1.5%	
-20°C - 0°C	2.25%	
Voltage Setting Accuracy	<2%	of set voltage
Remote Sense	No	
Minimum Load	0W	
Temperature Coefficient	TBC	of rated voltage per °C
Load Regulation	<6%	for 5-100% load change
Line Regulation	<0.1%	for 90-264Vac input change
Cross Regulation	<1%	for 100% load change on any output
Transient Deviation	<8%	of set voltage for 50% load change (above 25% load)
Recovery	5ms	for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes	Latching, module shuts down, cycle ac to restart.
Over Current Protection	Hiccup	Auto recovers
Short Circuit Protection	Hiccup	Auto recovers.
Over Temperature Protection	Yes	Module protection shuts down output, cycle ac to restart. Shutdown temperature varies according to ambient, output power and input voltage.
Maximum Capacitive load	TBC	

How To Create A Product Description

Choose your required output voltage (from the table above)
For example, if you need 41V / 4A, you would choose **41YBS** as your required module.

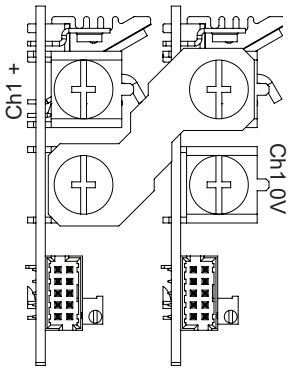


YC Module - two slots width, 1 output channel

Maximum power per channel	see table below
Available signals	Module good, module inhibit

AVAILABLE OUTPUT VOLTAGES (at PSU output terminals)

Adjustment Range (Volts)			Current	Output power
10	-	11	30A	300W
48	-	52.8	12.5A	600W



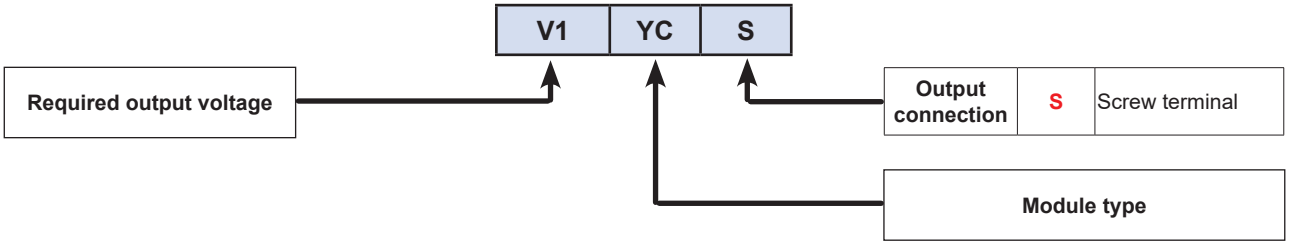
See application notes for signal connection details

Output Specification

Rise time	<75ms	(with resistive load) to 90% of voltage, monotonic rise above 10%
Turn on overshoot	<5%	Load type dependent
Ripple and Noise		pk-pk, using EIAJ test method & 20MHz bandwidth
0°C - 70°C, >20% load	1%	
-20°C - 0°C, >20% load	1.5%	
0°C - 70°C, ≤20% load	1.5%	
-20°C - 0°C, ≤20% load	2.5%	
Voltage Setting Accuracy	<1%	of set voltage
Remote Sense	Yes	0.5V (voltage at the output terminals must remain within the adjustment range specified above)
Minimum Load	0W	
Temperature Coefficient	TBC	of rated voltage per °C
Load Regulation	<1%	for 0-100% load change
Line Regulation	<0.1%	for 90-264Vac input change
Cross Regulation	TBC	for 100% load change on any output
Transient Deviation	<5%	of set voltage for 50% load change (above 25% load)
Recovery	1ms	for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes	Latching, module shuts down, cycle ac to restart.
Over Current Protection	Hiccup	Auto recovers
Short Circuit Protection	Yes	Indefinitely protected
Over Temperature Protection	Yes	Module protection shuts down output, cycle ac to restart. Shutdown temperature varies according to ambient, output power and input voltage.
Maximum Capacitive load	1000µF/A	350µF/A above 48V

How To Create A Product Description

Choose your required output voltage (from the table above)
For example, if you need 58V / 10A, you would choose **58YCS** as your required module.

