

FEATURES AND APPLICATIONS

- 2:1 Input Range
- High Efficiency up to 89%
- U-Channel or DIN Rail Chassis
- Low Ripple & Noise
- Screw Terminals for Input & Output
- Over Load & Short Circuit Protection
- RoHS ✓



GENERAL DESCRIPTION

The UVT40 and DVT40 series is a family of 40 Watt single, dual and triple output DC-DC converters. These converters were designed as DC/DC Plug-in solution and are available in U-Channel chassis (UVT40), or DIN rail chassis (DVT40; 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 2:1 input bus voltage of 12, 24 and 48 Vdc offering output voltage levels of 3.3, 5, 12, 15, 24, 28, ± 12 , ± 15 , $3.3/\pm 12$, $3.3/\pm 15$, $5/\pm 12$ and $5/\pm 15$ Vdc. Cooling is by free-air convection.

2:1 Input – Single, Dual & Triple Outputs

Type Number	Input Voltage [Vdc]	Output Voltage [Vdc]	Output Current		Input Current No load [mA] 12/24/48	Output Ripple & Noise [mVpp]	Efficiency [%] 12/24/48	max. Cap. Load [μ F]
			Min. Load [mA]	Full Load [A]				
xVT40-yy3R3S	12 24 48	3.3	0	8	179/67/42	50	85/86/87	21000
xVT40-yy05S		5.0	0	8	232/82/44	50	85/88/89	13600
xVT40-yy12S		12.0	0	3.33	262/87/54	75	85/87/88	2360
xVT40-yy15S		15.0	0	2.66	320/92/57	75	86/88/88	1510
xVT40-yy24S		24.0	0	1.8	42/32/23	350	84/86/86	600
xVT40-yy28S		28.0	0	1.4	50/32/23	350	84/86/86	375
xVT40-yy12D		± 12.0	0	± 1.8	37/27/20	120	84/86/86	± 1200
xVT40-yy15D		± 15.0	0	± 1.4	45/27/20	150	84/86/86	± 750
xVT40-yy3R312T		$3.3/\pm 12$	600/ ± 40	6/ ± 0.4	222/67/42	50/75	83/84/85	13000/ ± 330
xVT40-yy3R315T		$3.3/\pm 15$	600/ ± 30	6/ ± 0.3	237/67/42	50/75	83/84/85	13000/ ± 110
xVT40-yy0512T		$5.0/\pm 12$	600/ ± 40	6/ ± 0.4	287/67/42	50/75	85/86/87	6800/ ± 330
xVT40-yy0515T		$5.0/\pm 15$	600/ ± 30	6/ ± 0.3	287/77/47	50/75	85/86/87	6800/ ± 110

x ... Chassis:

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

Options UVT40-Series (U-Channel Chassis):

- Suffix -DR UVT40 with DIN rail clip for DIN35

yy ... nominal input voltage:

- xVT40-Series: 12 (9.5 – 18 Vdc)
- 24 (18 – 36 Vdc)
- 48 (36 – 75 Vdc)

Options DVT40-Series (DIN Rail Chassis):

- no additional option available

- e.g. UVT40-1205S (U-Channel Chassis, Input 12 Vdc, Output 5 Vdc)
- UVT40-483R3S-DR (U-Channel Chassis, Input 48 Vdc, Output 3.3 Vdc, DIN rail clip option)
- DVT40-2412D (DIN rail Chassis, 24 Vdc input, ± 12 Vdc output)

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ELECTRICAL SPECIFICATIONS

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

Input Specifications

Input Voltage Range	12V: 9.5 to 18 Vdc
	24V: 18 to 36 Vdc
	48V: 36 to 75 Vdc
Input Fuse (slow blow)	12V/24V: 8 A
	48V: 4 A
Input Surge Voltage	12V: 36 Vdc, 100 ms, max.
	24V: 50 Vdc, 100 ms, max.
	48V: 100 Vdc, 100 ms, max.
In-Rush Current	15 A
Input Reflected Ripple Current	15 mApp
Start Up time (nom. input, const. res. load)	100 ms (Power up)
	25 ms (Remote On/Off)
Start-Up/Shutdown Voltage	Startup Shutdown
	12V: 9.5 Vdc 8.0 Vdc
	24V: 18.0 Vdc 16.0 Vdc
	48V: 36.0 Vdc 33.0 Vdc

