DTJ20 series

XP Power

20W

DC-DC power supplies

Housed in a chassis mount or optional DIN rail mount package (suffix -D), with screw terminals for ease of connection, the DTJ20 take a nominal 12/24 or 24/48VDC input and convert to a fixed single voltage between 3.3 & 15VDC or dual voltage between ±5.0 and ±15VDC, an LED indicator provides clear 'power good' indication.

The 20W chassis mount and DIN rail mount DC-DC converters allows for easy and convenient integration into a variety of industrial and commercial applications. Typical uses are: Communication systems; Door control; Elevator/travellator/escalator control; Fun fair/amusement/gaming systems; Process monitoring & control; Robotics; Surveillance & detection; System & safety monitoring; Telemetry & many other applications.



Features

- Regulated single & dual outputs 3.3V to 30VDC
- Wide 4:1 input range
- Chassis mount with optional DIN rail clip
- UL62368-1 safety approvals
- EN55032 class A
- Remote On/Off & voltage trim function
- 3kVDC isolation
- -40°C to +100°C operating temperature
- Full power to +70°C
- 3 year warranty

Applications

Industrial

Instrumentation

Process control

Robotics

Technology

Dimensions

76.2 x 31.4 x 19.4mm (3.00" x 1.24" x 0.77")

Documentation

For further information click the link or scan the code

→ xppower.com

Models & ratings

Model number[3,4]	Input voltage	Output voltage	Output current	Input current[1,5]		Maximum capacitive load[6]	Efficiency[2]
				No load	Full load		
DTJ2024S3V3	24VDC (9-36VDC)	3.3VDC	5.50A	10mA	859mA	10000µF	88%
DTJ2024S05		5.0VDC	4.00A	10mA	947mA	6800µF	88%
DTJ2024S12		12.0VDC	1.67A	10mA	954mA	1000µF	87%
DTJ2024S15		15.0VDC	1.33A	15mA	955mA	680µF	87%
DTJ2024D05		±5.0VDC	±2.00A	10mA	980mA	±2200µF	85%
DTJ2024D12		±12.0VDC	±0.835A	15mA	954mA	±470µF	87%
DTJ2024D15		±15.0VDC	±0.665 A	15mA	950mA	±330µF	87%

Continued on pg2.

Notes:

1. Input current measured at nominal input voltage.
2. Typical values.
3. For optional version fitted with DIN Clip add suffix '-D' e.g. DTJ2024S12-D.
4. For optional factory fitted heatsink add suffix '-HK' e.g. DTJ2024S12-HK or DTJ2024S12-HKD with DIN clip.
5. Input current is typically 2.0mA at nominal input voltage when output is remotely turned off.
6. Per output.

DTJ20 series

Models & ratings

Model number[3,4]	Input voltage	Output voltage	Output current	Input current[1,5]		Maximum capacitive load[6]	Efficiency[2]
				No load	Full load		
DTJ2048S3V3	48VDC (18-75VDC)	3.3VDC	5.50A	8mA	427mA	10000µF	88%
DTJ2048S05		5.0VDC	4.00A	8mA	468mA	6800µF	89%
DTJ2048S12		12.0VDC	1.67A	8mA	469mA	1000µF	89%
DTJ2048S15		15.0VDC	1.33A	8mA	462mA	680µF	90%
DTJ2048D05		±5.0VDC	±2.00A	8mA	485mA	±2200µF	86%
DTJ2048D12		±12.0VDC	±0.835A	8mA	469mA	±470µF	89%
DTJ2048D15		±15.0VDC	±0.665A	10mA	464mA	±330µF	89%

Notes:

