



■ Features

- Buffering with electrolytic capacitors instead of lead acid batteries
- Type buffering time of 350ms @22Vdc/20A
- Buffer mode selectable by switch:
 - Fixed mode at 22Vdc
 - Dynamic mode for $V_{in}-1Vdc$
- LED indicator for signal status
- Supports parallel connection to extend buffering time
- Cooling by free air convection
- $-25\sim+75^{\circ}C$ wide operating temperature
- 3 years warranty

■ Applications

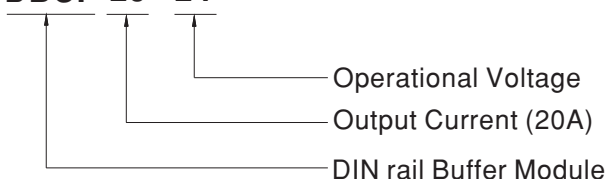
- Industrial control system
- Semiconductor fabrication equipment
- Factory automation
- Electro-mechanical apparatus

■ Description

The DBUF20-24 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 DBUF20-24 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

DBUF 20 - 24





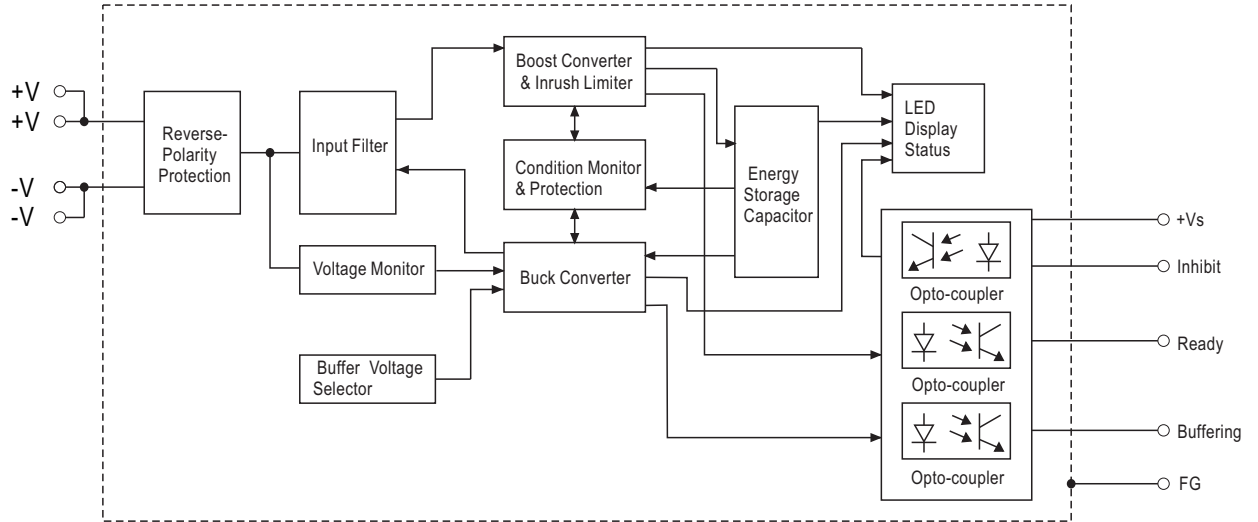
SPECIFICATION

| MODEL | DBUF20-24 | | | | |
|-----------------------------|--|---|--|-------|------|
| CHARGING MODE | DC NORMAL OPERATING VOLTAGE | 24Vdc | | | |
| | CHARGING VOLTAGE | 23~30Vdc | | | |
| | CHARGING CURRENT | 900mA Max. | | | |
| | CURRENT CONSUMPTION AT STANDBY | 100mA Max. | | | |
| | CHARGING TIME | 15s Typ. | | | |
| 25s Max. | | | | | |
| BUFFER MODE | DC NORMAL OPERATING VOLTAGE | 22Vdc/Vin-1Vdc | | | |
| | DC OPERATING VOLTAGE RANGE | 22-29Vdc | | | |
| | OUTPUT CURRENT(max.) | 20A | | | |
| | BUFFER TIME (Refer to Buffering Curve at 22Vdc) | Output current | 20A | 10A | 0.1A |
| | | Typ. | 350ms | 700ms | 45s |
| | | Min. | 250ms | 500ms | 30s |
| RIPPLE & NOISE (max.) | Note.2 | 200mVp-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 | | | | |
| FUNCTION | 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. | | |
| | SIGNALS | Ready(R) | Charged ready: V(R)>+Vs - 2Vdc; Unready: V(R)<1Vdc | | |
| | | | 35Vdc /10mA Max. | | |
| | | 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) | | | | |

