24V 20A Buffer (Hold-Up) DIN Rail Module

https://product.tdk.com/en/power/dbm
www.emea.lambda.tdk.com/dbm20

Industrial Test Semi-Fab

The DBM20 20A buffer module is ideal for providing short term hold-up or peak power for loads powered by a 24Vdc output AC-DC power supply. During normal operation, energy is stored in the DBM20's electrolytic capacitors. When the AC power is interrupted for a short period of time, the DBM20 continues to power the load, allowing equipment to shutdown in a safe and controlled manner. The DBM20 can be set to fixed or variable buffer mode. In fixed mode it will provide power when the input voltage drops to 22.4V, in variable mode when the input decreases by 1V. Multiple buffer modules can be paralleled for additional hold-up time. Product status can be accessed remotely via a DC OK relay, or locally using the LED indicators. The output voltage can also be inhibited to avoid an unsafe discharge of the stored energy.

Features	Benefits
• Provides 250ms Additional Hold-Up Time at 448W	• Avoids Loss of Data During AC Power Interruptions
• Utilizes Electrolytic Capacitors to Store Energy	• No Batteries to Service or Maintain
• Narrow 49mm Width	• Increases Available Space on the DIN Rail
• Parallel Capable	• Hold-Up Time Can Be Extended
• Output Remote On/Off Function	• Avoids Unsafe Discharge of Stored Energy

Model Selector

Model	Output Voltage Fixed Mode (V) (1)	Output Voltage Dynamic Mode (V) (1)	Maximum Current (A)	Average Buffer Power (W)	Terminals
DBM20	22.4	Vin-1	20	448	Screw
DBM20/E	22.4	Vin-1	20	448	Spring Clamp

Related Products

Type	Part Number(s)	Description
Redundancy module	DRM40	20 to 40A DIN Rail Redundancy Module
Low power DIN rail power supplies	DRB15, 30, 50, 100	15 to 100W AC-DC DIN rail power supplies
Mid to high power DIN rail power supplies	DRB120, 240, 480	120 to 480W AC-DC DIN rail power supplies
Mid to high power premium DIN rail power supplies	DRF120, 240, 480, 960	120 to 960W AC-DC DIN rail power supplies
DIN rail mount filters	RSMN	3A to 30A 250Vac 2 stage filters with pulse attenuation
DIN rail mount filters	RSEV	6A to 30A 250Vac 2 stage filters
RSEV DIN rail mounting kit	DIN-RSEV	RSEV DIN rail mounting kit

Specifications

Model		DBM20
Input		
Input Voltage range	Vdc	Fixed Mode: 23 - 30, VIN-1 Mode: 24 - 30
Input Voltage Maximum Limit	Vdc	35
Input Current (Typical)	A	Charging Mode: 0.8, Ready Mode: 0.2
Charging Time (Typical)	s	40
Hold Up Time (Typical)	ms	250
Conducted & Radiated EMI	-	EN55032-B CISPR32-B
Immunity	-	See immunity table
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, UL508, CE Mark and UKCA Mark

Immunity

Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	4	B	16kV air, 8kV contact
Radiated Susceptibility	EN61000-4-3	3	A	-
Electrical Fast Transient Burst	EN61000-4-4	1-3	B	Signal pin to FG Lvl 1
Surge	EN61000-4-5	1-2	B	Common mode only Lvl 2, Signal pin to FG Lvl 1
Conducted Susceptibility	EN61000-4-6	3	A	-