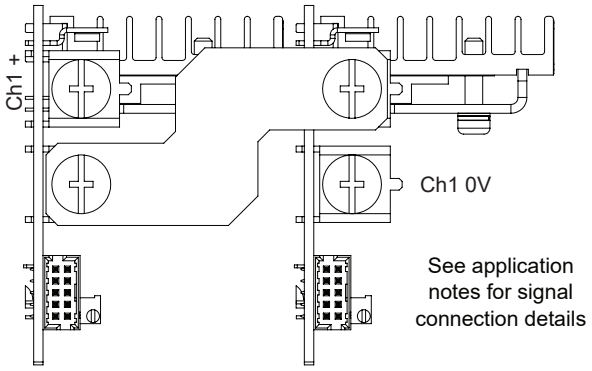


YF Module - four slots width, 1 output channel

Maximum power per channel	see table below
Available signals	Module good, module inhibit

AVAILABLE OUTPUT VOLTAGES (at PSU output terminals)

Adjustment Range (Volts)			Current	Output power
10	-	11	60A	600W
24	-	26.4	50A	1200W
48	-	52.8	25A	1200W

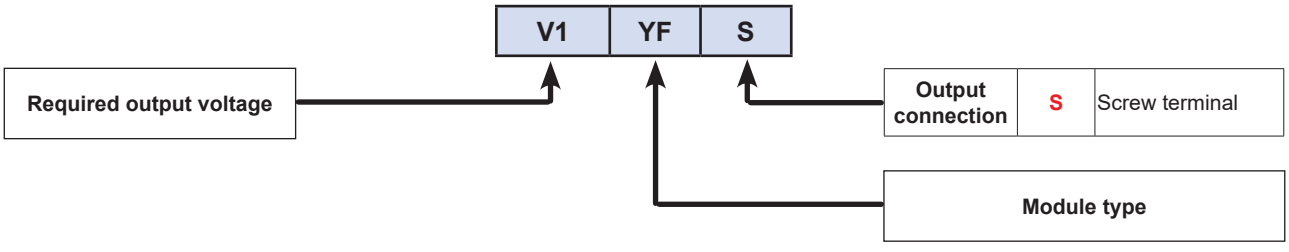


Output Specification

Rise time	<75ms		(with resistive load) to 90% of voltage, monotonic rise above 10%
Turn on overshoot	<5%		Load type dependent
Ripple and Noise	V_{out}<20V	V_{out}>20V	pk-pk, using EIAJ test method & 20MHz bandwidth
0°C - 70°C, >20% load	1.5%	1%	
-20°C - 0°C, >20% load	3%	2%	
0°C - 70°C, ≤20% load	TBC	TBC	
-20°C - 0°C, ≤20% load	TBC	TBC	
Voltage Setting Accuracy	<1%		of set voltage
Remote Sense	Yes		0.5V (voltage at the output terminals must remain within the adjustment range specified above)
Minimum Load	0W		
Temperature Coefficient	TBC		of rated voltage per °C
Load Regulation	<1%		for 0-100% load change
Line Regulation	<0.1%		for 90-264Vac input change
Cross Regulation	TBC		for 100% load change on any output
Transient Deviation	<5%		of set voltage for 50% load change (above 25% load)
Recovery	1ms		for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes		Latching, module shuts down, cycle ac to restart.
Over Current Protection	Hiccup		Auto recovers
Short Circuit Protection	Yes		Indefinitely protected
Over Temperature Protection	Yes		Module protection shuts down output, cycle ac to restart. Shutdown temperature varies according to ambient, output power and input voltage.
Maximum Capacitive load	1000µF/A (10YF), 750µF/A (24YF), 600µF/A (48YF)		

How To Create A Product Description

Choose your required output voltage (from the table above)
For example, if you need 48V / 25A, you would choose **48YFS** as your required module.