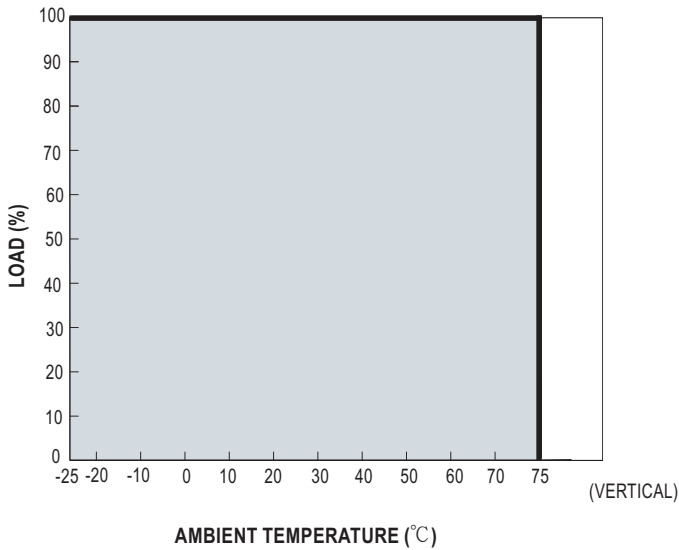


| | | | | |
|--------------------------|--|--|---|--|
| ENVIRONMENT | WORKING TEMP. | -25~+75°C(Refer to"Derating Curve") | | |
| | WORKING HUMIDITY | 5 ~ 95% RH non-condensing | | |
| | STORAGE TEMP. | -25~+80°C | | |
| | SHOCK TEST | IEC60068-2-27,30G (300m/S ²) for a duration of 18ms,1 time per direction,2 times in total | | |
| | TEMP. COEFFICIENT | ±0.03%/°C (0 ~ 75°C) | | |
| | 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 /OVC II | | |
| 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°C / 70% RH | | |
| | EMC EMISSION | Parameter | Standard | Test Level / Note |
| | | Conducted | EN55032 | Class B |
| | | Radiated | EN55032 | Class B |
| | | Voltage Flicker | ----- | ----- |
| | | Harmonic Current | ----- | ----- |
| | EMC IMMUNITY | EN55035, EN61000-6-2 | | |
| | | Parameter | Standard | Test Level / Note |
| | | ESD | EN61000-4-2 | Level 4, 15KV air ; Level 3, 8KV contact; criteria A |
| | | Radiated | EN61000-4-3 | Level 3, 10V/m ; criteria A |
| | | EFT / Burst | EN61000-4-4 | Level 3, 2KV ; criteria A |
| Surge | | EN61000-4-5 | Level 3, 1KV/Line-Line ;Level 3, 2KV/Line-Line-FG ;criteria A | |
| Conducted | | EN61000-4-6 | Level 3, 10V ; criteria A | |
| Magnetic Field | | EN61000-4-8 | Level 4, 30A/m ; criteria A | |
| OTHERS | MTBF | 164.84K hrs min. MIL-HDBK-217F (25°C) ; 513.46K hrs min. Telcordia TR/SR-332 (Bellcore) (25°C) 107.97K hrs min. MIL-HDBK-217F (40°C) ; 255.89K hrs min. Telcordia TR/SR-332 (Bellcore) (40°C) | | |
| | DIMENSION | 63*125.2*114.9mm (W*H*D) | | |
| | PACKING | 1.062Kg; 12pcs/12.8Kg/0.74CUFT | | |
| NOTE | <p>1. All parameters NOT specially mentioned are measured at normal input, rated load and 25°C of ambient temperature.</p> <p>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μf & 47 μf parallel capacitor.</p> <p>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).</p> <p>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 EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com)</p> | | | |

