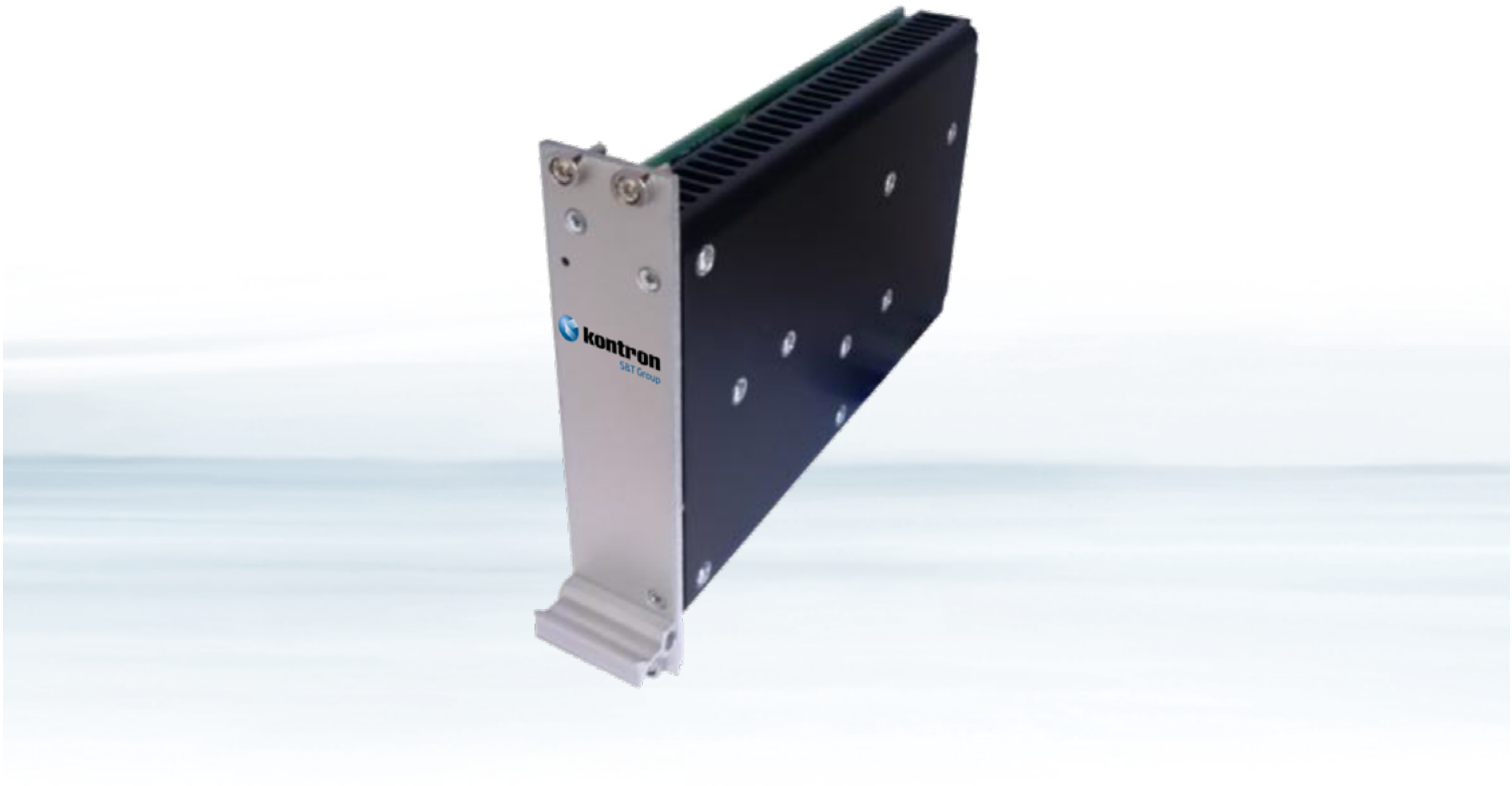
CP3-SVE-M120DC-WV

Universal DC power supply for CompactPCI



120 Watt DC/DC for Industry and Railways

- Wide input range 14.4 to 154 VDC
- Five outputs for CPCI
- Extended temperature, fanless
- Redundant operation

POSSIBILITIES START HERE kontron S&T Group

CP3-SVE-M120DC-WV

Universal DC power supply for CompactPCI

The product description provided with this data sheet is regarded as part of the general Kontron CPCI Power Supply manual ID 24139. For further information, in particular general details as well as disclaimer, safety and warranty statements, refer to the CPCI Power Supply Manual.

