MEAN WELL DBUF40-24 24V/40A DIN Rail Type Buffer Module Owner's Manual

Contents

MEAN WELL DBUF40-24 24V/40A DIN Rail Type Buffer Module

Product Information

The DBUF40-24 is a 24V/40A DIN Rail Type Buffer Module. It is a supplementary device for regulated DC 24V power supplies. The buffer module utilizes maintenance-free electrolytic capacitors to store energy, eliminating the need for periodic replacement as compared to costlier batteries which also have a shorter functional lifespan. The DBUF40-24 comes with comprehensive protection features like overvoltage, overcurrent, and short circuit protections. Buffer modules can be connected in parallel to increase the output ampacity or the hold-up time.

Product Usage Instructions

To use the DBUF40-24 buffer module, follow these instructions:

1. Ensure that the operating voltage of your DC power supply is within the range of 23-30Vdc.
2. Connect the positive and negative terminals of the DC power supply to the corresponding terminals on the buffer module.
3. If desired, connect multiple buffer modules in parallel to increase the output ampacity or hold-up time. Ensure that all modules are properly connected and within the specified voltage range.
4. To enable buffering, set the voltage threshold by selecting one of the following options:
    - Fix 22Vdc (default): Buffering starts if the terminal voltage falls below 22Vdc.
    - Vin-1Vdc: Buffering starts if the terminal voltage is decreased by more than 1Vdc.
5. To control the buffer module, use the following functions:
    - Inhibit (I): Apply a voltage difference between +Vs and V(I) to turn the buffer module ON or OFF. If +Vs – V(I) is less than 6Vdc, the buffer module is ON. If +Vs – V(I) is greater than 10Vdc, the buffer module is OFF.
    - Ready (R): Monitor the voltage level at V(R) to determine the status of the buffer module. If V(R) is greater than +Vs – 2Vdc, the module is charged and ready. If V(R) is less than +Vs – 2Vdc, the module is unready. Other mode conditions are indicated by the voltage level at V(B).
6. Ensure that the buffer module is properly protected and meets safety standards. The module has overvoltage

protection, overcurrent protection, short circuit protection, reverse polarity protection, and selectable switching options.

7. Refer to the user manual for additional information on EMC emissions, EMC immunity, and other specifications.

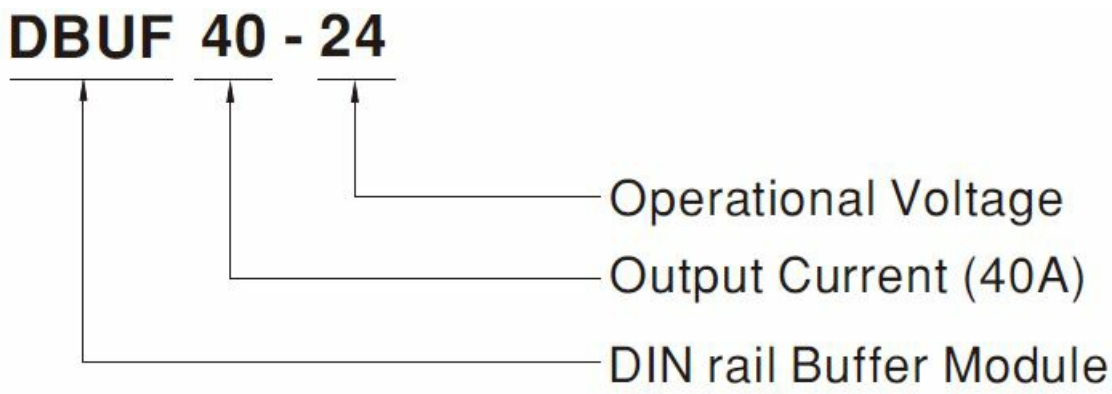
Features

- Buffering with electrolytic capacitors instead of lead acid batteries
- Type buffering time of 250ms @22Vdc/40A
- Buffer mode selectable by switch: Fixed mode at 22Vdc Dynamic mode for Vin-1Vdc
- LED indicator for signal status
- Supports parallel connection to extend buffering time
- Cooling by free air convection
- -25~+75°C wide operating temperature
- 3 years warranty

Description

- The DBUF40-24 buffer module is a supplementary device for regulated DC 24V power supplies. The buffer module utilizes maintenance-free electrolytic capacitors to store energy, thus eliminates the need of periodic replacement as compared to costlier batteries which also have shorter functional life span.
- The DBUF40-24 comes with comprehensive protection features like over voltage, over current and short circuit protections. Buffer modules can be connected in parallel to increase the output ampacity or the hold – up time.