Specifications

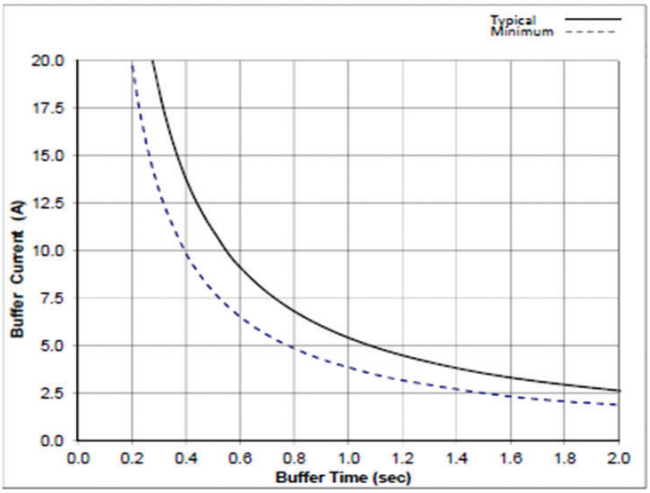
Model		DBM20
Output		
Buffer Voltage Tolerance (Load > 5%)	%	Fixed Mode: ±2, Dynamic Mode: +3 to -4
Switching Frequency (Typical)	kHz	Buck Converter: 100, Boost Converter: 70
Ripple & Noise	mV	<240
Minimum Load	-	No minimum load required
Overcurrent Protection	%	>105 of buffer current
Input Overvoltage Protection	V	35
Overtemperature Protection	-	No
Remote On/Off	-	Yes
DC OK Relay	-	Photo MOS relay closed when DC is okay. (30V 0.2A)
Status Signals	-	Photocoupled signals indicating fully charged and discharging modes
Indicators	-	Charging (green) and discharging (red) LEDs
Parallel Operation	-	Possible, see installation manual
Series Operation	-	Not possible
Environmental		
Operating Temperature	°C	-25 to +70
Storage Temperature	°C	-25 to +85
Humidity (non condensing)	%RH	Operating: 30 - 90, storage: 10 - 90
Cooling	-	Convection
Altitude	m	5,000
Withstand Voltage (For 1 minute)	Vac	Input and output to ground 500
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500VDC (input and output to ground)
Vibration (Non Operating)	-	10 - 55Hz (sweep for 1 min) 19.6m/s^2 (constant X, Y, Z axis for 1 hour each)
Shock	m/s^2	< 196.1
Other		
Weight (Typ)	g	740
Size (WxHxD)	mm	49 x 123.6 x 115.4
Size (WxHxD)	Inches	1.93 x 4.87 x 4.54
Connectors		Screw terminal or spring type. See model selector
DIN Rail Type	-	Suitable for mounting on TS-35/7.5 or TS35/15 DIN Rails
MTBF - Telcordia TR-332 issue 5 (25°C)	Hours	1,026,962
Warranty	yrs	5

Notes
See website for detailed specifications, test methods and installation manual
(1) Fixed and VIN-1 mode is switch selectable on the front panel