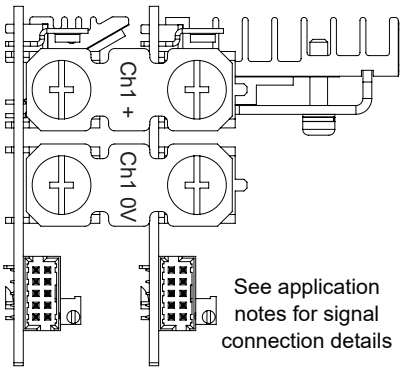


ZD Module - three slots width, 1 output channel

Maximum power per channel	see table below
Available signals	Module good, module inhibit

AVAILABLE OUTPUT VOLTAGES (at PSU output terminals)

Adjustment Range (Volts) at PSU output terminal			Current	Output power
5	-	5.3	80A	400W
12	-	12.8	65A	780W
24	-	25.6	30A	720W



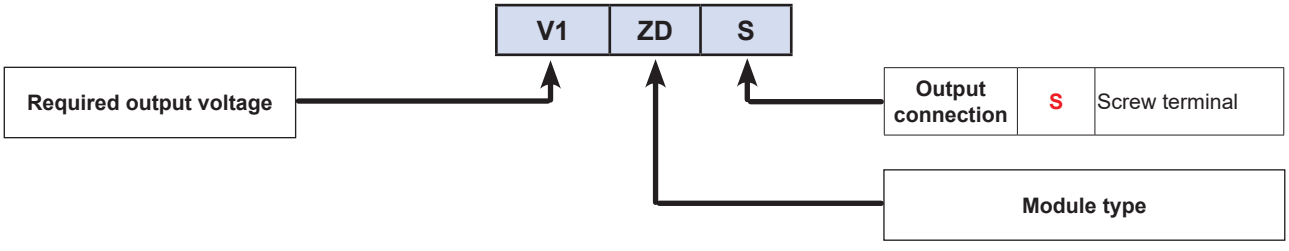
See application notes for signal connection details

Output Specification

Rise time	<75ms		(with resistive load) to 90% of voltage, monotonic rise above 10%
Turn on overshoot	<5%		Load type dependent
Ripple and Noise	V_{out}<10V	V_{out}>10V	pk-pk, using EIAJ test method & 20MHz bandwidth
0°C - 70°C, >20% load	1.5%	1%	
-20°C - 0°C, >20% load	3%	2%	
0°C - 70°C, ≤20% load	TBC	TBC	
-20°C - 0°C, ≤20% load	TBC	TBC	
Voltage Setting Accuracy	<1%		of set voltage
Remote Sense	Yes		0.5V (voltage at the output terminals must remain within the adjustment range specified above)
Minimum Load	0W		
Temperature Coefficient	TBC		of rated voltage per °C
Load Regulation	<3%		for 0-100% load change (<2% for 5-5.3V output)
Line Regulation	<0.1%		for 90-264Vac input change
Cross Regulation	TBC		for 100% load change on any output
Transient Deviation	<5%		of set voltage for 50% load change (above 25% load)
Recovery	30ms		for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes		Latching, module shuts down, cycle ac to restart.
Over Current Protection	Hiccup		Auto recovers after removal of load
Short Circuit Protection	Yes		Indefinitely protected
Over Temperature Protection	Yes		Module protection shuts down output, cycle ac to restart. Shutdown temperature varies according to ambient, output power and input voltage.
Maximum Capacitive load	1000µF/A		For outputs above 6V, value TBC.

How To Create A Product Description

Choose your required output voltage (from the table above)
For example, if you need 48V / 16A, you would choose **48ZDS** as your required module.

