DESCRIPTIONS DC-DC Buffer Module



RoHS

UL62368-1

FEATURES

- Input voltage range：23 - 30VDC
- Operating ambient temperature range：-40℃ to +85℃
- 22Vdc fixed mode or Vin-1 dynamic mode
- 400ms (typ) High buffer time at 22V/20A
- 2000VDC High insulation voltage
- Double side conformal coating
- Operating altitude up to 5000m
- Input anti-reverse connection ,Output over-voltage, over-load, short circuit protection
- OVCIII (According toEN62477， 2000m)
- Supported parallel operation to extend buffer time
- Comply with IEC/EN/UL62368, UL61010, GB4943 certification standards

APPLICATIONS

- industrial control,
- power
- security
- communication

Selection Guide

Certification	Part No.	Output Voltage(V)	Output Current(A) Max.	Output Power(W)
UL	ADB20-24	24	20	480

Note：The product picture is for reference only. For details, please refer to the actual product.

Specifications

Product Specifications	Item		Operating Conditions	Min.	Typ.	Max.	Unit
Input Specifications	Charging Voltage Range		DC input	23	24	30	VDC
	Charging Current			--	--	900	mA
	Standby consumption current			--	--	100	mA
	Charging time				15	25	s
Output Specifications	Operating voltage mode		Select by mode switch	--	22/Vin-1	--	V
	Operating voltage range			22	--	30	V
	Output current			--	20	--	A
	Ripple noise		20MHz bandwidth, peak-to-peak	--	--	150	mV
	Buffer time		Output 22V/20A	250	400	--	ms
			Output22V/10A	500	800	--	
			Output22V/0.1A	30	50	--	s
	Over-voltage protection			31-37.5V, Locked			VDC
	Over-load protection			≥120%Io,Locked ,Power off and restart			
	Short-circuit protection			Lock protection,Power off and restart			
	Input reverse protection			No damage, self-healing			
	Switch selection		Fix 22Vdc	When the terminal voltage is lower than 22Vdc, start buffering			
			Vin-1	When the terminal voltage drops by more than 1V, start buffering			
	Controls		Inhibit（I）	+Vs-V (I) <6V, buffer module on, +Vs-V (I) >10V, buffer module off (35Vdc /4mA Max)			
	Signal		Ready（R）	Fully charged: V (R) >Vs-2VDC, Not full: V (R) <1VDC (35Vdc /4mA Max)			
			Buffering (B)	Buffering mode: V(B)>+Vs - 2Vdc; Other mode: V(B)<1Vdc （35Vdc /4mA Max）			
			+VS supply	10~35VDC/10mA（Connect to +V or external voltage source）			
	LED		Fully charged	Remain lighting			
			Discharged/protected	Light off			
			Charging	1Hz flicker			
			Buffering	10Hz flicker			
General Specifications	Isolation Test*	Input&Output - ⏚	Electric strength test for 1min., leakage current <5mA	2000	--	--	VDC
	Insulation Resistance	Input&Output - ⏚	Test voltage: 500VDC	50	--	--	MΩ