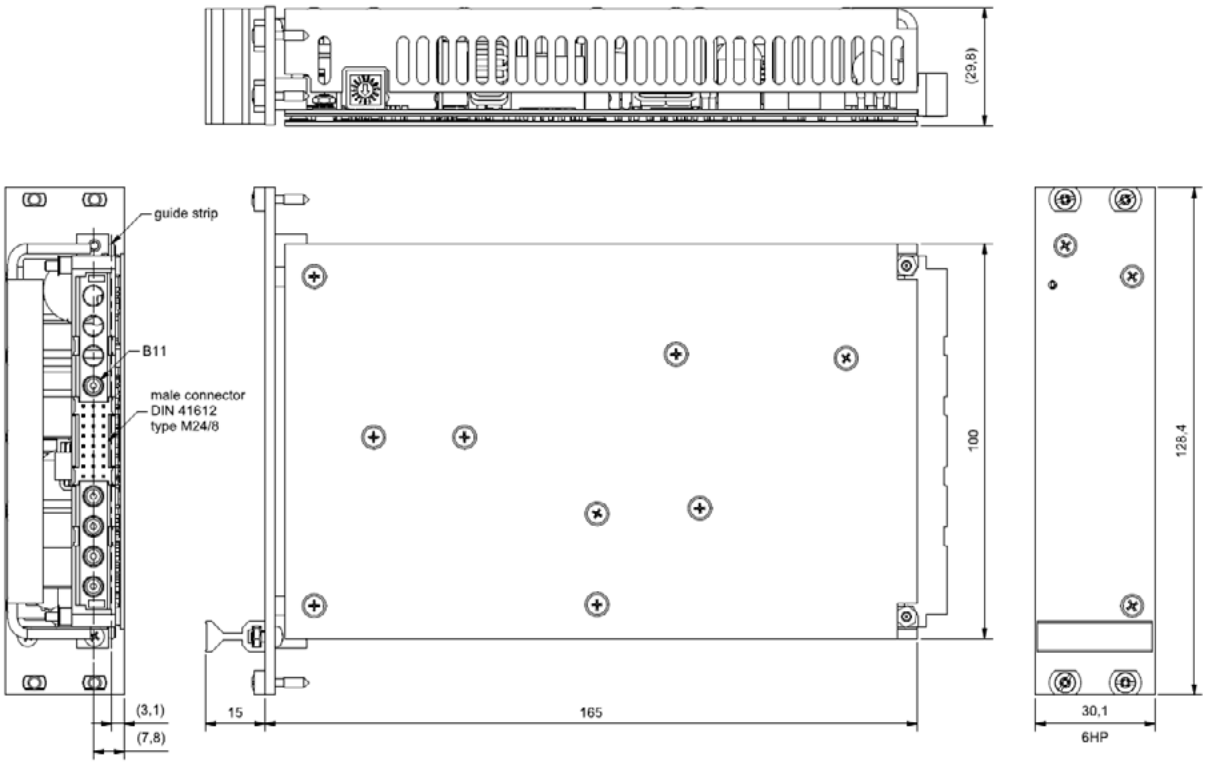
This power supply is designed for use within standard CompactPCI systems for Industrial and Railway installations. It is as well suited for integration in electronic or electrical enclosures, e.g. Kontron's 19" racks.

TECHNICAL INFORMATION

FORM FACTOR	3U
DIMENSIONS	166.5 x 30.1 x 107 mm, 6HP
WEIGHT	600 g
MECHANICS	19" rack
POWER SUPPLY CONNECTOR	DIN M24/8 connector
COATING	Lackwerke Peters ELPEGUARD SL 1307-FLZ/2
COOLING	Convection cooling
MTBF	tbd.

