TDK

DRB 3 Phase Series
DIN-Rail Power Supplies

TDK·Lambda

Efficient all-round talents with push-in or screw terminals

DRB 3 Phase Series

Available at ePLAN data portal

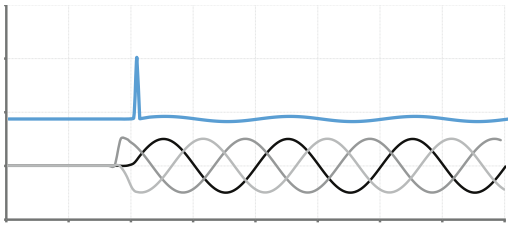
The DIN-Rail power supplies in the DRB series are part of TDK-Lambda's industrial heritage. They can be used in many applications, ranging from conventional switch cabinets and decentralised machinery and systems, to renewable energy and charging solutions. The series covers the popular output voltages of 12, 24, 48 and 72 volts, and users can operate them, both with AC or DC voltage.

The DRB's high operating efficiencies, the use of high-quality electrolytic capacitors and the integration of a gas discharge tube provide maximum system up-time.

Special models featuring conformal coating are available for use in challenging environments containing corrosive gases.

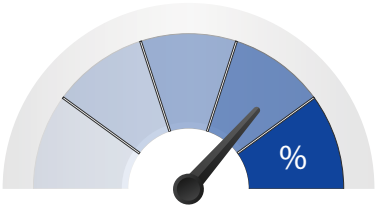
Overall the DRB 3 phase series offer an excellent balance between functionality and price.

Benefits



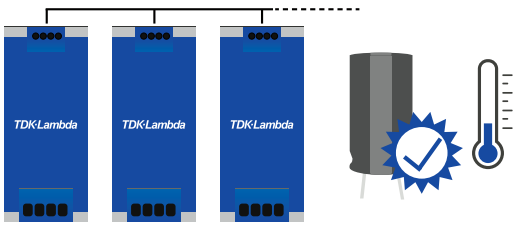
CIRCUIT BREAKER NUISANCE TRIPPING? DON'T WORRY!

A very short inrush current AC combined with very low switch-on energy prevents nuisance tripping of circuit breakers. This reduces disturbances during commissioning and system restarts.



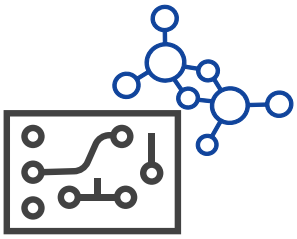
POWERFUL WITH CAPACITIVE LOADS

Starting into a capacitive load poses a challenge for many power supplies. Thanks to comprehensive boost power capability of 150 percent for several seconds, these applications get reliably started.



DISTRIBUTING LOAD CURRENT, ENHANCING RELIABILITY

DRB models of the same voltage and current can be connected in parallel to provide higher power. Activating the parallel mode will distribute the load current between the power supplies. This reduces thermal stress and increases the longevity in the field.



EQUIPPED FOR TOUGH CONDITIONS

Special models with coated circuit boards are suitable for use in polluted environments containing corrosive gases, dust or salt mist. This makes them a reliable and long-lasting source of power.

120W models

		DRB120-12-3-□□	DRB120-24-3-□□
Output voltage	*nom.*	12V_{DC}	24V_{DC}
Adjustment range	*nom.*	11.4 .. 15V_{DC}	22.5 .. 29V_{DC}
Output current	*nom.*	10A	5A
Boost current 1	*max.*	12A / continuous	6A / continuous
Boost current 2	*max.*	14.5A / 600s	7.5A / 600s
Overload behaviour		Constant current + Intermittent mode (Hiccup)	
Mains frequency	*nom.*	50/60Hz	
Input voltage AC	*nom.*	3x380 .. 500V_{AC} (-10/+15%)	
Input voltage DC	*nom.*	530 .. 675V_{DC} (-15/+20%)	
Inrush current AC[1]	*max.*	25 / 30A <2ms	
Inrush energy AC[1]	*max.*	0.3 / 0.6A^2s	
Inrush current DC[2]	*max.*	38 / 41 / 53A <2ms	
Inrush energy DC[2]	*max.*	0.7 / 0.8 / 1.3A^2s	
Output power	*nom.*	**120W**	**120W**
Boost power 1	*max.*	144W / continuous	144W / continuous
Boost power 2	*max.*	174W / 600s	174W / 600s
Power factor	*typ.*	0.50	0.50
Conversion efficiency AC[1]	*min.*	89.4 / 89.1%	91.3 / 91.2%
Power losses AC[1]	*max.*	14.2 / 14.7W	11.4 / 11.6W
No-load consumption AC[1]	*max.*	1.7 / 2.1W	1.7 / 2.1W
Conversion efficiency DC[2]	*typ.*	92.1 / 92.0 / 90.9%	92.4 / 92.2 / 91.4%
Power losses DC[2]	*typ.*	10.3 / 10.4 / 12.0W	9.9 / 10.2 / 11.3W
No-load consumption DC[2]	*max.*	1.8 / 2.2 / 2.8W	1.8 / 2.2 / 2.6W
Service lifetime	*min.*	131,400hrs	
Service / Early life MTBF[3]	*min.*	1.8M / 0.79M hrs	
Ambient operating temperature	*max.*	-25 .. +70°C_{amb} (-13 .. +158°F_{amb})	
	nom.	-25 .. +55°C_{amb} (-13 .. +131°F_{amb})	
Power derating	*min.*	2.0W/°C_{amb} (1.11W/°F_{amb})	0.8W/°C_{amb} (0.44W/°F_{amb})
Operating altitude	*nom.*	3000mASL (9842ftASL)	
	max.	6000mASL (19685ftASL)[4]	
Ingress protection degree		IP 20	
Radiated noise emission		Class B	
Conducted noise emission		Class B	
Width x Height x Depth	*max.*	55 x 129 x 138.2mm ($2^{11}/_{64}$in x $5^{5}/_{64}$in x $5^{7}/_{16}$in)	
Weight		660g (1.46lb)	
Certifications (CB, UL, UR)		IEC/EN/UL/CSA 61010-1, 61010-2-201, 62368-1 (Ed.3)	