	Operating Temperature	No condensation		-40	--	+85	℃
	Storage Temperature	No condensation		-40	--	+85	
	Storage Humidity	Non-condensing		--	--	90	%RH
	Power Derating	Operating temperature derating	-40℃ to -25℃	2.67	--	--	%/℃
			+75℃ to +85℃	2	--	--	
	Safety Class			CLASS I			
	MTBF	MIL-HDBK-217F@25℃		> 300,000 h			
Environmental Characteristics	High and Low Temperature Working	+85℃, -40℃		GB2423.1、IEC60068-2-1			
	Sinusoidal Vibration	10 - 500Hz, 2g, three directions of X, Y, Z axis		GB2423.10、IEC60068-2-6			
	Alternating Hot and Humid	+25℃, 95%RH - +60℃, 95%RH		GB2423.4、IEC60068-2-30			
	Low Temperature Storage	-40℃		GB2423.1、IEC60068-2-1			
	High Temperature Storage	+85℃		GB2423.2、IEC60068-2-2			
	High Temperature Aging	+60℃		GB2423.2、IEC60068-2-2			
	Normal Temperature Aging	+25℃		GB2423.1、IEC60068-2-1			
	Temperature Shock	-40℃ to +85℃		GB2423.22、IEC60068-2-14			
	Temperature Cycle	-25℃ to +60℃		GB2423.22、IEC60068-2-14			
	Hot and Humid	+85℃, 85%RH		GB2423.50、IEC60068-2-67			
	High Temperature Elevation	+60℃, 54KPa		GB2423.26、IEC60068-2-41			
	Low Temperature Elevation	-25℃, 54KPa		GB2423.25、IEC60068-2-40			
	Constant Humid and Hot	+40℃, 95%RH		GB2423.3、IEC60068-2-78			
	Random Vibration	5 - 10Hz, ASD 0.3 - 10g²/Hz, three directions of X, Y, Z axis		GB/T 4798.2-2008、IEC60721-3-2			
	Sinusoidal Vibration Response	10 - 150Hz, 2g, three directions of X, Y, Z axis		GB/T 11287-2000、IEC60255-21-1			
	Sinusoidal Vibration Endurance Test						
	Sinusoidal Impulse Response	15g, pulse duration 11ms, three times in each direction of X, Y, Z axis		GB/T 114537-1993、IEC60255-21-2			
	Sinusoidal Impact Endurance Test						
	Packaging Drop	1m, one corner, three edges and six sides		GB2423.8、IEC68-2-32			
Mechanical Specifications	Case Material	Metal(AL5052, SGCC)					
	Dimensions	114.30mm x 63.00mm x 125.00mm					
	Weight	910g (Typ.)					
	Cooling Method	Air cooling					

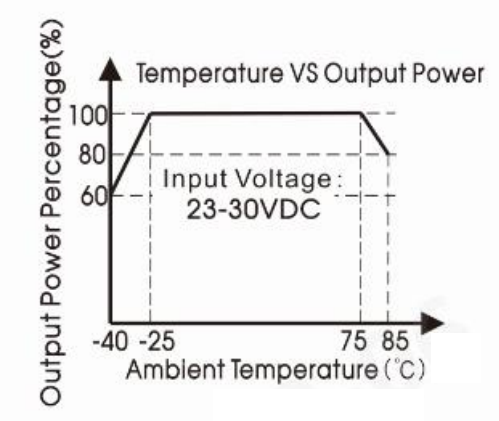
Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor.

Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	Emissions (EMI)	CE（Test Conditions 24V/20A）	CISPR32/EN55032 CLASS B	
		RE（Test Conditions 24V/20A）	CISPR32/EN55032 CLASS B	
	Immunity (EMS)	ESD	IEC/EN 61000-4-2 Contact ±8KV/Air ±15KV	Perf. Criteria A
		RS	IEC/EN 61000-4-3 10V/m	perf. Criteria A
		EFT	IEC/EN 61000-4-4 ±2KV	perf. Criteria A
		Surge	IEC/EN 61000-4-5 line to line ±1KV/line to ground ±2KV	perf. Criteria A
		CS	IEC/EN61000-4-6 10 Vr.m.s	perf. Criteria A

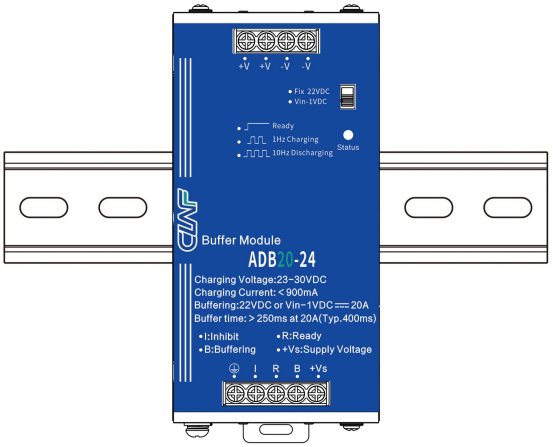
Note: Electromagnetic interference (EMC) and electromagnetic sensitivity (EMS) tests: an AC-DC module shall be added at the front stage (it is recommended to use together with our company's ADx, ADF, ADMF and ADHF480 series products).