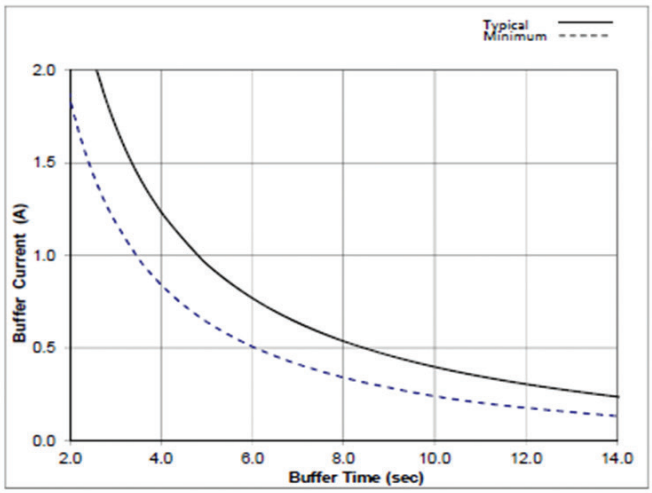
Buffer Time Versus Buffer Current

FIXED Mode and Nominal Buffer Voltage

a) Buffer time : 0 - 2 sec

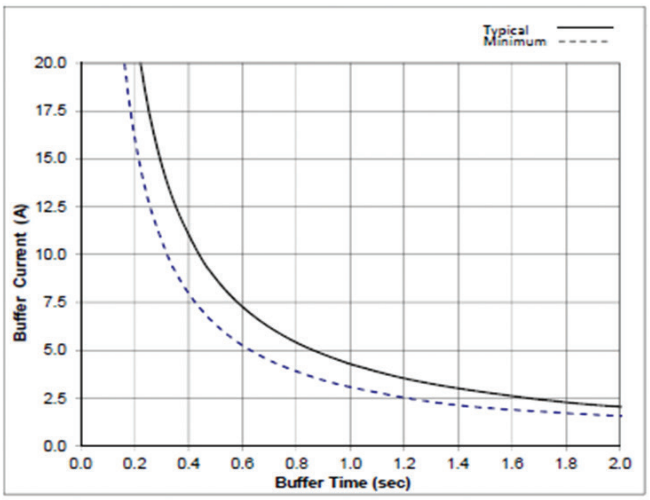


b) Buffer time for small buffer current : 2 - 14 sec