MECHANICAL DRAWING

Dimensions are in mm.
Values according to ISO 2768-1 m. Exeptions: values in brackets (nn) with tolerances +/- 0.5



ELECTRICAL SPECIFICATIONS

For T_{amb} = 25 °C, $V_{in\ nom}$, $I_{out\ nom}$, unless otherwise specified

INPUT	
INPUT VOLTAGE NOMINAL	24, 36, 48, 72, 96, 110 VDC
INPUT VOLTAGE OPERATING	16.8 – 137.5 VDC
INPUT VOLTAGE RANGE	14.4 – 154 VDC (t<=1.0 sec)
STANDBY INPUT POWER	Max. 3 W
SWITCHING FREQUENCY	Typical 100 / 375 kHz (Converter/Step-down Vout 1)

INPUT	UNIT						
INPUT VOLTAGE NOMINAL	V	24	36	46	72	96	110
INPUT VOLTAGE RANGE	V	14.4 ... 36	21.6 ... 51	28.8 ... 67.2	43.2 ... 101	57.6 ... 134.4	66 ... 154
UNDER VOLTAGE TURN-ON	V	< 15.0 ... 16.5 depends on position of the rotating switch S101					
UNDER VOLTAGE TURN-OFF IF POSITION OF S101 IS SET TO	V	12 ... 14 0	20 ... 21 1	25 ... 28 2	40 ... 42 3	52 ... 56 4	60 ... 64 5
UNDER VOLTAGE TURN-OFF	V	12.0 ... 14 in all other positions of the rotating switch S101					
INPUT CURRENT @ 120 W LOAD	A	5.75	3.83	2.87	1.92	1.44	1.25
INPUT CURRENT @ NO LOAD	A	0.15	0.11	0.08	0.05	0.05	0.04
INPUT CURRENT DISABLED MODE*	mA	0.05	0.03	0.025	0.02	0.02	0.02
INERTIAL FUSE	A	16 T					

*Enable signal open or Inhibit signal low

OUTPUT	
OUTPUT VOLTAGES	5 V (adjusted to 5.1 V), 3.3 V (adjusted to 3.4 V), 12 V, -12 V, 5 V stby
INITIAL SET ACCURACY	±0.5 % ($V_{out\ 1,2,3}$), ±2 % ($V_{out\ 4,5}$) no load
MINIMUM LOAD	No minimum load required
SHORT CIRCUIT	Continuous short circuit proof
RIPPLE & NOISE	Output 1,2,3: <2 % pk-pk. 20 MHz bandwidth Output 4,5: <4 % pk-pk, 20 MHz bandwidth
START TIME	< 0.9 s
MAX. OUTPUT CAPACITANCE	10.000 µF ($V_{out\ 1,2,3}$), 500 µF/A ($V_{out\ 4,5}$)
TEMPERATURE COEFFICIENT	< 0.01 %/°C ($V_{out\ 1,2,3}$), 0.03 %/°C ($V_{out\ 4,5}$)

OUTPUT	UNIT	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4	OUTPUT 5
OUTPUT VOLTAGE NOMINAL	V	5.0*	3.3*	12	-12	5
OUTPUT CURRENT NOMINAL	A	20	14	10	0.5	0.5**
OUTPUT POWER	W	100	47	120	6	2.5
OUTPUT POWER MAX.	W	120 for Output 3 only; 100 for loading Output 1 or Output 2 with more than 20 %				
EFFICIENCY @ FULL LOAD OUT 1	%	86				
EFFICIENCY @ FULL LOAD OUT 3	%	91				
OUTPUT CURRENT LIMIT	A	21 ... 27	14.5 ... 17	12 ... 14	0.55 ... 0.9	0.55 ... 0.9
SHORT CIRCUIT CURRENT (TYPICAL)	A	44A (pulse)	22A (pulse)	30A (pulse)	1.3A (cont.)	2A (cont.)
TRANSIENT RESPONSE 25 %/75 % LOAD STEP	mV	± 100	± 100	± 200	± 200	± 100