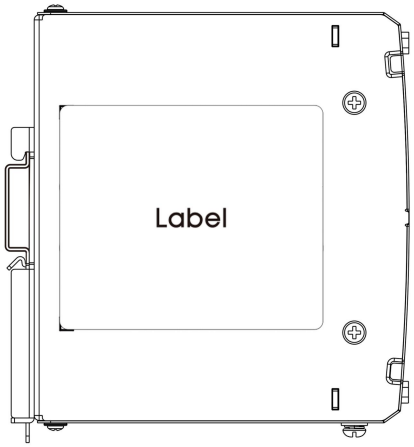
Characteristic Curve



Note: This product is suitable for use in natural air cooling environment.

Installation Diagram





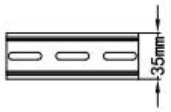
Bill Of Material		
1	Product	
2	Phillips screwdriver Slotted screwdriver	
3	TS35/7.5 or TS35/15	
4	24–10AWG wires	
	All above is only for reference ,the actual wiring diameter and locking torque refer to the appearance size diagram	



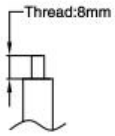
Product



Phillips screwdriver
Slotted screwdriver
Diameter of the cutting tools: M3



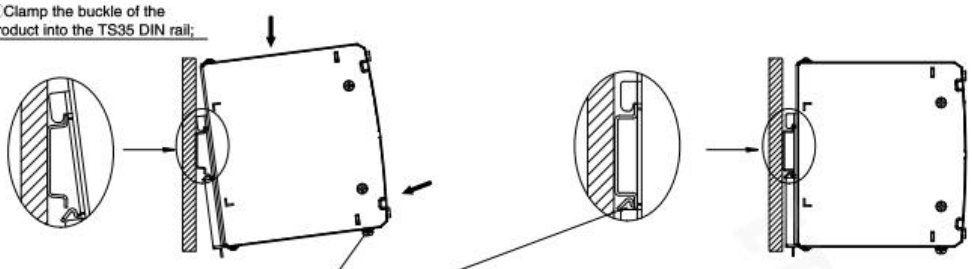
TS35/7.5 or TS35/15



24–10AWG wires

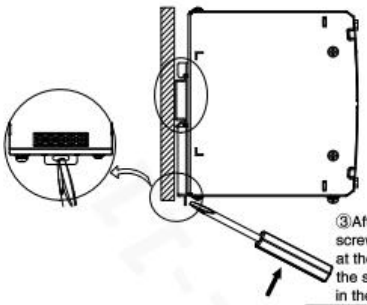
Installation procedure ①–②

①Clamp the buckle of the product into the TS35 DIN rail;

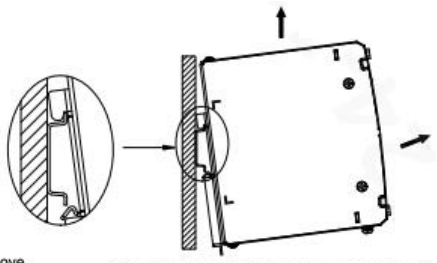


②Push the product vertically towards the TS35 DIN rail until hearing the sound of the buckle snapping into it.

Remove the step ③–④

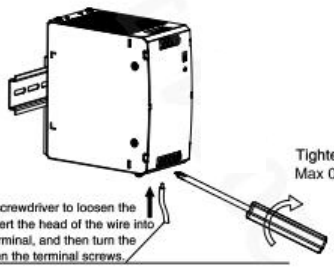


③After inserting the Slotted screwdriver into the square groove at the bottom of the buckle, push the slider of the buckle downward in the direction shown in the figure.



