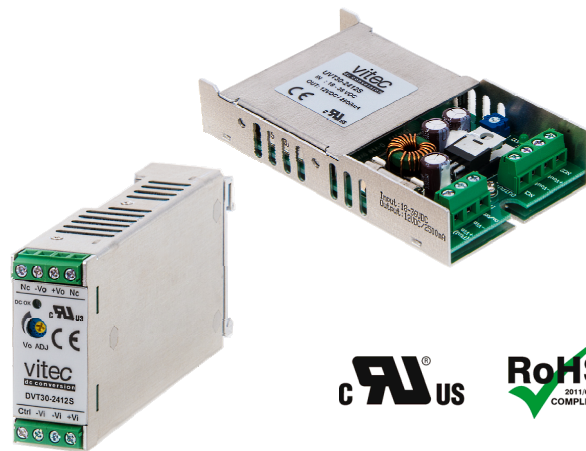


## FEATURES AND APPLICATIONS

- 4:1 Input Range
- High Efficiency up to 88%
- U-Channel or DIN Rail Chassis
- Low Ripple & Noise
- Screw Terminals for Input & Output
- UL60950-1 certified
- RoHS ✓



## GENERAL DESCRIPTION

The UVTW20 and DVTW20 series is a family of 20 Watt single and dual output DC-DC converters. These converters were designed as DC/DC Plug-in solution and are available in U-Channel chassis (UVTW20), or DIN rail chassis (DVTW20; Reliable snap-on for DIN rail TS-35/7.5 or TS-35/15). These devices offering high performance features such as 1500 Vdc input/output isolation voltage, continuous short circuit protection with automatic restart and tight line and load regulation. Further features are internal input fuse protection, internal reverse polarity protection, internal input in-rush current limit circuit, over voltage protection and Output DC-OK LED indicator.

Models operate from a 4:1 input bus voltage of 24 and 48 Vdc offering output voltage levels of 3.3, 5, 12, 15,  $\pm 5$ ,  $\pm 12$  and  $\pm 15$  Vdc. Cooling is by free-air convection.

### 4:1 Input – Single and Dual Outputs

Type Number	Input Voltage [Vdc]	Output Voltage [Vdc]	Output Current Full load [mA]	Input Current No load [mA] 24/48	Input Current Full load [mA] 24/48	Output Ripple & Noise [mVpp]	Efficiency [%] 24/48	max. Cap. Load [ $\mu$ F]
xVTW20-yy3R3S	24 48	3.3	5500	52/37	957/473	60	84/84	18000
xVTW20-yy05S		5.0	4000	67/37	1016/508	75	87/87	9600
xVTW20-yy12S		12.0	1670	26/18	1043/515	75	85/86	1650
xVTW20-yy15S		15.0	1330	27/18	1039/513	75	85/86	1050
xVTW20-yy12D		$\pm 5.0$	$\pm 2000$	59/37	1016/502	100	87/88	$\pm 4800$
xVTW20-yy12D		$\pm 12.0$	$\pm 833$	34/20	1028/508	100	86/87	$\pm 825$
xVTW20-yy15D		$\pm 15.0$	$\pm 667$	35/20	1029/508	100	86/87	$\pm 525$

#### x ... Chassis:

U ... U-Channel Chassis  
D ... DIN Rail Chassis

#### Options UVTW20-Series (U-Channel Chassis):

Suffix N Remote On/Off - Negative Logic  
Suffix -DR UVTW20 with DIN rail clip for DIN35

#### yy ... nominal input voltage:

xVTW20-Series: 24 (9.5 – 36 Vdc)  
48 (18 – 75 Vdc)

#### Options DVTW20-Series (DIN Rail Chassis):

Suffix N Remote On/Off - Negative Logic

e.g. UVTW20-2405S  
UVTW20-483R3S-DR  
DVTW20-2412D

(U-Channel Chassis, Input 24 Vdc, Output 5 Vdc)  
(U-Channel Chassis, Input 48 Vdc, Output 3.3 Vdc, DIN rail clip option)  
(DIN rail Chassis, 24 Vdc input,  $\pm 12$  Vdc dual output)

## ELECTRICAL SPECIFICATIONS

Specifications typical at +25°C, nominal Input voltage, rated output current unless otherwise specified.