Unless otherwise stated, all values are specified in normal mounting position, at full load, nominal input and output voltages, 25°C ambient temperature and a run-in time of 5 minutes.

[1] 400 / 500V_{AC} | [2] 540 / 650 / 800V_{DC} | [3] Telcordia SR-332 Issue 4 | [4] not UL approved, reduced OVC

Model description

- **A 0** Screw type terminals
- **A 1** Push-in terminals
- **A 6** Screw type terminals and conformal coating
- **A 7** Push-in terminals and conformal coating

240W models

		DRB240-24-3-□□	DRB240-48-3-□□
Output voltage	*nom.*	24V_{DC}	48V_{DC}
Adjustment range	*nom.*	22.5..29V_{DC}	45..56V_{DC}
Output current	*nom.*	10A	5A
Boost current 1	*max.*	12A / 300s	6A / 300s
Boost current 2	*max.*	15A / 60s	7.5A / 60s
Overload behaviour		Constant current + Intermittent mode (Hiccup)	
Mains frequency	*nom.*	50/60Hz	
Input voltage AC	*nom.*	3x380..500V_{AC} (-10/+15%)	
Input voltage DC	*nom.*	530..675V_{DC} (-15/+20%)	
Inrush current AC[1]	*max.*	25 / 30A <3ms	
Inrush energy AC[1]	*max.*	0.3 / 0.8A^2s	
Inrush current DC[2]	*max.*	39 / 47 / 60A <3ms	
Inrush energy DC[2]	*max.*	1.1 / 1.5 / 2.3A^2s	
Output power	*nom.*	**240W**	**240W**
Boost power 1	*max.*	288W / 300s	288W / 300s
Boost power 2	*max.*	360W / 60s	360W / 60s
Power factor	*typ.*	0.60	0.60
Conversion efficiency AC[1]	*min.*	93.1 / 93.2%	93.8 / 94%
Power losses AC[1]	*max.*	17.8 / 17.5W	15.9 / 15.3W
No-load consumption AC[1]	*max.*	1.6 / 2.0W	1.9 / 2.3W
Conversion efficiency DC[2]	*typ.*	94.7 / 94.8 / 94.5%	95.1 / 95.1 / 94.9%
Power losses DC[2]	*typ.*	13.4 / 13.2 / 14.0W	12.4 / 12.4 / 12.9W
No-load consumption DC[2]	*max.*	2.0 / 2.3 / 3.0W	1.9 / 2.3 / 3.0W
Service lifetime	*min.*	131,400hrs	
Service / Early life MTBF[3]	*min.*	1.8M / 0.79M hrs	
Ambient operating temperature	*max.*	-25..+70°C_{amb} (-13 .. +158°F_{amb})	
	nom.	-25..+55°C_{amb} (-13 .. +131°F_{amb})	
Power derating	*min.*	2.4W/°C_{amb} (1.33W/°F_{amb})	2.6W/°C_{amb} (1.44W/°F_{amb})
Operating altitude	*nom.*	3000mASL (9842ftASL)	
	max.	6000mASL (19685ftASL)[4]	
Ingress protection degree		IP 20	
Radiated noise emission		Class B	
Conducted noise emission		Class B	
Width x Height x Depth	*max.*	55 x 129 x 138.2mm ($2^{11}/_{64}$in x $5^{5}/_{64}$in x $5^{7}/_{16}$in)	
Weight		780g (1.72lb)	
Certifications (CB, UL, UR)		IEC/EN/UL/CSA 61010-1, 61010-2-201, 62368-1 (Ed.3)	