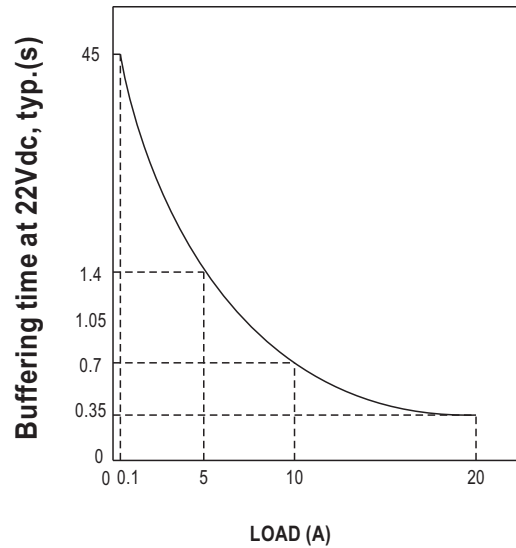
Block Diagram



Derating Curve

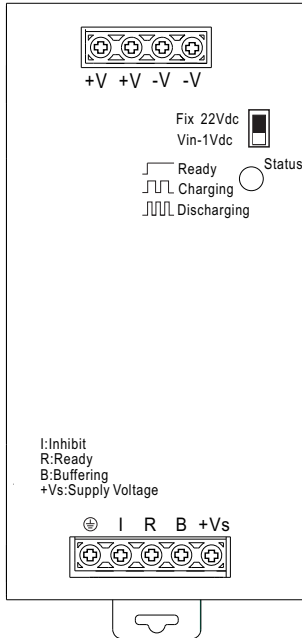


Buffering Curve



Function Manual

1. 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.

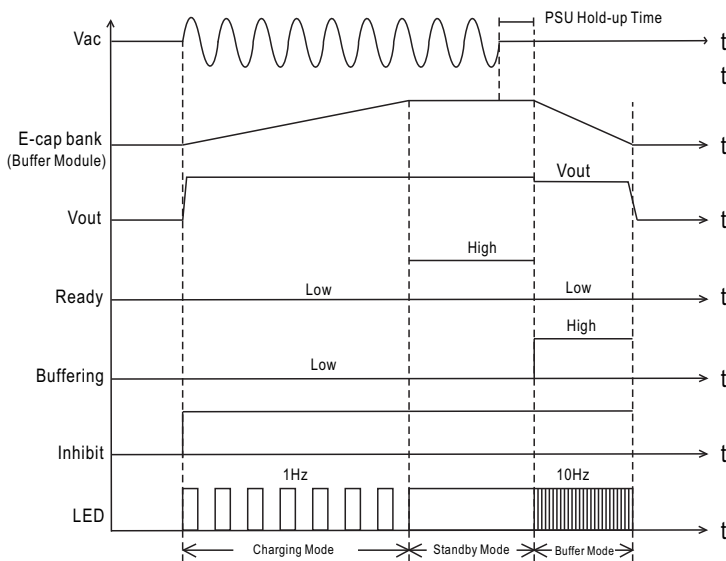
Signal Connector:

- Inhibit, +Vs - V(I) < 6Vdc: Buffer module ON; +Vs - V(I) > 10Vdc: Buffer module OFF.

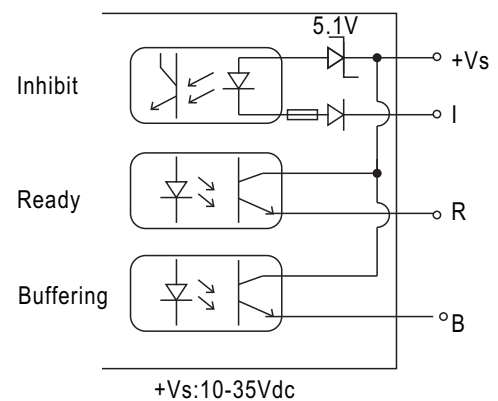
- Ready, Charged ready: V(R) > +Vs - 2Vdc; Unready: V(R) < 1Vdc.

- Buffering, Buffering: V(B) > +Vs - 2Vdc; Other mode: V(B) < 1Vdc.