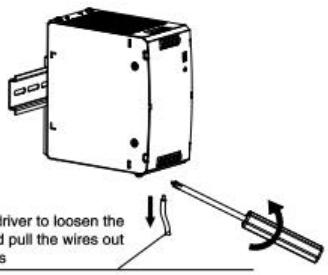
④Hold the bottom of the product and push it outwards, then lift the product up to take the product out of the DIN rail.

Procedure for connect/remove steps ⑤–⑥



⑤Use the Phillips screwdriver to loosen the terminal screws, insert the head of the wire into the bottom of the terminal, and then turn the screwdriver to tighten the terminal screws.

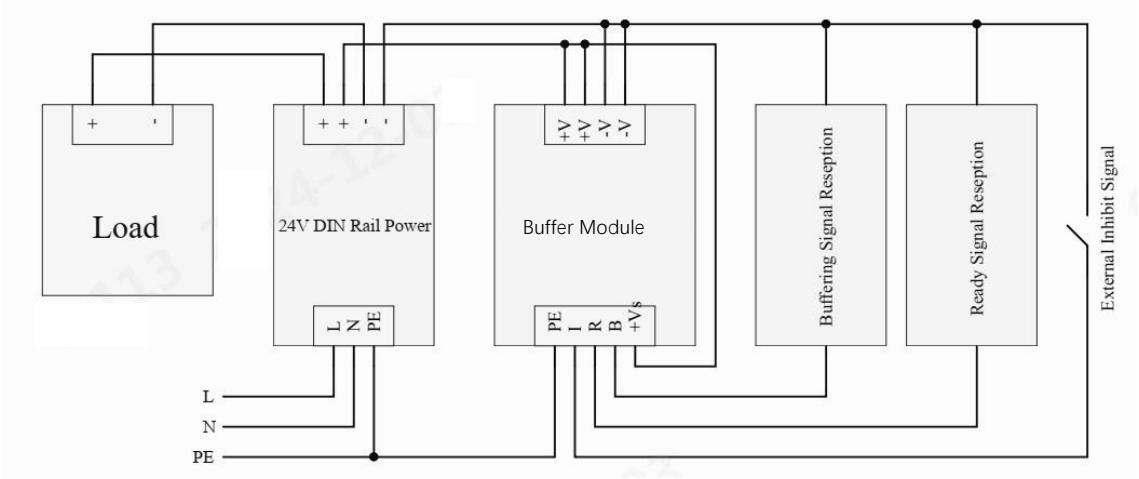
Tightening torque:
Max 0.5 N · m(For reference);



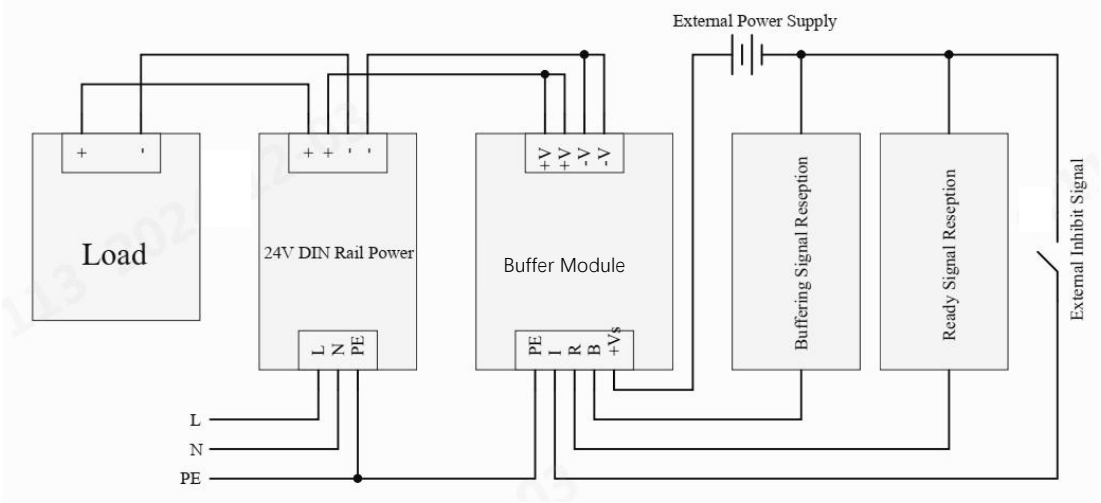
⑥The Phillips screwdriver to loosen the terminal screws and pull the wires out of the terminal holes