### Input Specifications

Input Voltage Range	24V: 9.5 to 36 Vdc	
	48V: 18 to 75 Vdc	
Input Fuse (slow blow)	24V: 6 A	
	48V: 4 A	
Input Surge Voltage	24V: 50 Vdc, 100 mS, max.	
	48V: 100 Vdc, 100 mS, max.	
In-Rush Current	15 A	
Input Reflected Ripple Current	10 mApp	
Start Up time (nom. input, const. res. load)	100 mS (Power up)	
	20 mS (Remote On/Off)	
Start-Up/Shutdown Voltage	<b>Startup</b>	<b>Shutdown</b>
	24V: 9.5 Vdc	7.5 Vdc
	48V: 18 Vdc	15 Vdc

### Output Specifications

Output Power	20 Watts, max.
Output Voltage Accuracy	±1.0%
	±1.5% (3.3 Vout)
Output Voltage Trim	±10%
The output voltage could be adjusted by a potentiometer (single output only).	
Min. Load for specified regulation	0%
Ripple and Noise (20 MHz BW)	see table
Line Voltage Regulation	±0.2% (Single)
(LL to HL at full load)	±0.5% (Dual)
Load Voltage Regulation	±1.0%
(Min. load to full load)	±1.5% (3.3 Vout)
Cross Regulation (Dual)	±5.0% (Asym. load 25%/100% FL)
Temperature Coefficient	±0.02%/°C, max.
Over Load Protection	150% (of FL at nominal input)
Short Circuit Protection	Continuous (Hiccup)
Over Voltage Protection	3.3 Vout: 3.9 Vdc    12 Vout: 15 Vdc
	5 Vout: 6.2 Vdc    15 Vout: 18 Vdc
Transient response recovery time	250 µsec (25% load step change)
Output Indicator	Green LED

### EMC Characteristics

EMI	EN55022	Class B
ESD	EN61000-4-2	Perf. Criteria A (Air ±8 kV; Contact ±6 kV)
Radiated Im.	EN61000-4-3	Perf. Criteria A (10 V/m)
F. Transients	EN61000-4-4	Perf. Criteria A (±2 kV)
Surge	EN61000-4-5	Perf. Criteria A (±0.5 kV)
Conducted I.	EN61000-4-6	Perf. Criteria A (10 Vrms)

### Remote ON/OFF Control

Control Voltage referenced to negative (-) input	
Positive Logic (Standard)	ON-Control: 3 to 12 V or open
	OFF-Control: 0 to 1.2 V or short
Negative Logic (Suffix N)	ON-Control: 0 to 1.2 V or short
	OFF-Control: 3 to 12 V or open
Input current of remote control pin	-0.5 mA to +0.5 mA, max.
Remote off input current	2.5 mA

### General Specifications

Efficiency	see table
Switching Frequency	400 kHz, ±10%
Isolation Voltage	1500 Vdc, min. (1 minute)
Isolation Resistance	10 <sup>9</sup> Ohms, min.
Isolation Capacitance	4000 pF, max.
Approvals	UL60950-1 certified (E352836)
	IEC/EN60950-1 (designed to meet)

### Physical Characteristics

Dimensions	U-channel: 101.6 x 57.2 x 19.1 mm
	4.00 x 2.25 x 0.75 inches
	DIN rail: 125.0 x 57.6 x 24.5 mm
	4.92 x 2.27 x 0.97 inches
Chassis Material	Aluminium
Weight	U-channel: 89 g
	DIN rail mounting: 148 g