*3.3 V adjusted to 3.4 V and 5.0 V adjusted to 5.1 V
**for <10 sec, maximum continuous current is 0.3 A

ELECTRICAL SPECIFICATION

REGULATION

LINE REGULATION	< 0.5 %
LOAD REGULATION	< 1 % (Vout 1,3), <3 % (Vout 2,4,5) at 0 % - 100 % load Value could be higher, depending on the voltage drop of the connector
RIPPLE & NOISE	Output 1,2,3: <2 % pk-pk. 20 MHz bandwidth Output 4,5: <4 % pk-pk, 20 MHz bandwidth

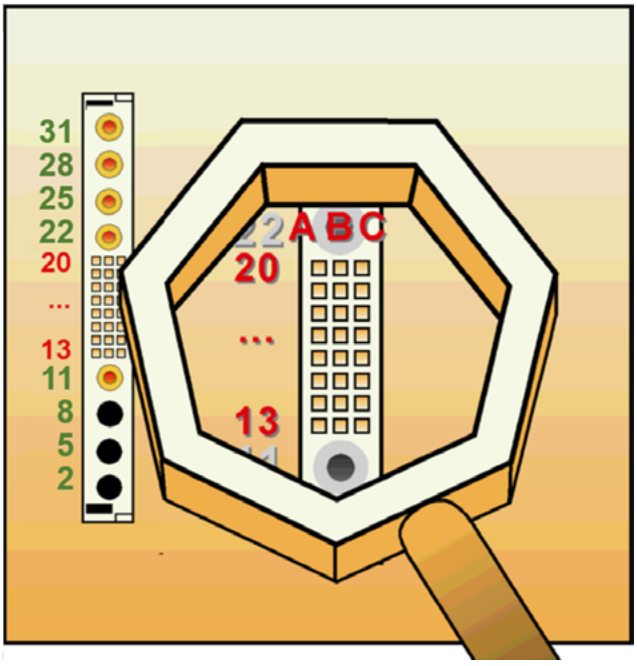
PROTECTION AND CONTROL

OVERVOLTAGE PROTECTION	110 … 120 % for $V_{out\ 1,\ 2,\ 3,\ 4}$
OVERCURRENT PROTECTION	If V_{out1} is shut down due to overload, V_{out2} will be switched-off, too
OVER TEMPERATURE WARNING	DEG = low at +105 °C … 110 °C PCB-temperature with 5 °C hysteresis and auto recovery
OVER TEMPERATURE PROTECTION	Shutdown at +110 °C … 115 °C PCB-temperature with 5 °C hysteresis and auto recovery
ACTIVE REVERSE POLARITY PROTECTION	Max. 160 V
ACTIVE INRUSH CURRENT LIMITATION	Max. 15 A (at t>100 µs) 0.4 A^2sec
INPUT VOLTAGE DETECTION	With the rotating switch S101 the undervoltage levels can be set. See INPUT table.
HOLD-UP-TIME	>10 ms at full load
GREEN LED	Blinking indicates: - Vin is lower than adjusted under voltage turn-off value - One of the output voltages 1-4 is not in specified range - Converter is in standby mode Lightning indicates: - Converter is in normal operating mode
ENABLE SIGNAL	Inputs INH: Low / Low / High / High EN: Low / High / Low / High Power Status: "Off" / "Off" / "On" / "Off" Reference to GND Low level: 0 V … 0.8 V, High level: 8 V … 9 V or open The pin sources about 170 µA at low level
INHIBIT SIGNAL	OFF: INH connected to GND; see table above
SUPPLY FAIL SIGNAL	Open-collector output, emitter grounded (npn-transistor). Active level: low. Max current 20 mA, Max voltage 9 V, saturation voltage <0.5 V. FAL switches LOW, if one of the outputs 1-4 is out of tolerance of ±10 % or if Vin breaks down. If Vin breaks down, it remains 5ms between the edge of the FAL-Signal and the break down of Vout.
DERATING SIGNAL	Open-collector output, emitter grounded (npn-transistor). Active level: low. Max current 20 mA, Max voltage 9 V, saturation voltage <0.5 V
SENSE +/-	Sense connection not required. If accomplished, the voltage at the load is reduced by 100 mV, to provide compensation of voltage drops (max. 0.2 V each line) at V_{out1} and V_{out2} between power supply and load. The pins Sense return, Sense +5 V and Sens +3.3 V must be connected with the load. The sense signal should not be longer than 0.4m.
STANDBY VOLTAGE	5 V/0.5 A (for 10 sec, 0.3 A continuous)
REDUNDANT OPERATION	Only for outputs 3,4,5, with one additional converter. The wires should be as short as possible.