1. Input current measured at nominal input voltage.
2. Typical values.
3. For optional version fitted with DIN Clip add suffix '-D' e.g. DTJ2024S12-D.
4. For optional factory fitted heatsink add suffix '-HK' e.g. DTJ2024S12-HK or DTJ2024S12-HKD with DIN clip.
5. Input current is typically 2.0mA at nominal input voltage when output is remotely turned off.
6. Per output.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		36	VDC	12VDC & 24VDC nominal input voltage
	18		75		24VDC & 48VDC nominal input voltage
Input current	See models and ratings table				
Inrush current		35/45		A	DTJ2024 / DTJ2048 series
Reflected ripple current		20		mA pk-pk	Measured with 12µH and 47µF source values
Input filter	Pi type				
Undervoltage lockout	On at >8.8VDC, Off <8.0VDC				DTJ2024 models
	On at >17.5VDC, Off <16.0VDC				DTJ2048 models
Input surge			50	VDC	DTJ2024 models for 1s
			100		DTJ2048 models for 1s
Reverse polarity	Integrated protection				
Remote on/off	On: Logic High (3.0-12VDC) or open circuit pin 1.				
	Off: Logic Low (<1.2VDC) or short pin 2 to pin 1.				
	Idle Current: 2mA, typical				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3V3		30	VDC	See models and ratings table
Output voltage trim			±10	%	See application notes
Initial set accuracy			±3	%	At full load
Minimum load	No minimum load required				
Start Up delay		30		ms	At nominal input voltage
Line regulation			±0.5	%	From minimum to maximum input voltage
Load regulation			±0.5/±1.0	%	0 - 100% load. single/dual with balanced load
Cross regulation			±5	%	On dual output models with one output at 25% load and the other varied from 10% to 100% load.
Transient response			±8/±5	% deviation	3.3V single output / All other models. Recovery to within 1% in <250µs for a 25% load change
Ripple & noise			75	mV pk-pk	Single output. 20MHz bandwidth with 10µF/25V MLCC
			60		Dual output. 20MHz bandwidth with 10µF/25V MLCC
Short circuit protection	Continuous, trip & restart (hiccup mode), auto recovery				
Overload protection		170		%	Trip & restart (hiccup mode)
Overvoltage protection		140		%Vout	Internal voltage clamp
Temperature coefficient			±0.02	%/°C	

DTJ20 series

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		86		%	See models and ratings table
Isolation	3000			VDC	For 60s functional
Isolation resistance	1000			MΩ	
Input to output capacitance		2000		pF	
Switching frequency		270/330		kHz	3.3 & 5VDC single output / All other models
Mean time between failure	380			khrs	MIL-HDBK-217F, +25°C GB
Case material	Non conductive, black plastic UL94V-0. Power module copper case with epoxy potting UL94V-0				
Weight		45.0 (0.099)		g (lbs)	DIN rail option add 5.0g (0.011lbs), Heatsink option add 6.5g (0.014lbs)

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	See derating curve
Storage temperature	-55		+125	°C	
Case temperature			+105	°C	
Thermal impendance to air	12			°C/W	With heatsink 11°C/W
Humidity	5		95	%RH	Non-condensing
Coolling	Natural convection, 20LFM				
Altitude			5000	m	Operating

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	
Radiated	EN55032	Class A	

Emissions - Immunity

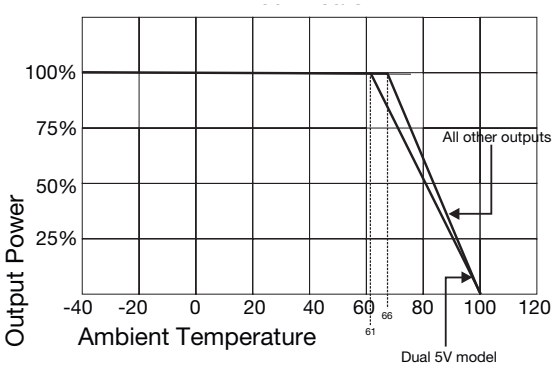
Phenomenon	Standard	Test level	Criteria	Notes & conditions
Immunity	EN55035			
ESD immunity	EN61000-4-2	±6kV contact, 8kV air discharge	B	
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/burst	EN61000-4-4	±2kV	A	Requires additional 330µF, 100VDC capacitor across input terminals
Surge	EN61000-4-5	±2kV	A	
Conducted	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	1000A/m	A	