Model Encoding



Applications

- Industrial control system
- Semiconductor fabrication equipment
- Factory automation
- Electro-mechanical apparatus

GTIN CODE
MW Search: https://www.meanwell.com/serviceGTIN.aspx

SPECIFICATION

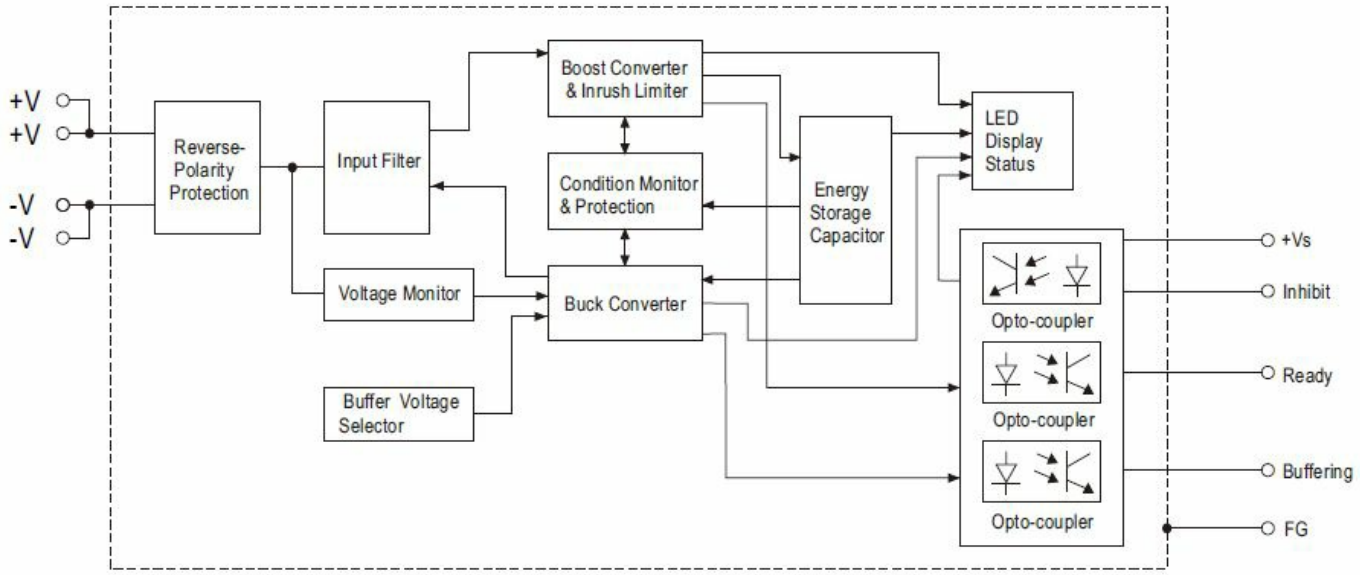
MODEL			**DBUF40-24**		
CHARGING MODE	**DC NORMAL OPERATING VOLTAGE**		24Vdc		
	CHARGING VOLTAGE		23~30Vdc		
	CHARGING CURRENT		900mA Max.		
	CURRENT CONSUMPTION AT STANDBY		100mA Max.		
	CHARGING TIME		25s Typ.		
			35s Max.		
BUFFER MODE	**DC NORMAL OPERATING VOLTAGE**		22Vdc/Vin-1Vdc		
	DC OPERATING VOLTAGE RANGE		22-29Vdc		
	OUTPUT CURRENT(max.)		40A		
	BUFFER TIME **(Refer to Buffering Curve at 22Vdc)**	**Output current**	40A	20A	0.1A
		Typ.	250ms	500ms	62s
		Min.	160ms	320ms	42s
	RIPPLE & NOISE (max.) Note .2		350mVp-p		
PROTECTION	**OVER VOLTAGE**		31~37.5V only,shut down o/p voltage		
	OVER LOAD		105%~125% rated output power at buffer mode		
			Protection type:Shut down o/p voltage , re-power on to recover		
	SHORT CIRCUIT		Protection type:Shut down o/p voltage , re-power on to recover		
	TVS FOR SIGNALS (max.)		35V		
	REVERSE POLARITY PROTECTION		By internal MOSFET, no damage , recovers automatically after fault condition removed		
	SELECTABLE BY SWITCH	**Fix 22Vdc(Default)**	Buffering starts if terminal voltage falls below 22Vdc		
		Vin-1Vdc	Buffering starts if terminal voltage is decreased by > 1Vdc		
	CONTROL	**Inhibit (I)**	+Vs – V(I) < 6Vdc: Buffer module ON; +Vs – V(I) >10Vdc: Buffer module OFF		
			35Vdc /4mA Max.		
		Ready(R)	Charged ready: V(R)>+Vs – 2Vdc; Unready: V(R)<1Vdc		
			35Vdc /10mA Max.		