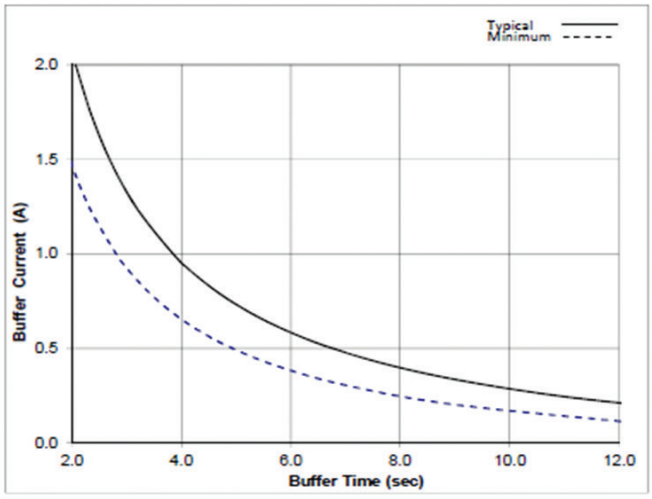


VIN-1 and Maximum Buffer Voltage

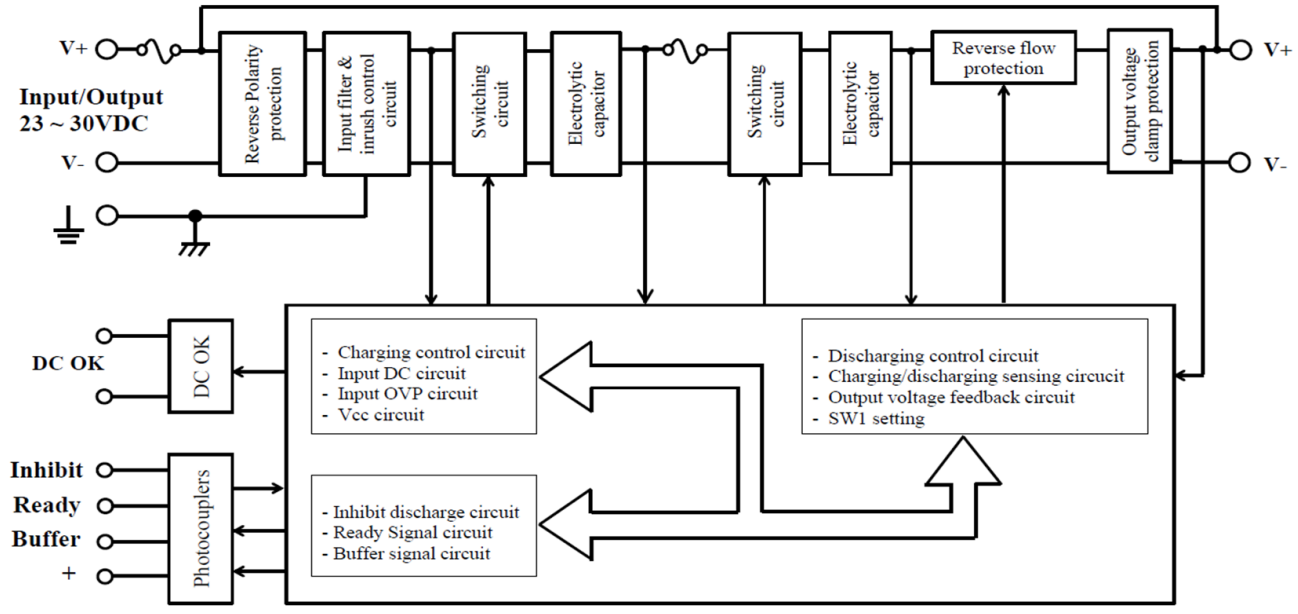
a) Buffer time : 0 - 2 sec



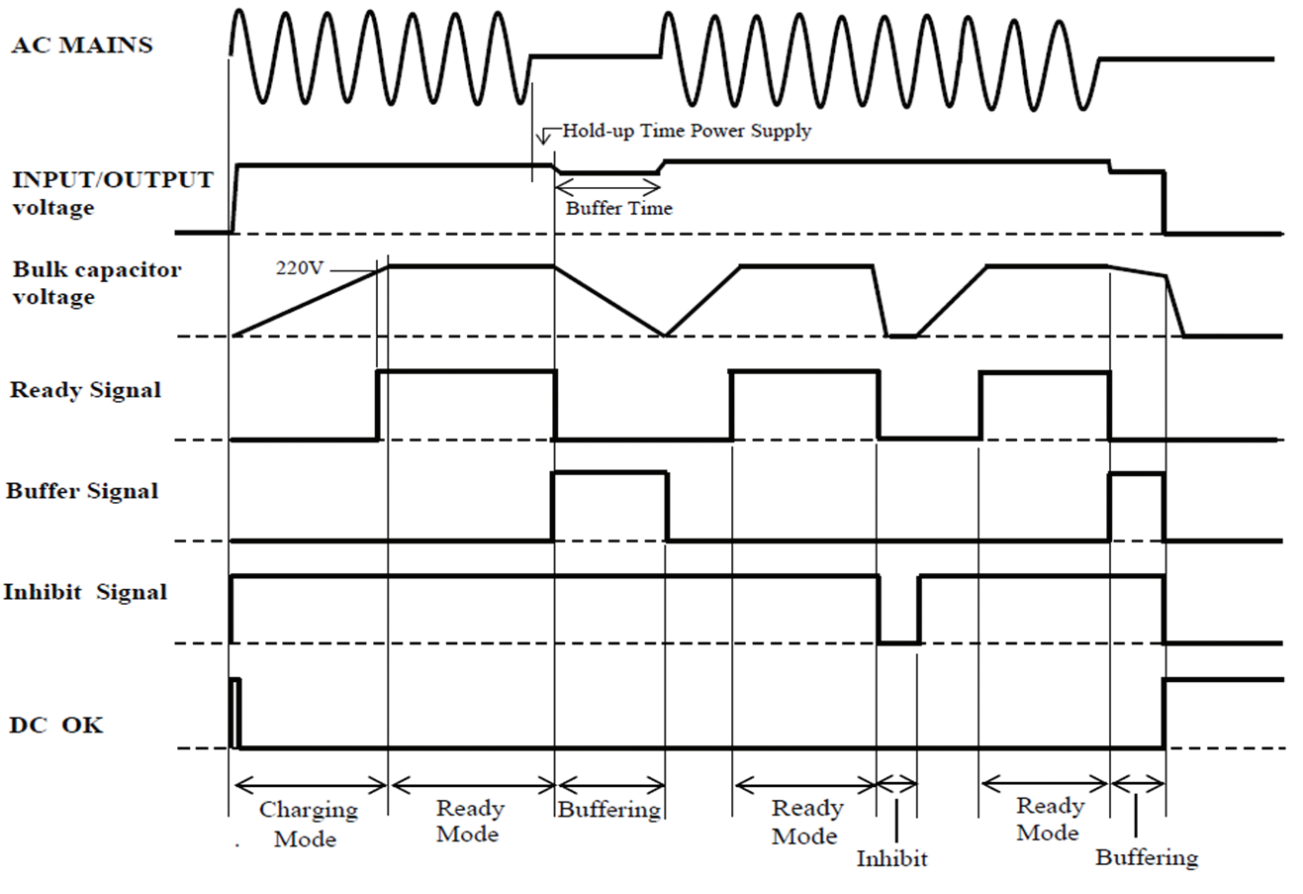
b) Buffer time for small buffer current : 2 - 12 sec