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[1] 400 / 500V_{AC} | [2] 540 / 650 / 800V_{DC} | [3] Telcordia SR-332 Issue 4 | [4] not UL approved, reduced OVC

Model description

- **A 0** Screw type terminals
- **A 1** Push-in terminals
- **A 6** Screw type terminals and conformal coating
- **A 7** Push-in terminals and conformal coating

480W models

		DRB480-24-3-□□	DRB480-48-3-□□	DRB480-72-3-□□
Output voltage	*nom.*	24V_{DC}	48V_{DC}	72V_{DC}
Adjustment range	*nom.*	22.5 .. 29V_{DC}	45 .. 56V_{DC}	70 .. 85V_{DC}
Output current	*nom.*	20.0A	10.0A	6.7A
Boost current	*max.*	30A / 7s	15A / 7s	10A / 7s
Overload behaviour		Constant current + Intermittent mode (Hiccup)		
Mains frequency	*nom.*	50/60Hz		
Input voltage AC	*nom.*	3x380 .. 500V_{AC} (-10/+15%)		
Input voltage DC	*nom.*	530 .. 675V_{DC} (-15/+20%)		
Inrush current AC[1]	*max.*	12A <2ms		
Inrush energy AC[1]	*max.*	0.1A^2s		
Inrush current DC[2]	*max.*	12A <2ms		
Inrush energy DC[2]	*max.*	0.1A^2s		
Output power	*nom.*	**480W**		
Boost power	*max.*	720W / 7s		
Power factor	*typ.*	0.92		
Conversion efficiency AC[1]	*min.*	95.1 / 94.9%	95.3 / 95.1%	95.7 / 95.6%
Power losses AC[1]	*max.*	24.7 / 25.8W	23.7 / 24.7W	21.6 / 22.1W
No-load consumption AC[1]	*max.*	3.0 / 3.2W	3.0 / 3.3W	3.0 / 3.3W
Conversion efficiency DC[2]	*typ.*	95.7 / 95.5 / 95.3%	95.9 / 95.8 / 95.6%	95.7 / 95.5 / 95.3%
Power losses DC[2]	*typ.*	21.6 / 22.6 / 23.7W	20.5 / 21.0 / 22.1W	21.6 / 22.6 / 23.7W
No-load consumption DC[2]	*max.*	3.1 / 3.3 / 3.8W	3.0 / 3.3 / 3.9W	3.1 / 3.4 / 4.0W
Service lifetime	*min.*	131,400hrs		
Service / Early life MTBF[3]	*min.*	0.86M / 0.48M hrs	0.86M / 0.45M hrs	0.86M / 0.45M hrs
Ambient operating temperature	*max.*	-25 .. +70°C_{amb} (-13 .. +158°F_{amb})		
	nom.	-25 .. +55°C_{amb} (-13 .. +131°F_{amb})		
Power derating	*min.*	12W/°C_{amb} (6.67W/°F_{amb})	9.6W/°C_{amb} (5.33W/°F_{amb})	8.0W/°C_{amb} (4.44W/°F_{amb})
Operating altitude	*nom.*	3000mASL (9842ftASL)		
	max.	6000mASL (19685ftASL)[4]		
Ingress protection degree		IP 20		
Radiated noise emission		Class B		
Conducted noise emission		Class B		
Width x Height x Depth	*max.*	65 x 129 x 159.3mm ($2^{9}/_{16}$in x $5^{5}/_{64}$in x $6^{17}/_{64}$in)		
Weight		1050g (2.31lb)		
Certifications (CB, UL, UR)		IEC/EN/UL/CSA 61010-1, 61010-2-201, 62368-1 (Ed.3)		

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[1] 400 / 500V_{AC} | [2] 540 / 650 / 800V_{DC} | [3] Telcordia SR-332 Issue 4 | [4] not UL approved, reduced OVC

Model description

- **A 0** Screw type terminals
- **A 1** Push-in terminals
- **A 6** Screw type terminals and conformal coating
- **A 7** Push-in terminals and conformal coating