FUNCTION	**SIGNALS**	**Buffering (B)**	Buffering: V(B)>+Vs – 2Vdc; Other mode: V(B)<1Vdc		
			35Vdc /10mA Max.		
		Supply Voltage(+Vs)	10~35Vdc /10mA(Connected to +V or external voltage)		
	LED STATUS DISPLAY		ON		Ready
			OFF		Discharged
			Flashing	1Hz	Charging
				10Hz	Buffering
	PARALLEL CONNECTION		Refer to Typical Application Notes(Page 6)		

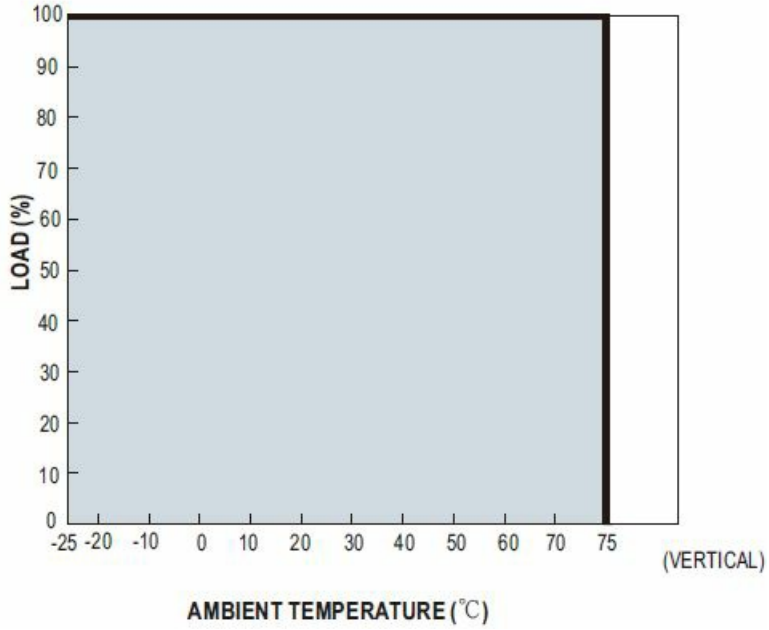
ENVIRONMENT	**WORKING TEMP.**	-25~+75℃(Refer to"Derating Curve")		
	WORKING HUMIDITY	5 ~ 95% RH non-condensing		
	STORAGE TEMP.	-25~+80℃		
	SHOCK TEST	IEC60068-2-27,30G (300m/S²) for a duration of 18ms,1 time per direction,2 times in total		
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 75℃)		
	VIBRATION	Component: 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes ; Mounting clip: Compliance to IEC60068-2-6		
	OPERATING ALTITUDE Note.3	5000 meters /OVCⅡ		
SAFETY & EMC (Note. 4)	**SAFETY STANDARDS**	IEC62368-1,UL62368-1 approved		
	WITHSTAND VOLTAGE	IP/OP-FG:2.2KVdc; Signals-FG:2.2KVdc		
	ISOLATION RESISTANCE	IP/OP-FG, Signals-FG: >100M Ohms / 500Vdc / 25℃/ 70% RH		
	EMC EMISSION	**Parameter**	**Standard**	**Test Level / Note**
		Conducted	BS EN/EN55032	Class B
		Radiated	BS EN/EN55032	Class B
		Voltage Flicker	──	──
		Harmonic Current	──	──
		BS EN/EN55035, BS EN/EN61000-6-2		
		Parameter	**Standard**	**Test Level / Note**
		ESD	BS EN/EN61000-4-2	Level 4, 15KV air ; Level 3, 8KV contact; criteria A
		Radiated	BS EN/EN61000-4-3	Level 3, 10V/m ; criteria A