Output Specifications

Output Power	40 Watts, max.		
Output Voltage Accuracy	3.3V: ±1.5%		
	Single/Dual: ±1.0%		
	Triple Main: ±1.5%		
	Triple AUX: ±5.0%		
Output Adjustability	28 Vout: -3% ~ +17%		
	Single Others: ±10%		
The output voltage could be adjusted by a potentiometer (single output only).			
Min. Load for specified regulation	see table		
Ripple and Noise (20 MHz BW)	see table		
Line Voltage Regulation	Single/Dual: ±0.5% (LL to HL at full load)		
	Triple Main: ±1.0%		
	Triple AUX: ±5.0%		
Load Voltage Regulation	3.3V: ±1.5% (Min. load to full load)		
	Single/Dual: ±1.0%		
	Triple Main: ±2.0%		
	Triple AUX: ±5.0%		
Cross Regulation	Triple Main: ±2.0%		
	Dual/Triple AUX: ±5.0%		
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	15 Vout: 18 Vdc	
	5 Vout: 6.2 Vdc	24 Vout: 30 Vdc	
	12 Vout: 15 Vdc	28 Vout: 36 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 (±1 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
Input current of remote control pin	-0.5 mA to +0.5 mA, max.
Remote off input current	2.5 mA

Physical Characteristics

Dimensions	U-channel: 101.6 x 57.2 x 19.05 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: 122 g
	DIN rail mounting: 182 g

General Specifications

Efficiency	see table
Switching Frequency	300 kHz, ±10%
Isolation Voltage	1500 Vdc, min. (1 minute)
Isolation Resistance	10 ⁹ Ohms, min.
Isolation Capacitance	4000 pF, max.
Approvals	IEC/EN/UL60950-1 (designed to meet)

Environmental Specification

Operating Temperature	
Case mounting:	-40°C to +55°C without Derating
	+55°C to 85°C with Derating
DIN rail mounting:	-40°C to +58°C without Derating
	+58°C to 86°C with Derating
Storage Temperature	-40°C to +105°C
Over Temp. Protection	+115°C (DC/DC Converter Case)
Cooling	Free-air Convection
MTBF	MIL-HDBK-217F: 1.096 x 10 ⁵ Hrs *
	Bellcore TR-NWT-000332: 8.763 x 10 ⁵ 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!

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UVT40 DVT40

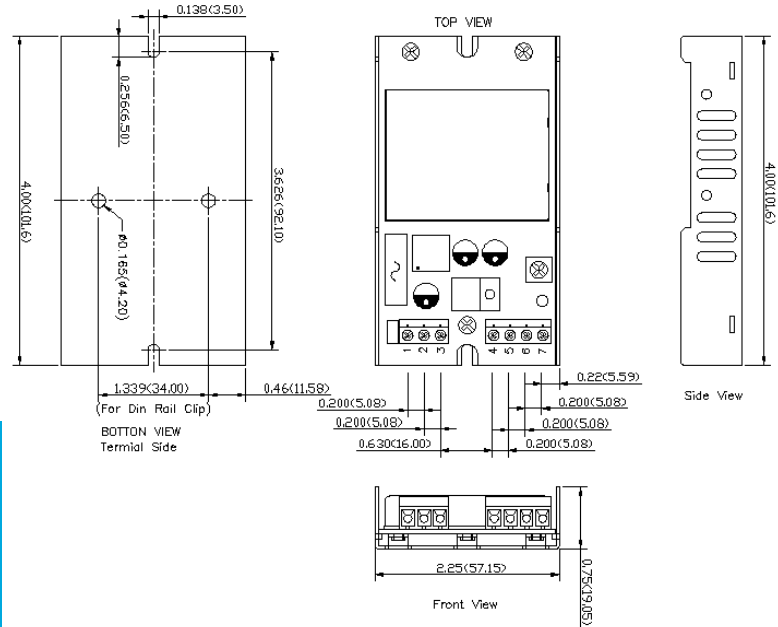
SERIES

40 Watt DC/DC Converter
Single, Dual & Triple Output
1500 Vdc Isolation

vitec
dc conversion

Drawings & PIN Connections

UVT40 Series (U-Channel Version)