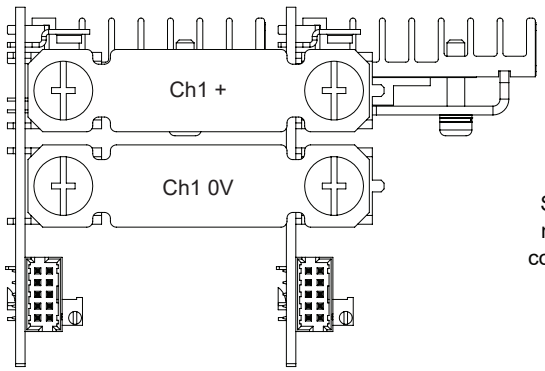


ZF Module - four slots width, 1 output channel

Maximum power per channel	see table below
Available signals	Module good, module inhibit

AVAILABLE OUTPUT VOLTAGES (at PSU output terminals)

Adjustment Range (Volts)			Current	Output power
5	-	5.3	110A	550W
12	-	12.8	85A	1020W



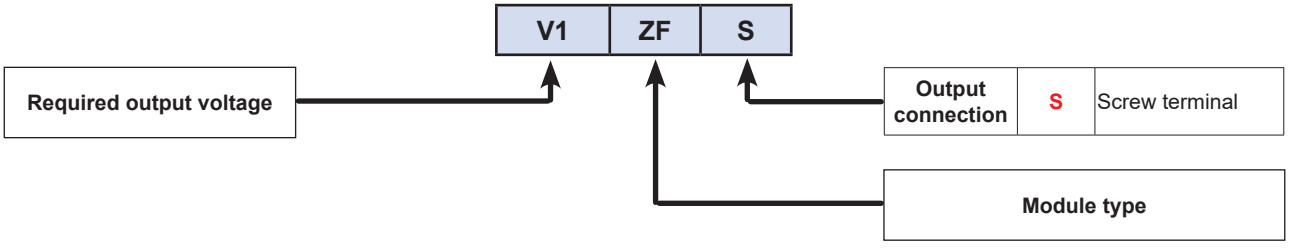
See application notes for signal connection details

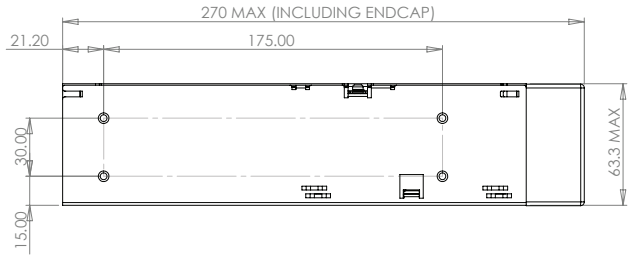
Output Specification

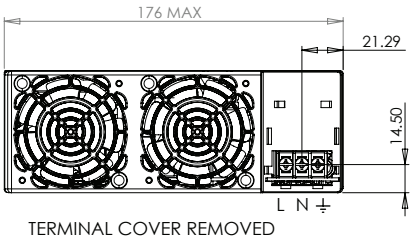
Rise time	<75ms		(with resistive load) to 90% of voltage, monotonic rise above 10%
Turn on overshoot	<5%		Load type dependent
Ripple and Noise	V_{out}<10V	V_{out}>10V	pk-pk, using EIAJ test method & 20MHz bandwidth
0°C - 70°C, >20% load	1%	1.5%	
-20°C - 0°C, >20% load	2%	3%	
0°C - 70°C, ≤20% load	TBC	TBC	
-20°C - 0°C, ≤20% load	TBC	TBC	
Voltage Setting Accuracy	<1%		of set voltage
Remote Sense	Yes		0.5V (voltage at the output terminals must remain within the adjustment range specified above)
Minimum Load	0W		
Temperature Coefficient	TBC		of rated voltage per °C
Load Regulation	<3%		for 0-100% load change (<2% for 5-5.3V output)
Line Regulation	<0.1%		for 90-264Vac input change
Cross Regulation	TBC		for 100% load change on any output
Transient Deviation	<5%		of set voltage for 50% load change (above 25% load)
Recovery	30ms		for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes		Latching, module shuts down, cycle ac to restart.
Over Current Protection	Hiccup		Auto recovers after removal of load
Short Circuit Protection	Yes		Indefinitely protected
Over Temperature Protection	Yes		Module protection shuts down output, cycle ac to restart. Shutdown temperature varies according to ambient, output power and input voltage.
Maximum Capacitive load	1000µF/A		