Safety approvals

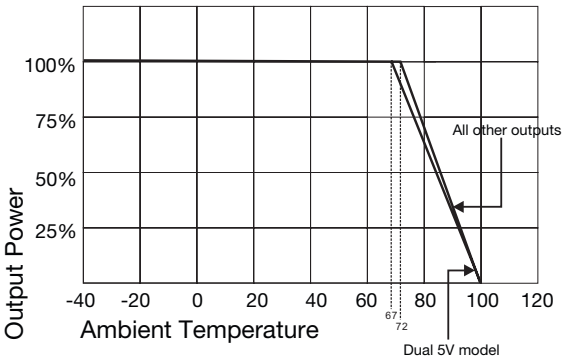
Certification	Standard	Notes & conditions
UL	UL60950-1/UL62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Application notes

Without heatsink

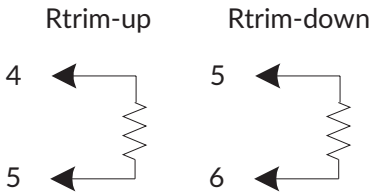


With heatsink



External output trimming

Output can be externally trimmed by using the method as below, (single output models only)



Trim Down Resistor Values

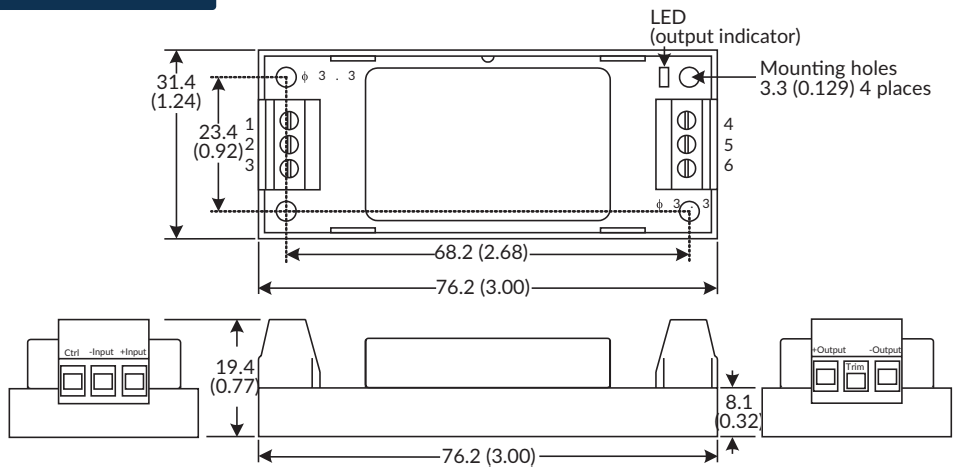
Models	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
3V3	309.0kΩ	165.4kΩ	105.6kΩ	72.9kΩ	52.3kΩ	38.0kΩ	27.6kΩ	19.7kΩ	13.5kΩ	8.40kΩ
5VDC	119.9kΩ	77.70kΩ	50.50kΩ	35.2kΩ	25.3kΩ	18.4kΩ	13.4kΩ	9.50kΩ	6.40kΩ	3.90kΩ
12VDC	345.0kΩ	138.1kΩ	79.90kΩ	51.5kΩ	34.6kΩ	23.4kΩ	15.5kΩ	9.50kΩ	4.90kΩ	1.26kΩ
15VDC	174.4kΩ	91.10kΩ	56.60kΩ	37.7kΩ	25.8kΩ	17.6kΩ	11.6kΩ	7.00kΩ	3.50kΩ	0.55kΩ