	EMC IMMUNITY	EFT / Burst	BS EN/EN61000-4-4	Level 3, 2KV ; criteria A
		Surge	BS EN/EN61000-4-5	Level 3, 1KV/Line-Line ;Level 3, 2 KV/Line-Line-FG ;criteria A
		Conducted	BS EN/EN61000-4-6	Level 3, 10V ; criteria A
		Magnetic Field	BS EN/EN61000-4-8	Level 4, 30A/m ; criteria A
OTHERS	**MTBF**	162.6K hrs min. MIL-HDBK-217F (25℃) ; 1420.2K hrs min. Telcordia TR/SR-332 (Bellcore) (25℃)		
		106.8K hrs min. MIL-HDBK-217F (40℃) ; 717.2K hrs min. Telcordia TR/SR-332 (Bellcore) (40℃)		
	DIMENSION	63*125.2*114.9mm (W*H*D)		
	PACKING	1.062Kg; 12pcs/12.8Kg/0.74CUFT		
NOTE	1. All parameters NOT specially mentioned are measured at normal input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12″ twisted pair-wire terminated with a 0.1 m f & 47 u f parallel capacitor. 3. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft. 4. The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the MC directives. For guidance on how to perform these MC tests, please refer to “EMI testing of component power supplies.” (as available on **http://www.meanwell.com**) ⅝ Product Liability Disclaimer: For detailed information, please refer to **https://www.meanwell.com/serviceDisclaimer.aspx**			