2. Operating Diagram



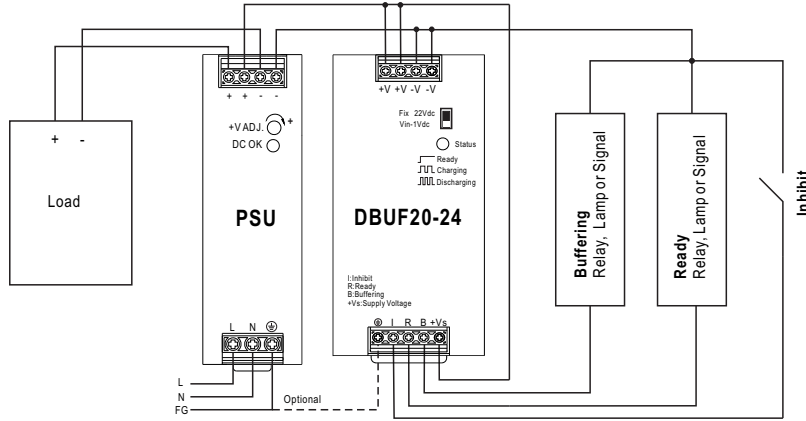
3. Signal Schematics



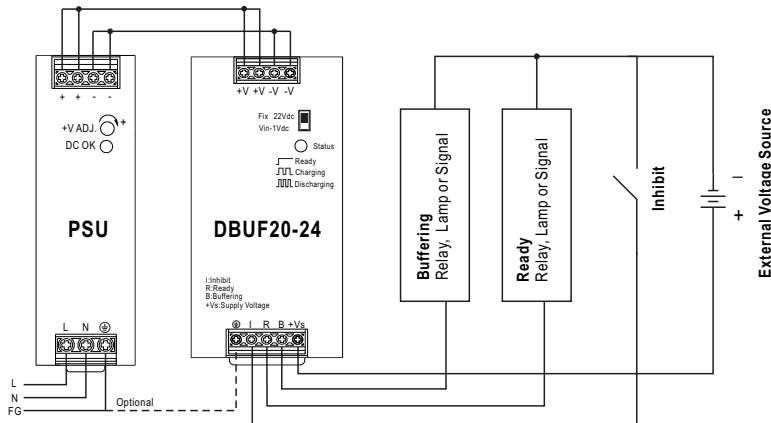
(+Vs can connected to DBUF20 "+V" or external voltage source, Please refer to "Typical Application Notes")

Typical Application Notes

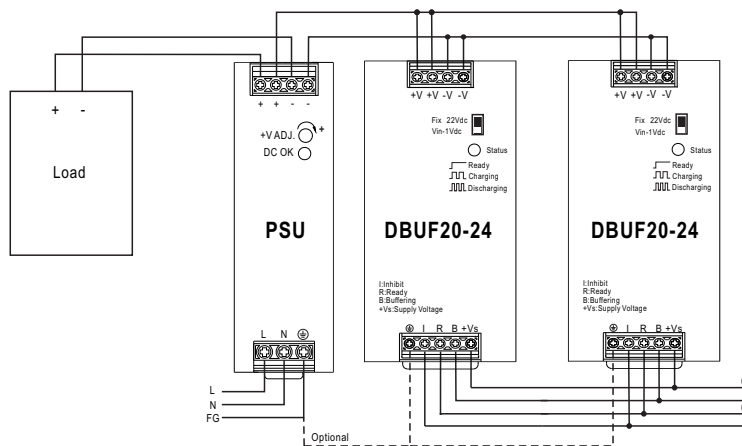
1. General wiring diagram



2. Signals supplied from an external voltage



3. Paralleling of buffer units

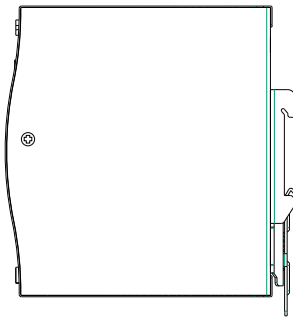
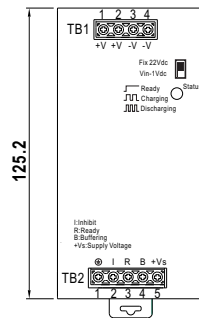
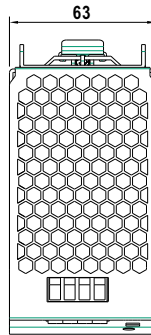
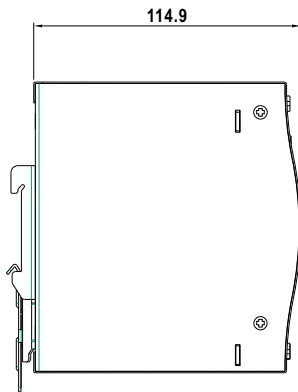


Mechanical Specification

Case No. 979E Unit:mm

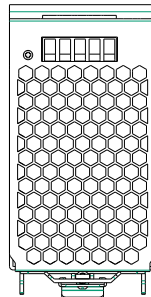
Terminal Pin No. Assignment (TB1)

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

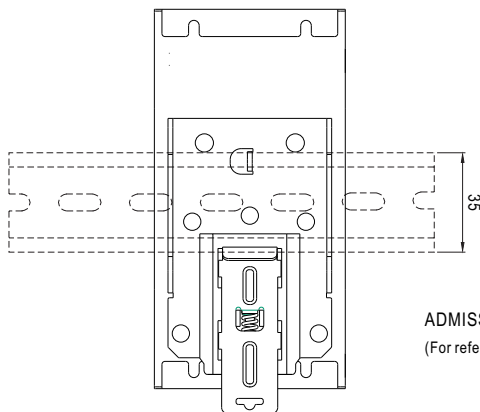


Terminal Pin No. Assignment (TB2)

| 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>