VPU150

500W/0.3s Universal Input Range, 150J Buffer Module

The **VPU150U** is a microprocessor controlled buffer unit rated 20A usable in 12V, 24V, 48V and 72V systems.
The **VPU150U** monitors the voltage coming from a DC power supply and in case of failure a capacitor bank is used to keep the output regulated for at least 300ms at full load.

■ *Main Features*

- High efficiency and extremely compact size
- Wide voltage range: 12…85Vdc
- Self tracking DC BUS voltage
- > 150 Joules energy storage
- Compact size
- Reliable topology, based on standard electrolytic capacitors
- Dry contacts for status signalling and opto-isolated input for INHIBIT
- Digital Power regulation
- Multiple protections, integrated safety circuit that disconnects the capacitor bank in case of internal failure
- Can boost the peak power of the DC supply
- Parallelable for power and backup time increase

EC-0151

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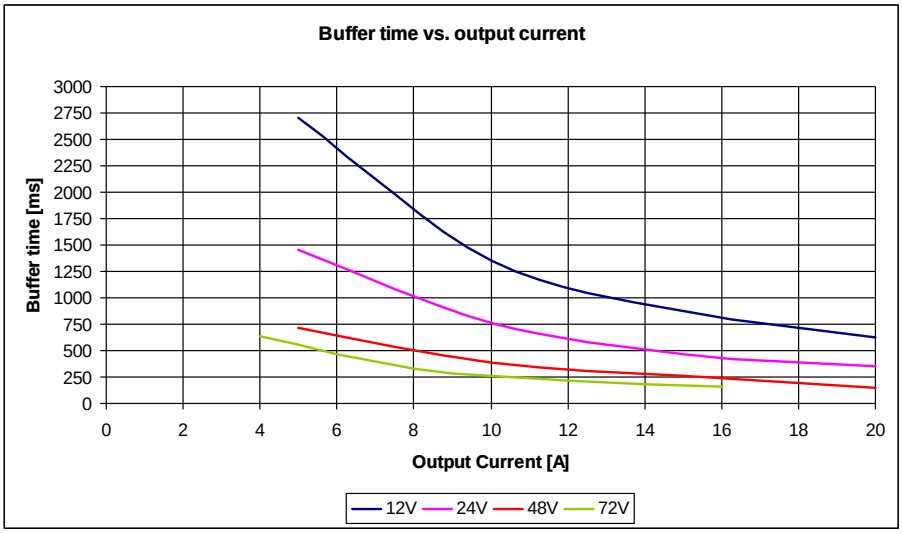
TECHNICAL DATA

Model type	VPU150U
OUTPUT DATA	
Unom Voltage	Vin - 1V (12/24/48/72Vdc - 1V)
Continuous current	20A @ ≤ 48V 16A @ > 48V
Backup duration	600ms / 12V @ 20A 300ms / 24V @ 20A 130ms / 48V @ 20A 140ms / 72V @ 16A
Ripple & Noise[1]	≤ 250mVpp
Protections	▪ Overload - active ▪ Short circuit - one shot ▪ Overvoltage - active
Status Signals	▪ Voltage level by amber LEDs ▪ **STATUS** - CHARGING / READY by Bi-color LED ▪ **BACKUP** - dry contact (NO, 24Vdc / 1A) ▪ **READY** - dry contact (NO, 24Vdc / 1A) ▪ **INHIBIT** - remote ON/OFF input
INPUT DATA	
Input DC rated voltage	Nominal: 12/24/48/72Vdc (UL certified) Range: Auto detection (12…85Vdc)
Input DC rated current	20A max. @ ≤ 48V 16A max. @ > 48V
Charging time	< 40s voltage dependent (see chart on Fig.1)
GENERAL DATA	
Operating modes	▪ AUTO: senses the input voltage and supplies the load when the voltage drops ▪ MANUAL: fixed output voltage (12/24/48/72Vdc) user settable by front key
Control	Digital by CPU
Operating temperature[2]	- 40°C…+ 70°C (UL certified up to 70°C)
Storage temperature	- 40°C…+ 80°C
Humidity	5…95% r.H. non condensing
Life time expectation	191'963h (21.9 years) at 25°C ambient full load
MTBF	▪ MIL-HDBK-217F > 600'000h at 25°C ambient full load
Cooling	Natural convection
Protection Class	▪ Class I
DC BUS / ground isolation	0.75kVdc
Safety Standards	▪ UL508 (certified E356563) ▪ EN60950 (reference)
EMC Emission	▪ EN55011 (CISPR11) Class A ▪ EN55022 (CISPR22) Class A
EMC Immunity	▪ EN61000-4-2 Level 3 ▪ EN61000-4-3 Level 3 ▪ EN61000-4-4 Level 2 ▪ EN61000-4-5 Level 1
Protection degree	▪ EN60529 IP20
Vibration sinuosoidal	▪ IEC 60068-2-6 (5-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2hours / axis (X,Y,Z)
Shock	▪ IEC 60068-2-27 (30g 6ms, 20g 11ms; 3 bumps / direction, 18 bumps total)
Connection terminals	2.5mm², screw type pluggable (24...12AWG)
Case material	Aluminum
Weight	0.90kg
Size (W x H x D)	63.0 x 140.0 x 117.0mm