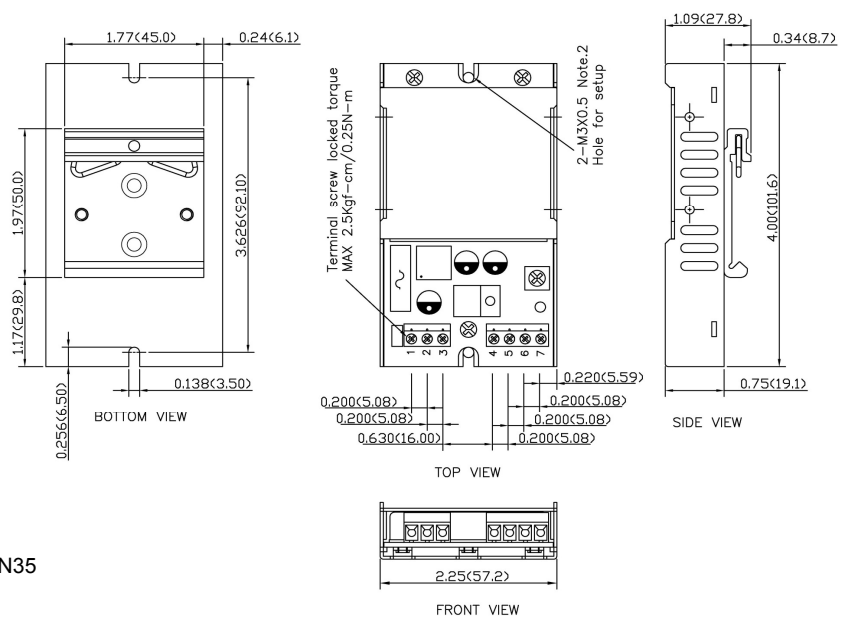
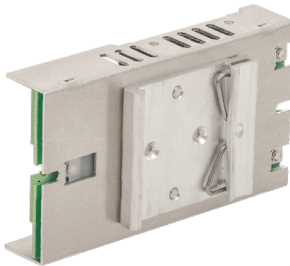


PIN Connections

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

NC ... not connected

UVT40 Series (U-Channel Version) with DIN Rail Mounting Clip Option



Options UVT40-Series (U-Channel Chassis):

Suffix -DR UVT40 with DIN rail clip for DIN35

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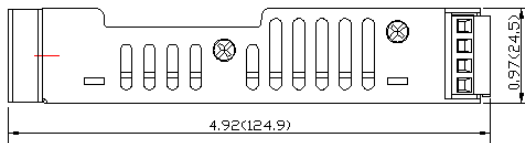
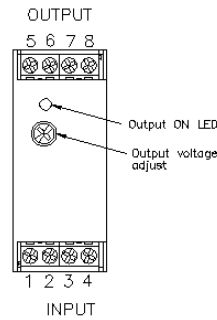
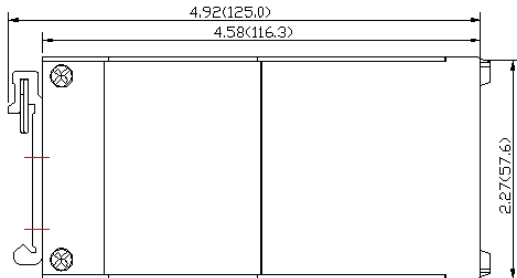
UVT40 DVT40

SERIES

**40 Watt DC/DC Converter
Single, Dual & Triple Output
1500 Vdc Isolation**



DVT40 Series – DIN Rail Chassis (Case protection meets IP20 / IEC60529)



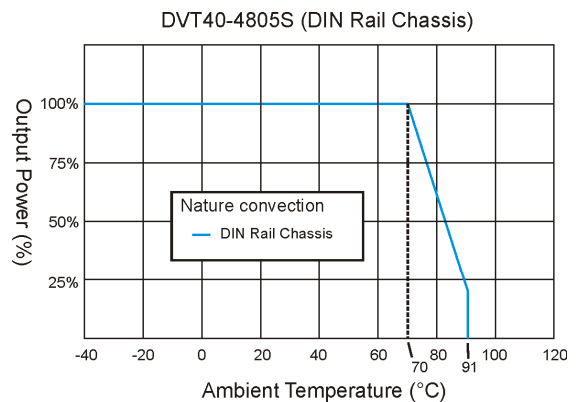
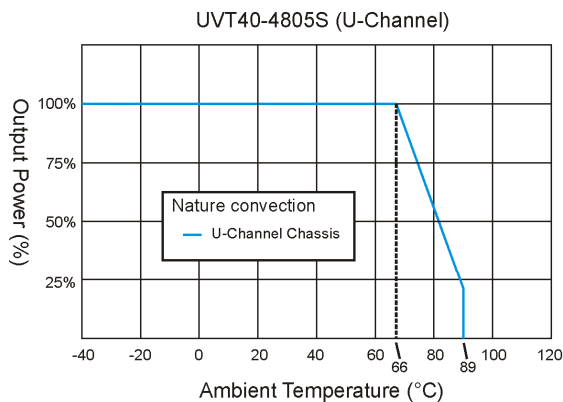
Options DVT40-Series (DIN Rail Chassis):
no additional option available

PIN Connections

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

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.

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