960W models

		DRB960-24-3-□□	DRB960-48-3-□□	DRB960-72-3-□□
Output voltage	*nom.*	24V_{DC}	48V_{DC}	72V_{DC}
Adjustment range	*nom.*	22.5 .. 29V_{DC}	45 .. 56V_{DC}	70 .. 85V_{DC}
Output current	*nom.*	40.0A	20.0A	13.3A
Boost current	*max.*	60A / 7s	30A / 7s	20A / 7s
Overload behaviour		Constant current + Intermittent mode (Hiccup)		
Mains frequency	*nom.*	50/60Hz		
Input voltage AC	*nom.*	3x380 .. 500V_{AC} (-10/+15%)		
Input voltage DC	*nom.*	530 .. 675V_{DC} (-15/+20%)		
Inrush current AC[1]	*max.*	13A <2ms		
Inrush energy AC[1]	*max.*	0.1A^2s		
Inrush current DC[2]	*max.*	13A <2ms		
Inrush energy DC[2]	*max.*	0.1A^2s		
Output power	*nom.*	**960W**		
Boost power	*max.*	1440W / 7s		
Power factor	*typ.*	0.94		
Conversion efficiency AC[1]	*min.*	95.2 / 95.1%	95.9 / 95.8%	96.3 / 96.2%
Power losses AC[1]	*max.*	48.4 / 49.5W	41.0 / 42.1W	36.9 / 37.9W
No-load consumption AC[1]	*max.*	6.1 / 6.0W	6.2 / 6.1W	5.6 / 5.6W
Conversion efficiency DC[2]	*typ.*	97.4 / 97.3 / 96.8%	96.9 / 96.8 / 96.2%	97.2 / 96.8 / 96.5%
Power losses DC[2]	*typ.*	25.6 / 26.6 / 31.7W	30.7 / 31.7 / 37.9W	27.7 / 31.7 / 34.8W
No-load consumption DC[2]	*max.*	6.1 / 6.9 / 6.8W	5.8 / 7.0 / 6.6W	5.6 / 6.5 / 6.4W
Service lifetime	*min.*	131,400hrs		
Service / Early life MTBF[3]	*min.*	0.97M / 0.39M hrs		
Ambient operating temperature	*max.*	-25 .. +70°C_{amb} (-13 .. +158°F_{amb})		
	nom.	-25 .. +55°C_{amb} (-13 .. +131°F_{amb})		
Power derating	*min.*	16W/°C_{amb} (8.89W/°F_{amb})	16W/°C_{amb} (8.89W/°F_{amb})	6.24W/°C_{amb} (3.47W/°F_{amb})
Operating altitude	*nom.*	3000mASL (9842ftASL)		
	max.	6000mASL (19685ftASL)[4]		
Ingress protection degree		IP 20		
Radiated noise emission		Class B		
Conducted noise emission		Class B		
Width x Height x Depth	*max.*	100 x 129 x 171.9mm ($3^{15}/_{16}$in x $5^{5}/_{64}$in x $6^{49}/_{64}$in)		
Weight		1750g (3.86lb)		
Certifications (CB, UL, UR)		IEC/EN/UL/CSA 61010-1, 61010-2-201, 62368-1 (Ed.3)		

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Add-ons and accessories

DUSH DC-UPS

In mission critical applications, the DUSH serves as a backup solution to deliver power from a battery.

DUSH960-1248-0M
20A input/output/battery, 12..48V programmable, buck-boost converter, battery interface, Modbus/RTU, LCD, 5A AUX output, push-in terminals

DUSH960-1248-1M
20A input/output/battery, 12..48V programmable, buck-boost converter, battery interface, Modbus/RTU, LED indication, push-in terminals

www.emea.lambda.tdk.com/uk/products/dush

DBM Buffer Modules

In order to secure process uptime and reliability in 24V low-voltage systems, DBM buffer modules increase hold-up time or provide a reserve for peak loads.

DBM20
Buffer module, input/output 20A, electrolytic capacitors, signalling & control, screw terminals

DBM20/E
Buffer module, input/output 20A, electrolytic capacitors, signalling & control, spring terminal blocks

www.emea.lambda.tdk.com/uk/products/dbm20

DRM Redundancy Modules

For building fault tolerant 12/24V systems, DRM redundancy modules can be used to decouple n+1 power supplies.

DRM40
40A output, 2x20A input, screw terminals, DC OK and balancing LEDs

DRM40B
40A output, 2x20A input, screw terminals

www.emea.lambda.tdk.com/uk/products/drm40

DDA DC/DC Converters

Non-isolated step-down converters for creating additional DC bus voltages from a single DC input source.

DDA250N
Single output 20A at 3.3..15V, input 9..53V, DC OK LED, screw terminals

DDA325N
Dual output 14A at 3.3..24V and 8A at -3.3..-24V, input 9..40V, DC OK LEDs, screw terminals

DDA500N
Dual output 2x20A at 3.3..15V, input 9..53V, DC OK LEDs, screw terminals

www.emea.lambda.tdk.com/uk/products/dda

Our team of experts will be happy to help you find the best power supply for your application.

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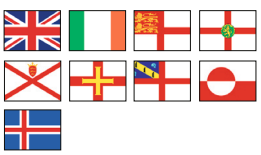

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