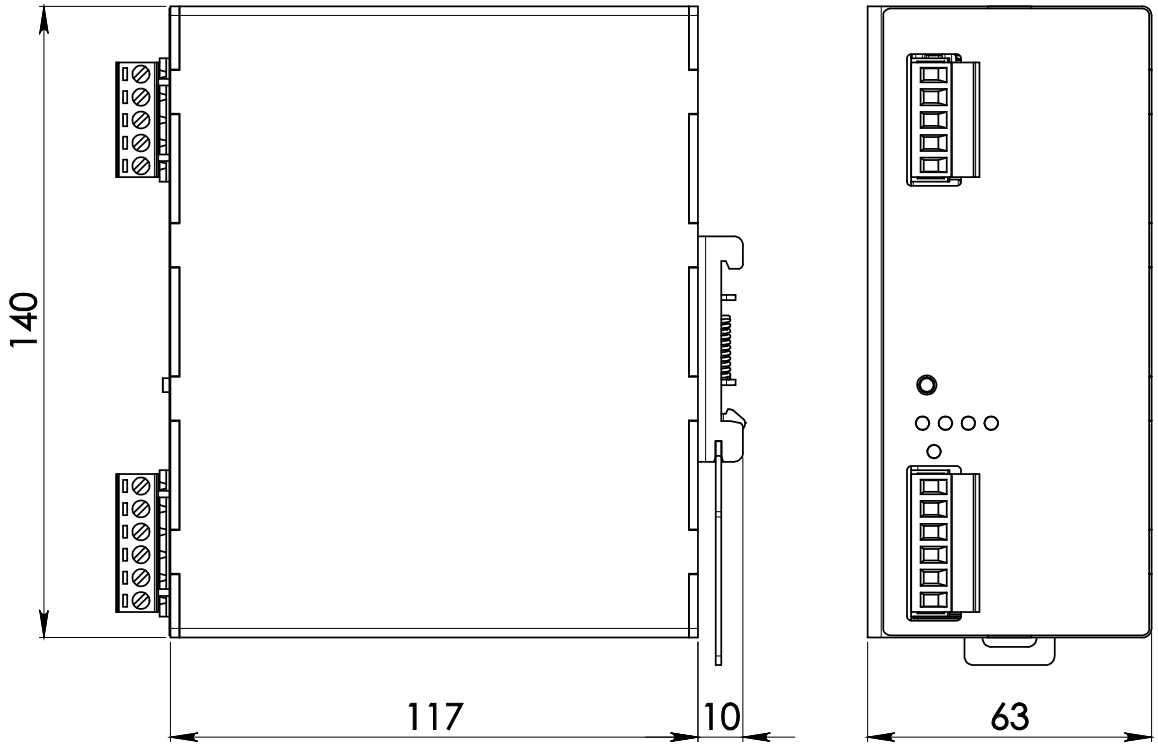
1) Ripple and Noise are measured with 20MHz bandwidth, probe terminated with a 0.1µF MKP parallel capacitor.
2) Start-up type tested: - 40°C, possible at nominal voltage with load deration.

Notes:
- Technical parameters are typical, measured in laboratory environment at 25°C and 24Vdc at nominal values, after minimum 5 minutes of operation.
- Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details.
- Data may change without prior notice in order to improve the product.

Fig.1



DIMENSIONS



CONNECTION

DC BUS Connection:

- DC BUS + = wired in parallel on (+) positive DC BUS
- DC BUS - = wired in parallel on (-) negative DC BUS
- ⏚ = Earth ground

Signalling:

- INHIBIT = used to disable the buffering function (+/-)
- BACKUP = dry contact close while BU150U is delivering power COM / NO
- READY = dry contact close when the internal capacitors are charged at least at ½ of their maximal energy and the INHIBIT input is inactive COM / NO