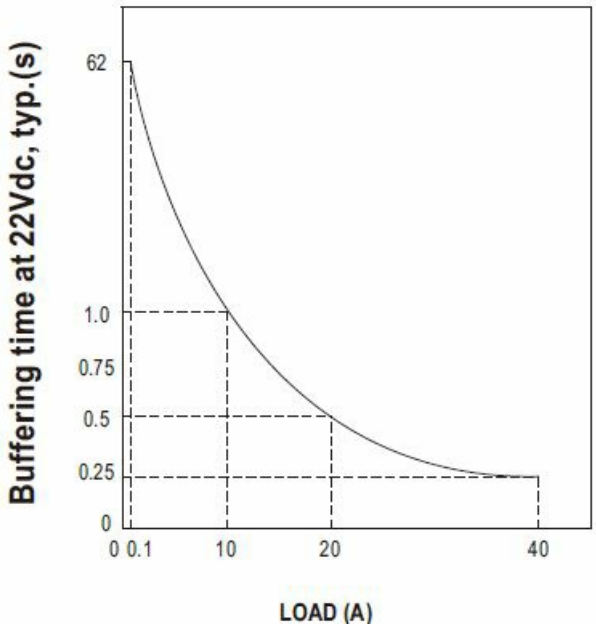
Block Diagram



Derating Curve

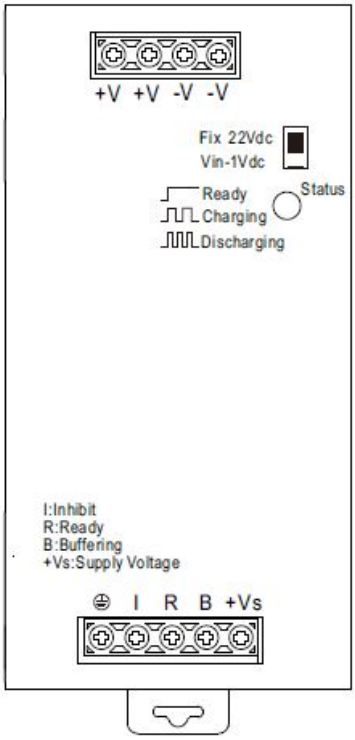


Buffering Curve



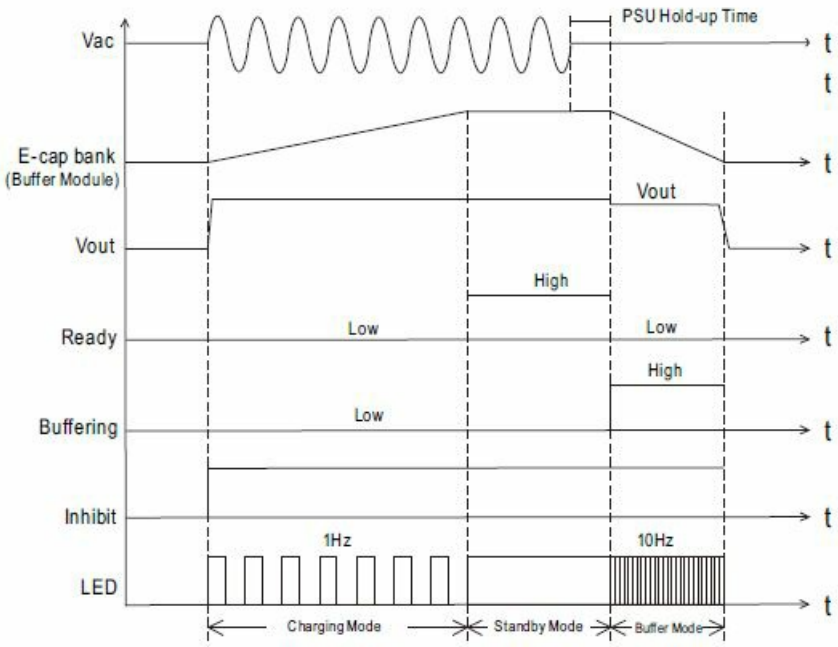
Function Manual

user Elements

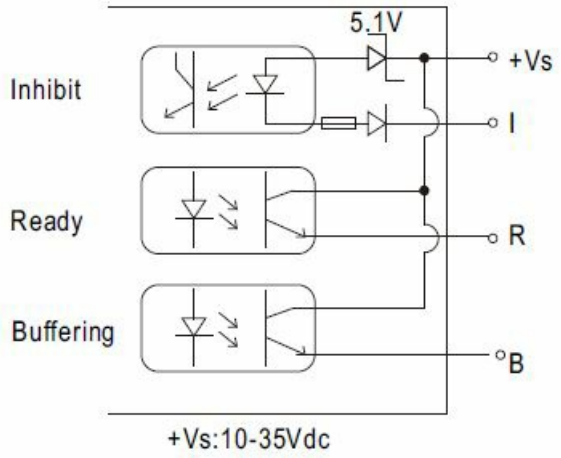


- **Back-up Threshold Voltage Selectable by Switch:**
  - **Option** 1: Fixed mode (Switch in Fix 22Vdc) The unit switches to buffer mode as soon as the voltage falls below 22Vdc.
  - **Option** 2: Dynamic mode (Switch in Vin-1Vdc) Unit switches to buffer mode when input voltage decreases by 1Vdc.
  - **Note:** Factory setting is fixed mode.
- **LED Indicator Status:**
  - **LED OFF:** Capacitors are discharged.
  - **LED ON:** Capacitors are fully charged.
  - **LED Flashing slowly** (1Hz): Capacitors are getting charged.
  - **LED Flashing quickly** (10Hz): Capacitors are getting discharged.
- **Signal Connector:**
  - **Inhibit, +Vs – V(1)<6Vdc:**
    - Buffer module ON; +Vs -V(I)>10Vdc:
    - Buffer module OFF.
  - **Ready, Charged ready:** V(R)>+Vs – 2Vdc; Unready: V(R)<1Vdc.
  - **Buffering, Buffering:** V(B)>+Vs – 2Vdc; Other mode: V(B)<1Vdc.