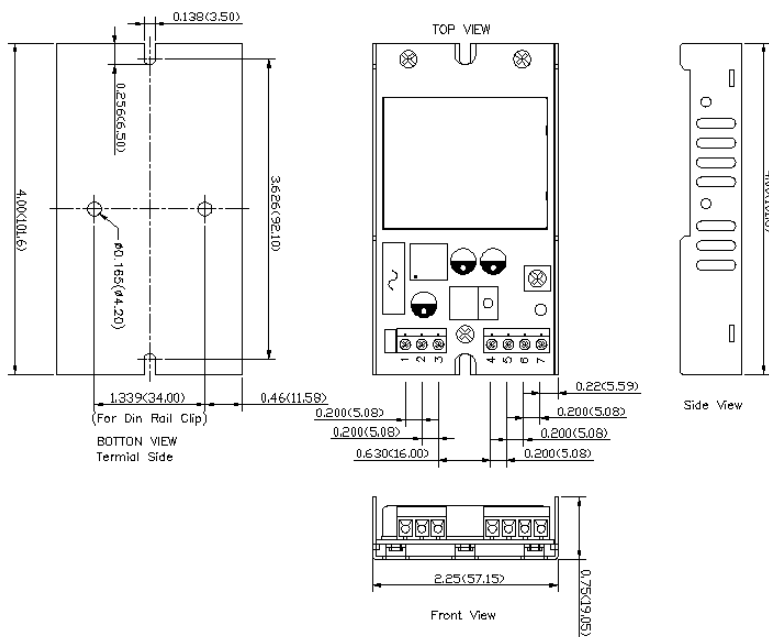
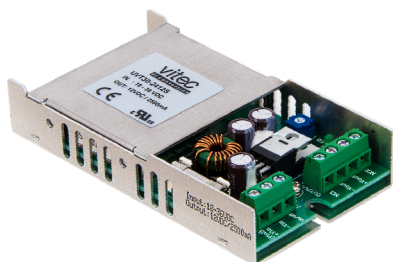
### Environmental Specification

Operating Temperature	
Case mounting:	-40°C to +75°C without Derating
	+75°C to +94°C with Derating
DIN rail mounting:	-40°C to +78°C without Derating
	+78°C to +93°C with Derating
Storage Temperature	-40°C to +105°C
Cooling	Free-air Convection
MTBF	MIL-HDBK-217F: 6.586 x 10 <sup>5</sup> Hrs *
	Bellcore TR-NWT-000332: 1.186 x 10 <sup>6</sup> Hrs **
	* Notice2 @25°C, FL, Ground, Benign, controlled environment
	** Case1, 50% Stress, 40°C
Thermal Shock	MIL-STD-810F
Vibration	MIL-STD-810F
Relative Humidity	5% to 95% RH

**CAUTION:** This power module is not internally fused. An input line fuse must always be used!

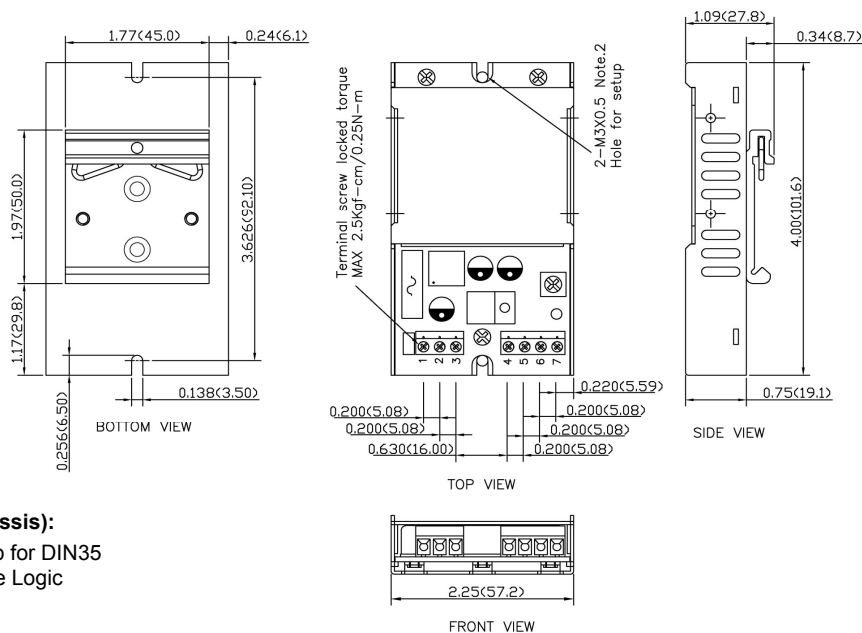
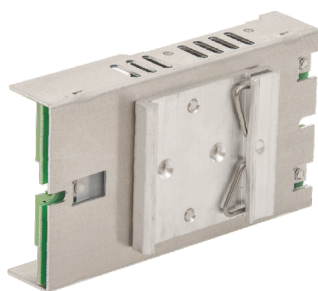
## Drawings & PIN Connections