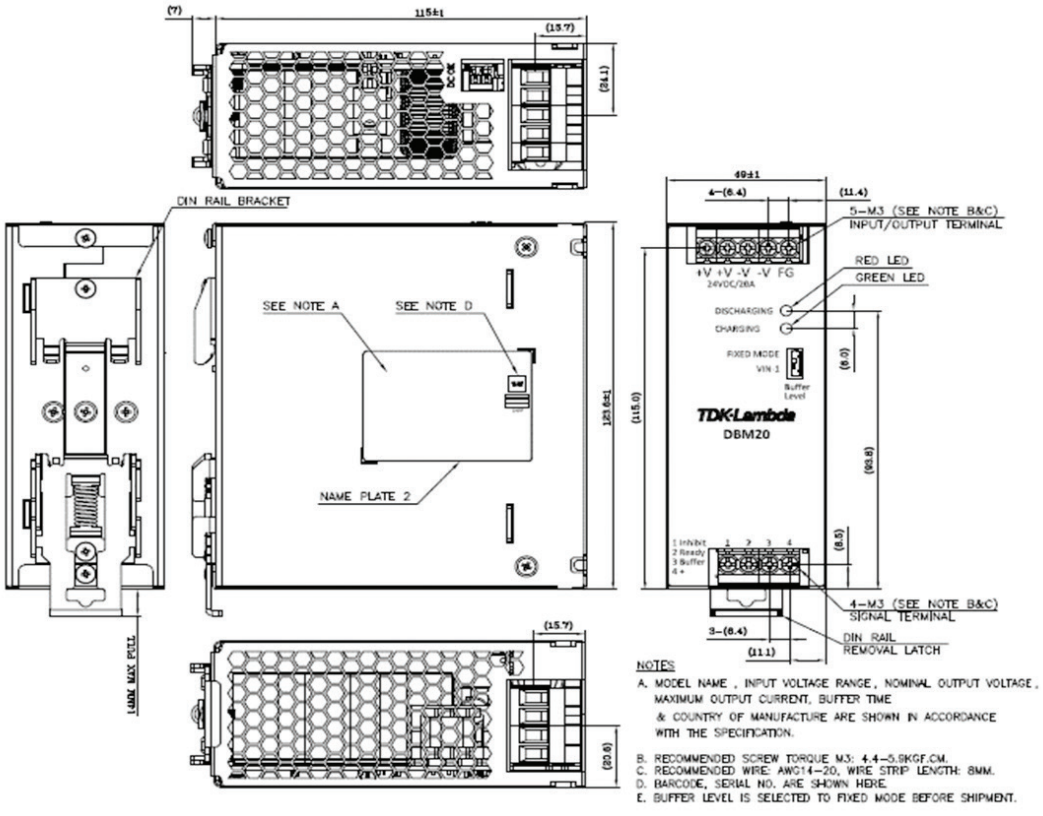
Block Diagram



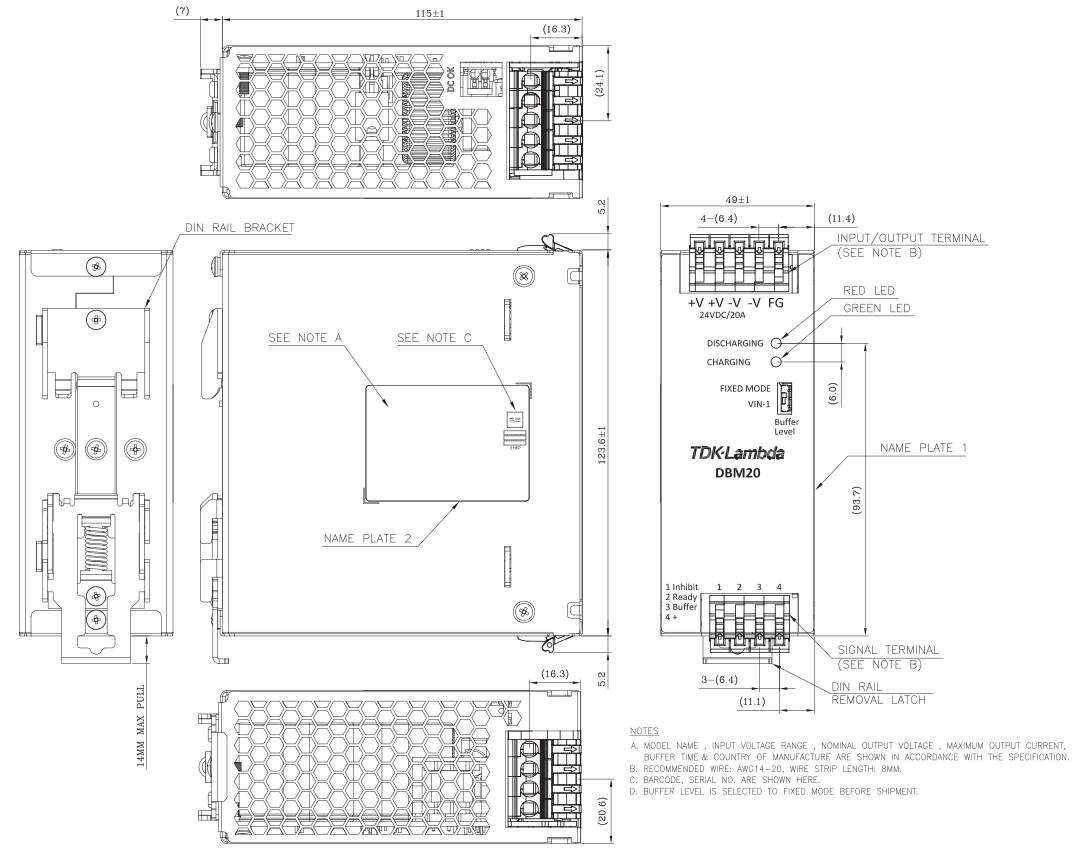
Timing Diagram



Outline Drawing DBM20



Outline Drawing DBM20/E



TDK-Lambda France SAS
Tel: +33 1 60 12 71 65
tlf.fr-powersolutions@tdk.com
www.emea.lambda.tdk.com/fr

TDK-Lambda Americas
Tel: +1 800-LAMBDA-4 or 1-800-526-2324
tla.powersolutions@tdk.com
www.us.lambda.tdk.com

Italy Sales Office
Tel +39 02 61 29 38 63
tlf.it-powersolutions@tdk.com
www.emea.lambda.tdk.com/it

TDK Electronics do Brasil Ltda
Tel: +55 11 3289-9599
sales.br@tdk-electronics.tdk.com
www.tdk-electronics.tdk.com/en

Netherlands
tlf.nl-powersolutions@tdk.com
www.emea.lambda.tdk.com/nl

TDK-Lambda Corporation
Tel: +81-3-6778-1113
www.jp.lambda.tdk.com

TDK-Lambda Europe GmbH
Tel: +49 7841 666 0
tlg.powersolutions@tdk.com
www.emea.lambda.tdk.com/de

TDK-Lambda (China) Electronics Co. Ltd.
Tel: +86 21 6485-0777
tlc.powersolutions@tdk.com
www.lambda.tdk.com.cn

Austria Sales Office
Tel: +43 2256 655 84
tlg.at-powersolutions@tdk.com
www.emea.lambda.tdk.com/at

TDK-Lambda Singapore Pte Ltd.
Tel: +65 6251 7211
tls.marketing@tdk.com
www.sg.lambda.tdk.com

Switzerland Sales Office
Tel: +41 44 850 53 53
tlg.ch-powersolutions@tdk.com
www.emea.lambda.tdk.com/ch

TDK India Private Limited, Power Supply Division
Tel: +91 80 4039-0660
mathew.philip@tdk.com
www.sg.lambda.tdk.com

TDK-Lambda Europe GmbH
Tel: Tel. +45 3222 8086
tlg.dk-powersolutions@tdk.com
www.emea.lambda.tdk.com/dk

TDK-Lambda UK Ltd.
Tel: +44 (0) 12 71 85 66 66
tlu.powersolutions@tdk.com
www.emea.lambda.tdk.com/uk

TDK-Lambda Ltd.
Tel: +9 723 902 4333
tli.powersolutions@tdk.com
www.emea.lambda.tdk.com/il-en

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