Operating Diagram



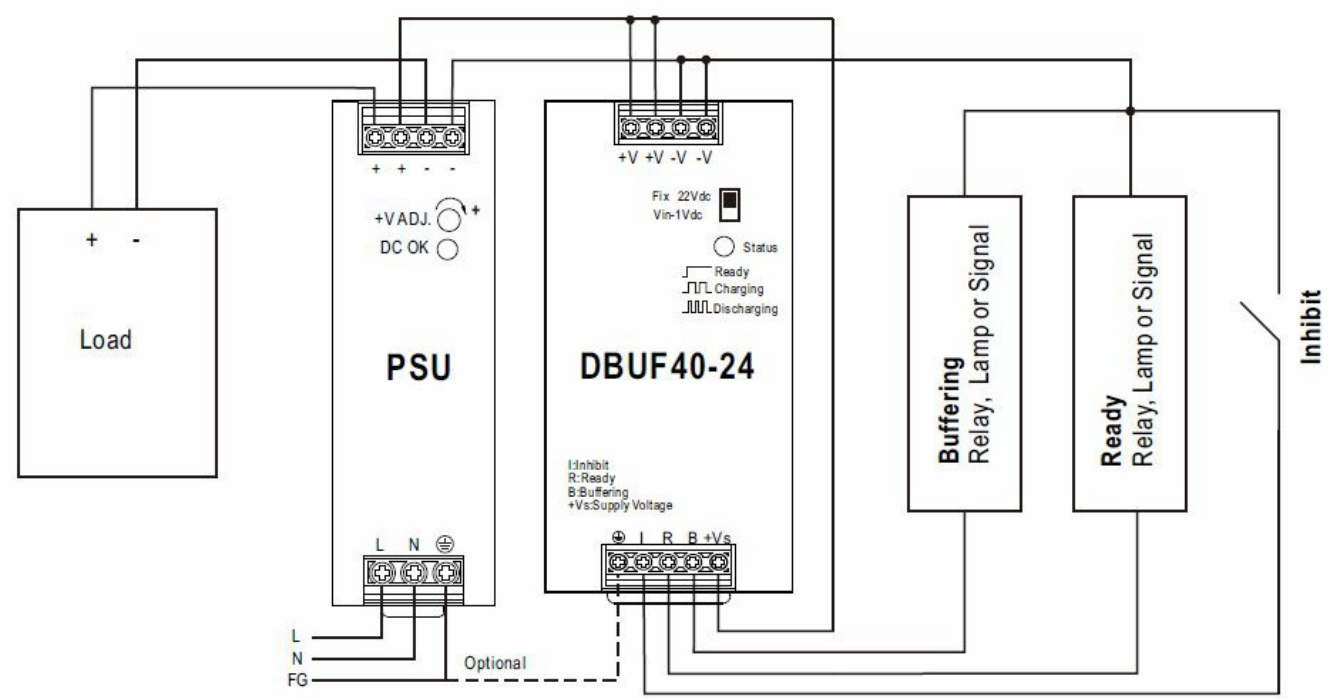
Signal Schematics



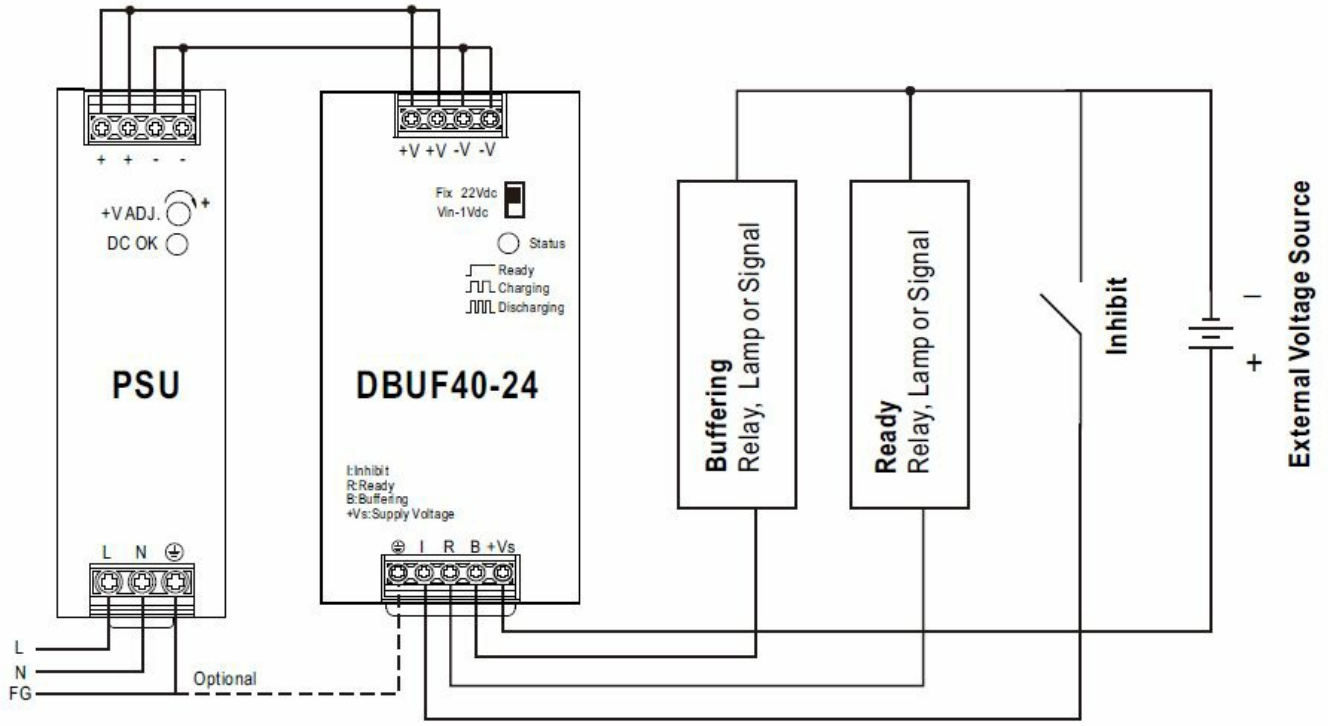
(+Vs can connected to DBUF40 "+V" or external voltage source,Please refer to "Typical Application Notes")