How To Create A Product Description

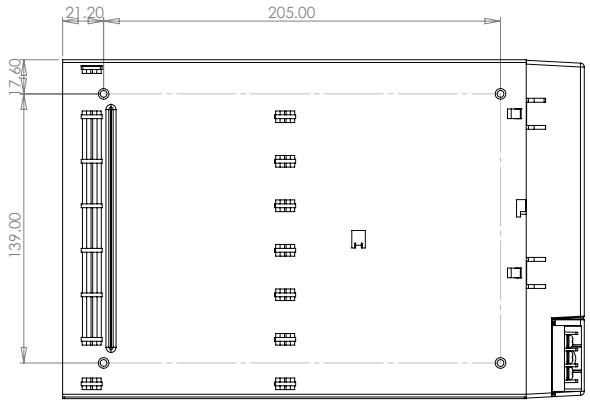
Choose your required output voltage (from the table above)
For example, if you need 12V / 90A, you would choose **12ZFS** as your required module.

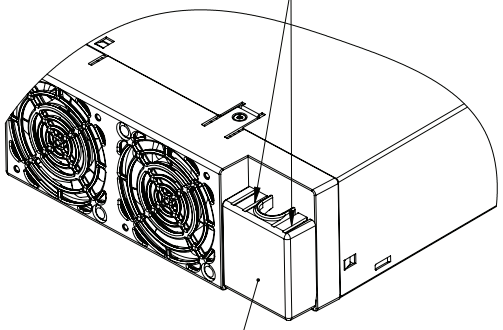




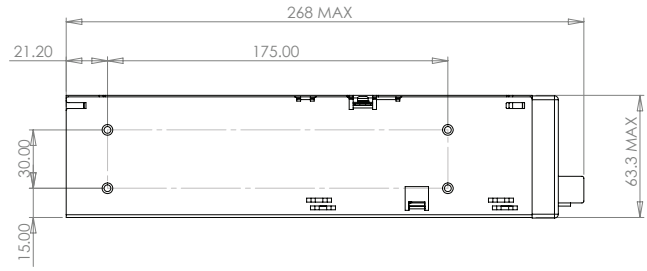


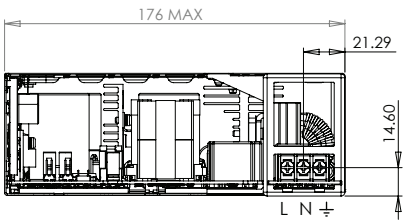
TERMINAL COVER REMOVED

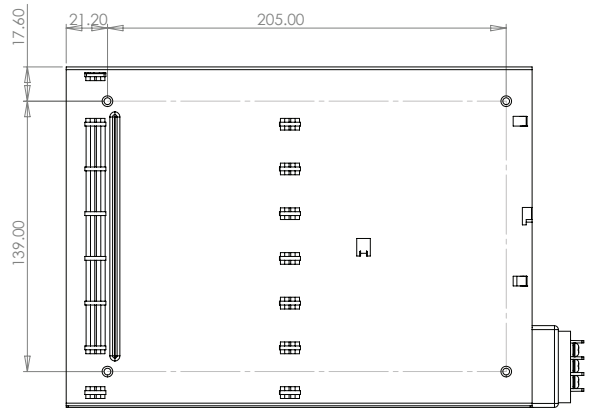


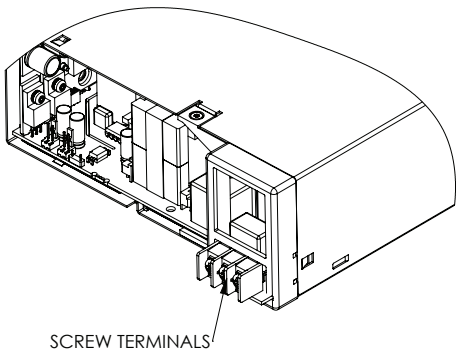


Units with factory fitted fan ('F' or 'R' type cooling)









Units with Customer Air ('C' type cooling)

Customer fixings. 8 holes M4. Max thread penetration:- 4.5mm

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