Trim Up Resistor Values

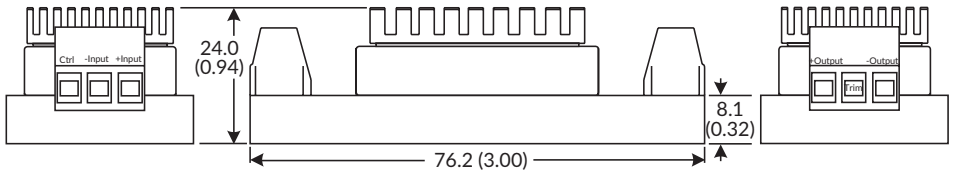
Models	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
3V3	537.7kΩ	177.1kΩ	96.40kΩ	60.8kΩ	40.8kΩ	27.9kΩ	19.0kΩ	12.4kΩ	7.30kΩ	3.40kΩ
5VDC	635.2kΩ	170.0kΩ	92.80kΩ	61.1kΩ	43.8kΩ	32.9kΩ	25.4kΩ	20.0kΩ	15.8kΩ	12.5kΩ
12VDC	367.4kΩ	179.6kΩ	113.6kΩ	79.9kΩ	59.5kΩ	45.8kΩ	35.9kΩ	28.5kΩ	22.7kΩ	18.1kΩ
15VDC	661.5kΩ	231.3kΩ	134.0kΩ	91.0kΩ	66.8kΩ	51.3kΩ	40.4kΩ	32.5kΩ	26.4kΩ	21.5kΩ

Mechanical details

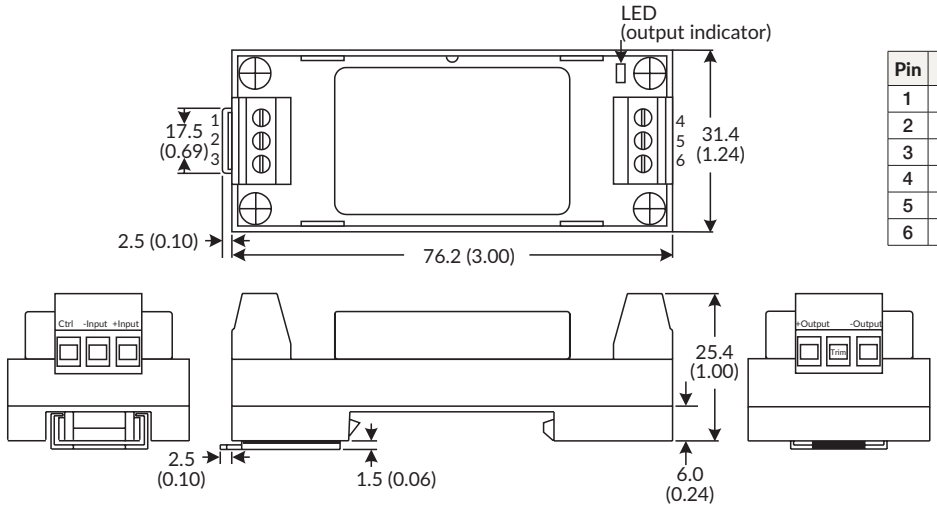
Chassis Mount



Chassis Mount with Heatsink -HK

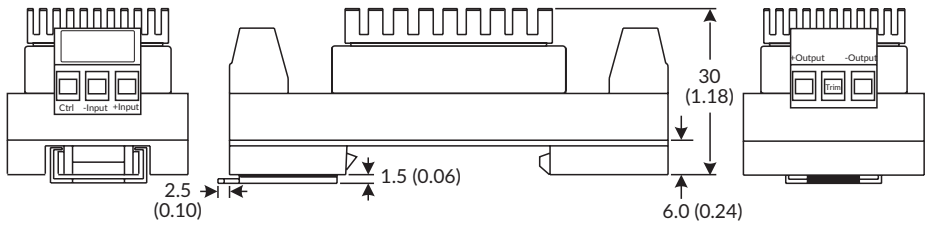


DIN rail -D



Pin	Single output	Dual output
1	Remote On/Off	Remote On/Off
2	-Vin	-Vin
3	+Vin	+Vin
4	-Vout	-Vout
5	Trim	Common
6	+Vout	+Vout

DIN Rail with Heatsink -HKD



Notes:

1. All dimensions are in mm (inches)
2. Weight: 45g (0.099lbs) approx
3. Weight for -D version: 55g (0.121lbs) approx
4. Terminal wire size 24 ~12AWG
5. Screw terminal torque 0.79Nm (7 lb-in)
6. Case tolerance: ±0.5 (±0.02)
7. Mounting rail: TS35
8. Heatsink is aluminium black anodic
9. Heatsink weight 6.5g (0.014lbs)