Typical Application Notes

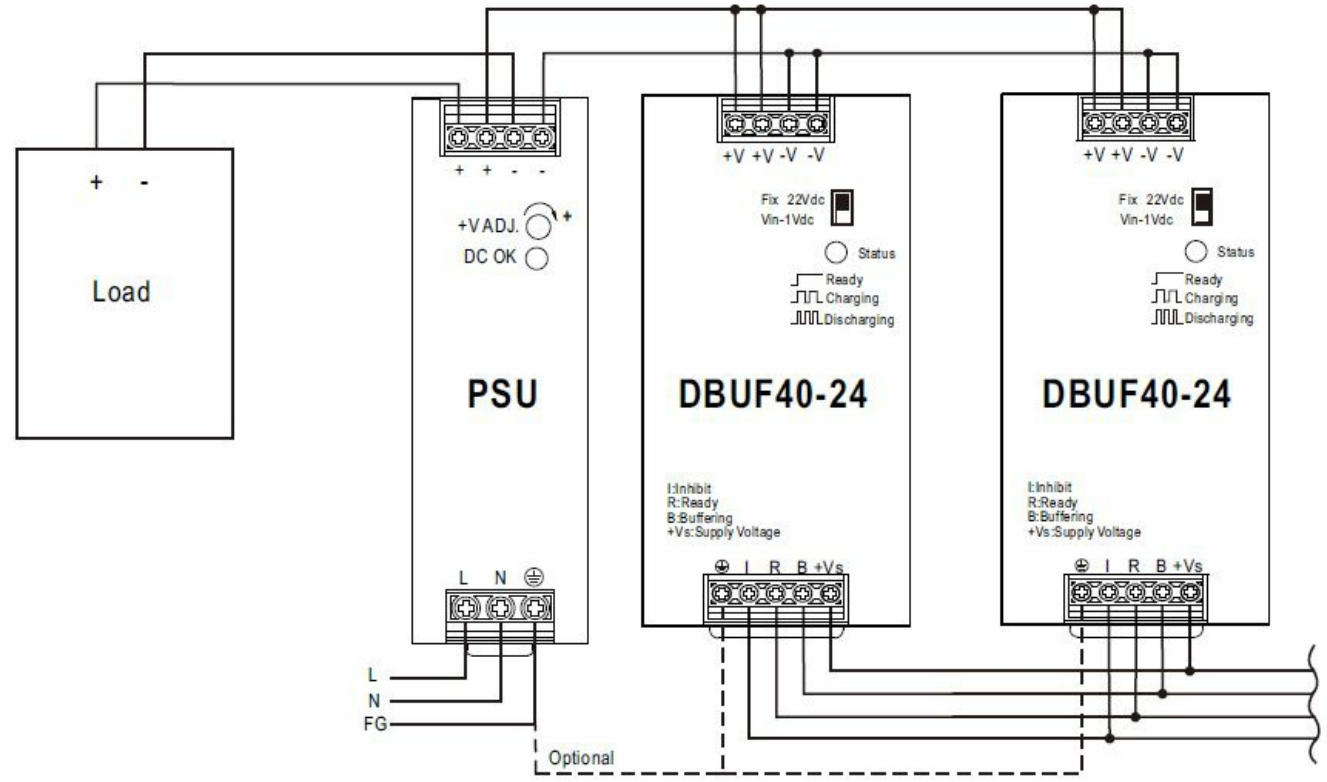
1. General wiring diagram



2. Signals supplied from an external voltage



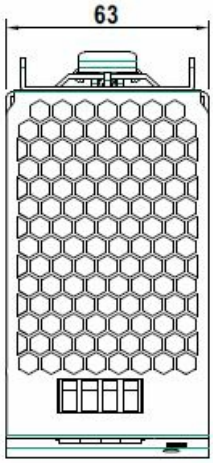
3. Paralleling of buffer units

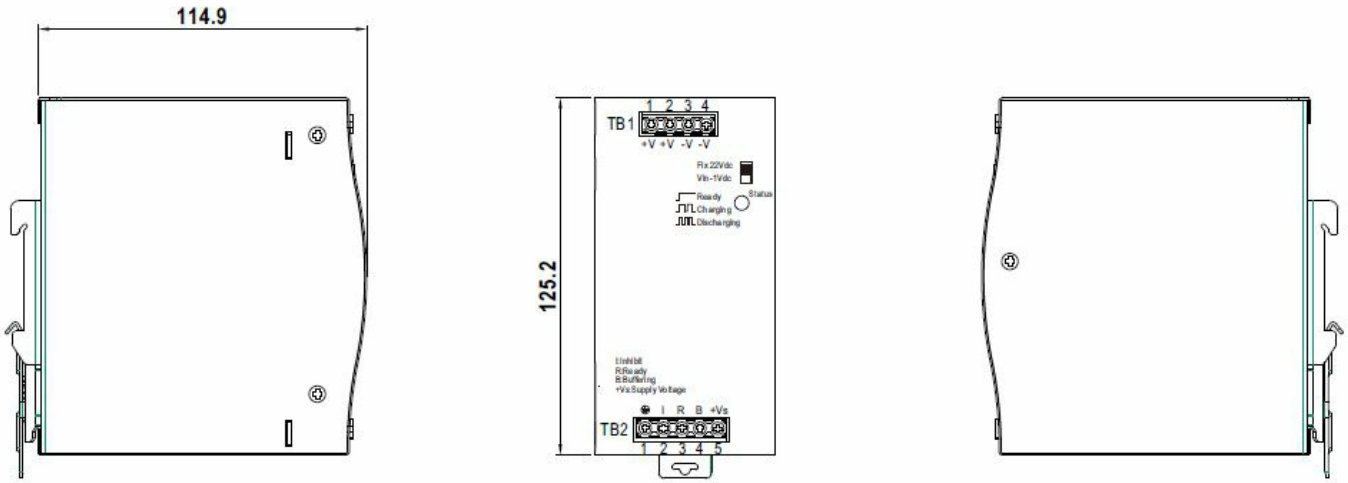


Mechanical Specification

Terminal Pin No. Assignment (TB 1)

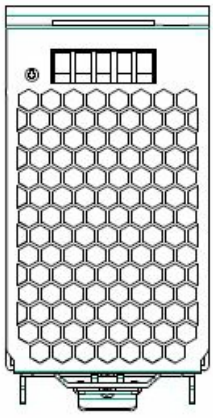
Pin No.	Assignment
1,2	DC +V
3,4	DC -V



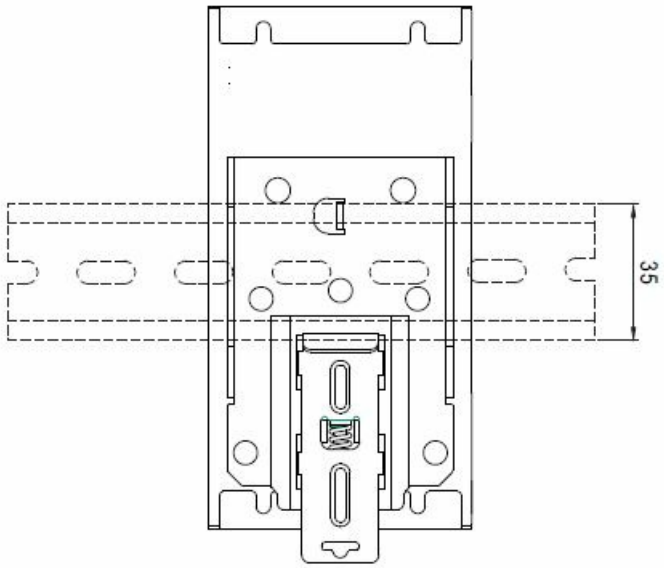


Terminal Pin No. Assianment (TB2)

Pin No.	Assignment
1	FG
2	Inhibit (I)
3	Ready (R)
4	Buffering (B)
5	Supply Voltage (+Vs)



Installation Instruction



- This series fits DIN rail TS35/7.5 or TS35/15. For installation details, please refer to the Instruction manual.
- ADMISSIBLE DIN-RAIL:TS35/7.5 or TS35/15 (For reference only. Not included with unit.)

Installation Manual Please refer to : **http://www.meanwell.com/manual.html**

Documents / Resources

	**MEAN WELL DBUF40-24 24V/40A DIN Rail Type Buffer Module** [pdf] Owner's Manual DBUF40-24 24V 40A DIN Rail Type Buffer Module, DBUF40-24 24V, 40A DIN Rail Type Buffer Module, Type Buffer Module, Buffer Module, Module

References

- **MEAN WELL Switching Power Supply Manufacturer**