### UVTW20 Series (U-Channel Version)



PIN Connections		
Pin	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	CTRL	CTRL
4	NC	NC
5	-V Output	-V Output
6	+V Output	Common
7	NC	+V Output

### UVTW20 Series (U-Channel Version) with DIN Rail Mounting Clip Option



#### Options UVTW20-Series (U-Channel Chassis):

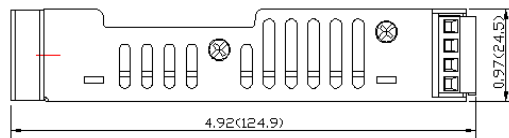
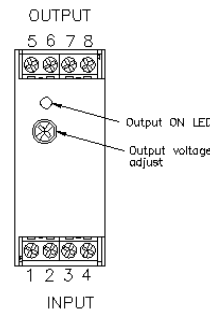
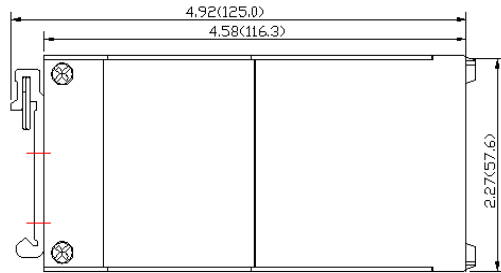
- Suffix -DR UVTW20 with DIN rail clip for DIN35
- Suffix N Remote On/Off - Negative Logic

# UVTW20 DVTW20 SERIES

20 Watt DC/DC Converter  
Single and Dual Output  
1500 Vdc Isolation



## DVTW20 Series – DIN Rail Chassis (Case protection meets IP20 / IEC60529)

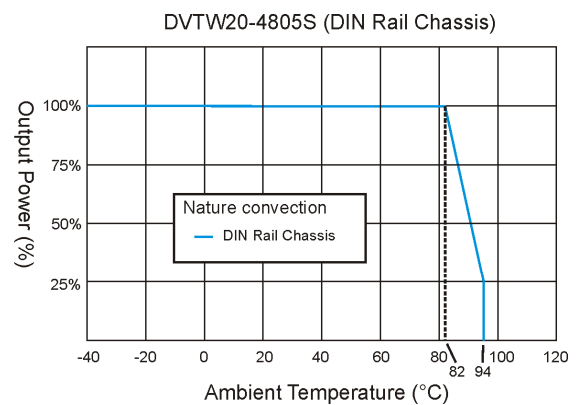
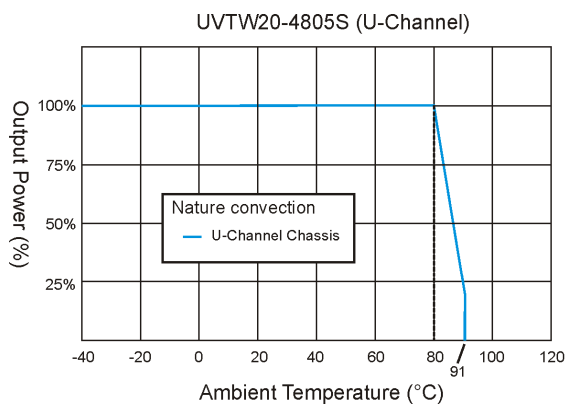


PIN Connections		
Pin	Single	Dual
1	CTRL	CTRL
2	-V Input	-V Input
3	-V Input	-V Input
4	+V Input	+V Input
5	NC	NC
6	-V Output	-V Output
7	+V Output	Common
8	NC	+V Output

**Options DVTW20-Series (DIN Rail Chassis):**  
Suffix N      Remote On/Off - Negative Logic

NC ... not connected

## Derating



Notes: All dimensions in millimeters (inches). Tolerance  $\pm 0.25\text{mm}$  (0.01).

Specifications can be changed without prior notice. Products are not intended for and must not be used in life support systems, human implantation, nuclear facilities or systems or any other application where product failure or malfunction of the component could lead to loss of life or catastrophic property damage.

**V i t e c POWER GmbH**

Hans Kudlich Gasse 12/3, A-2230 Gänserndorf, Austria, Tel.: +43/2282/3144, Fax.: +43/2282/60494, Email: [office@vitecpower.com](mailto:office@vitecpower.com)

[www.vitecpower.com](http://www.vitecpower.com)