Application Diagram

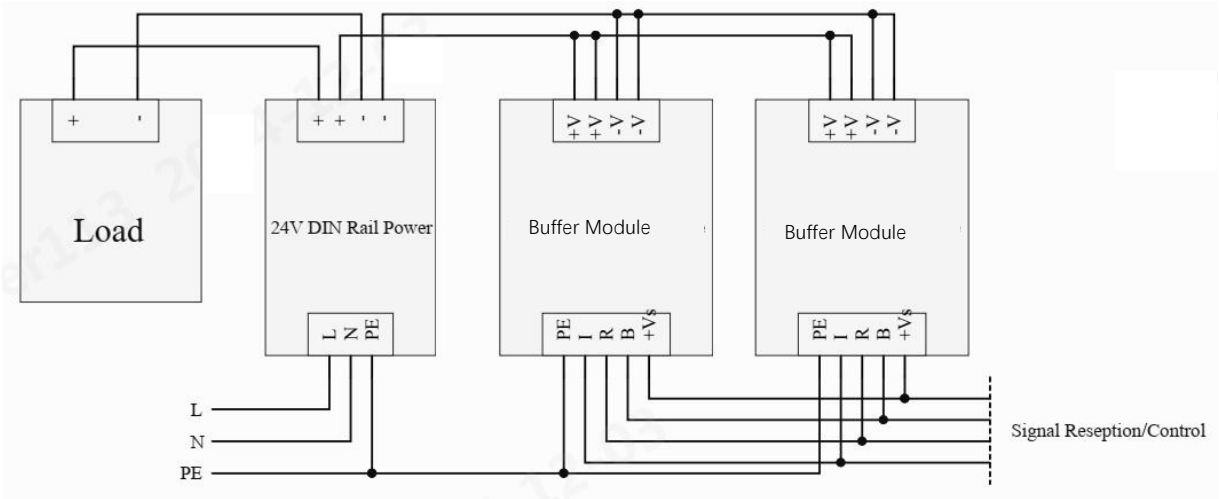
- General application **Buffer Module**



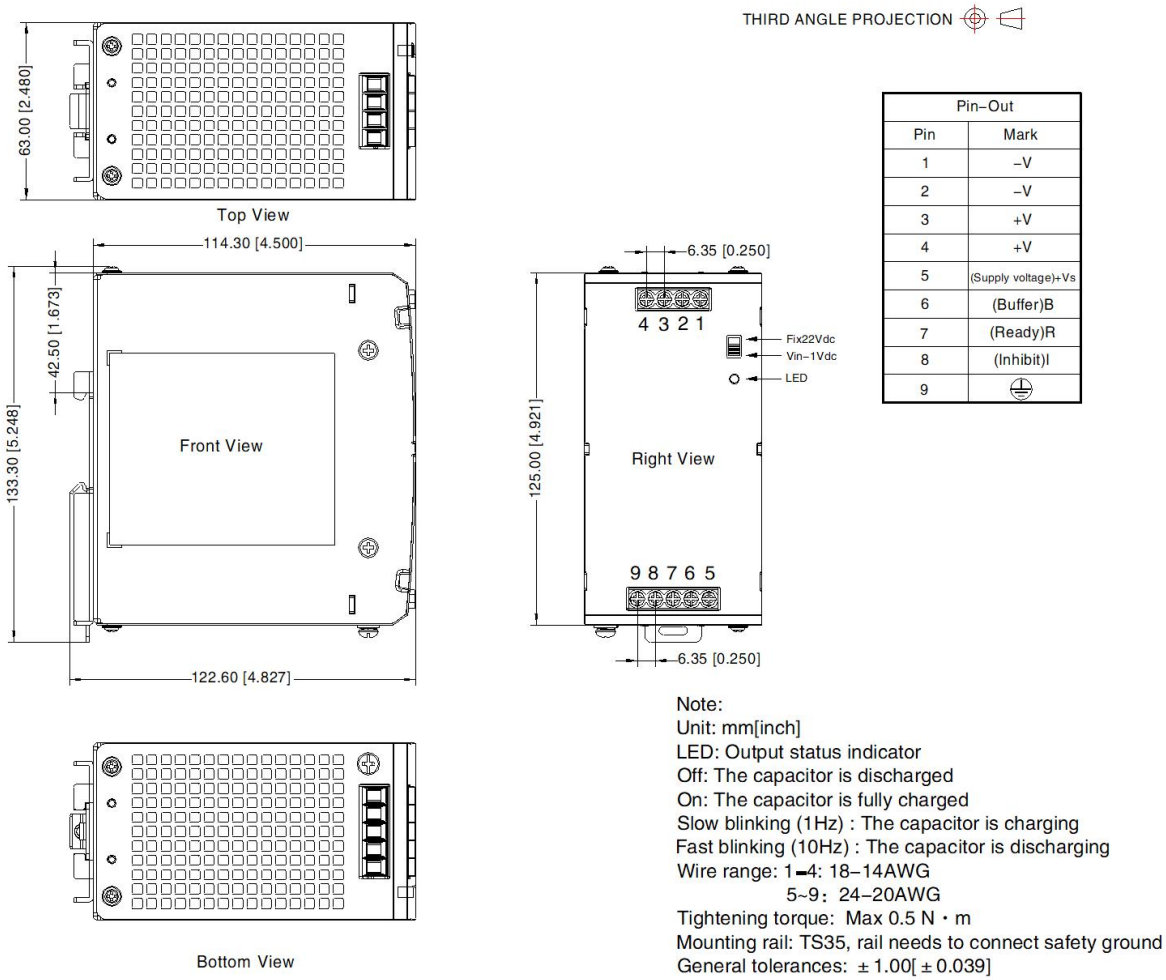
- Signal provided by an external power source



- Parallel operation



Dimensions and Recommended



Pin-Out	
Pin	Mark
1	-V
2	-V
3	+V
4	+V
5	(Supply voltage)+Vs
6	(Buffer)B
7	(Ready)R
8	(Inhibit)I
9	⏚

Note:
Unit: mm[inch]
LED: Output status indicator
Off: The capacitor is discharged
On: The capacitor is fully charged
Slow blinking (1Hz) : The capacitor is charging
Fast blinking (10Hz) : The capacitor is discharging
Wire range: 1-4: 18-14AWG
5~9：24-20AWG
Tightening torque: Max 0.5 N・m
Mounting rail: TS35, rail needs to connect safety ground
General tolerances: ±1.00[±0.039]

Note:

1.Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity <75%RH with nominal input voltage and rated output load;

2.The room temperature derating of 5℃/1000m is needed for operating altitude greater than 2000m;

3.All index testing methods in this datasheet are based on our company corporate standards;

4.In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;

5.Products are related to laws and regulations: see "Features" and "EMC";

6.The out case needs to be connected to PE () of system when the terminal equipment in operating;

7.Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;

8.The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions;

9.The image certification marks are for reference only; please refer to the selection table for actual specifications. Certification is based on the physical mark or packaging label.