DIN M24/8 POWER SUPPLY CONNECTOR

The V1 ... V5 output voltages from the power supply unit to the backplane are connected via a 32-pole DIN 24/8 male power supply connector.
For the pinouts of the DIN M24/8 power supply connector please refer to the following table.

ATTENTION!
The DC INPUT has changed to different pins, comparred to previous Kontron DC power supplies.Respective rework of target systems is necessary.



// Orientation of the DIN M24/8 Power Supply Connector

PIN		FUNCTION	PIN		FUNCTION
2	NC	Not connected	B.17	V out2	+3.3 V Output Voltage
5	NC	Not connected	B.18	V out2	+3.3 V Output Voltage
8	NC	Not connected	B.19	V out3	+12 V Output Voltage
11	Case/PE	Chassis Ground	B.20	V out4	-12V Output Voltage
A.13	V out5	+5 V aux	C.13	EN	Enable Signal
A.14	INH	Inhibit Signal	C.14	DEG	Derate Signal
A.15	NC	Not connected	C.15	FAL	Supply Fail Signal
A.16	S return	Sense return	C.16	V out2	+3.3 V Output Voltage
A.17	S+5 V	Sense V out1	C.17	V out2	+3.3 V Output Voltage
A.18	S+3.3 V	Sense V out2	C.18	V out2	+3.3 V Output Voltage
A.19	V out3	+12 V Output Voltage	C.19	V out3	+12 V Output Voltage
A.20	V out4	-12 V Output Voltage	C.20	V out4	-12V Output Voltage
B.13	V out2	+3.3 V Output Voltage	22	V out1	+5 V Output Voltage
B.14	V out2	+3.3 V Output Voltage	25	GND	Ground
B.15	V out2	+3.3 V Output Voltage	28	V in +	+Input Voltage
B.16	V out2	+3.3 V Output Voltage	31	V in -	-Input Voltage

ELECTRICAL SPECIFICATION

EMC	
EMC STANDARD	EN 50121-3-2:2015
EMISSIONS	EN 55011:2009 + A1:2010, Class A* *In Built-in condition the devices may show different EMC properties
ESD	EN 61000-4-2:2009, level 3 (6kV/8kV), Criteria A
BURST	EN 61000-4-4:2012, level 3 (2kV), Criteria A
SURGE	EN 50121-3-2:2015, line to line ±1kV, 42R, and line to case ±2kV, 42R, Criteria A EN61000-4-5:2014, line to line ±0.5kV, and line to PE ±1kV Criteria A
CONDUCTED IMMUNITY	EN 61000-4-6:2014, level 3 (10V), Criteria A
RADIATED IMMUNITY	EN 61000-4-3:2006 + A1:2008 + A2:2010, 20V/m, Criteria A

SAFETY	
ITE SAFETY EUROPE	EN 62368-1
RAILWAY SAFETY	EN 50155 Isolation: 2200 VDC Input/Output, 2200 VDC Input/PE, 710 VDC Output/PE

ENVIRONMENT	
OPERATING TEMPERATURE	-40 °C to + 85 °C Class TX: +85 °C max. 10 min. Derating >70 °C continuously
STORAGE TEMPERATURE	-40 °C to +85 °C
VIBRATION / SHOCK / BUMP	EN 61373:2010, Cat.1B
FIRE & SMOKE	tbd

INSTALLATION

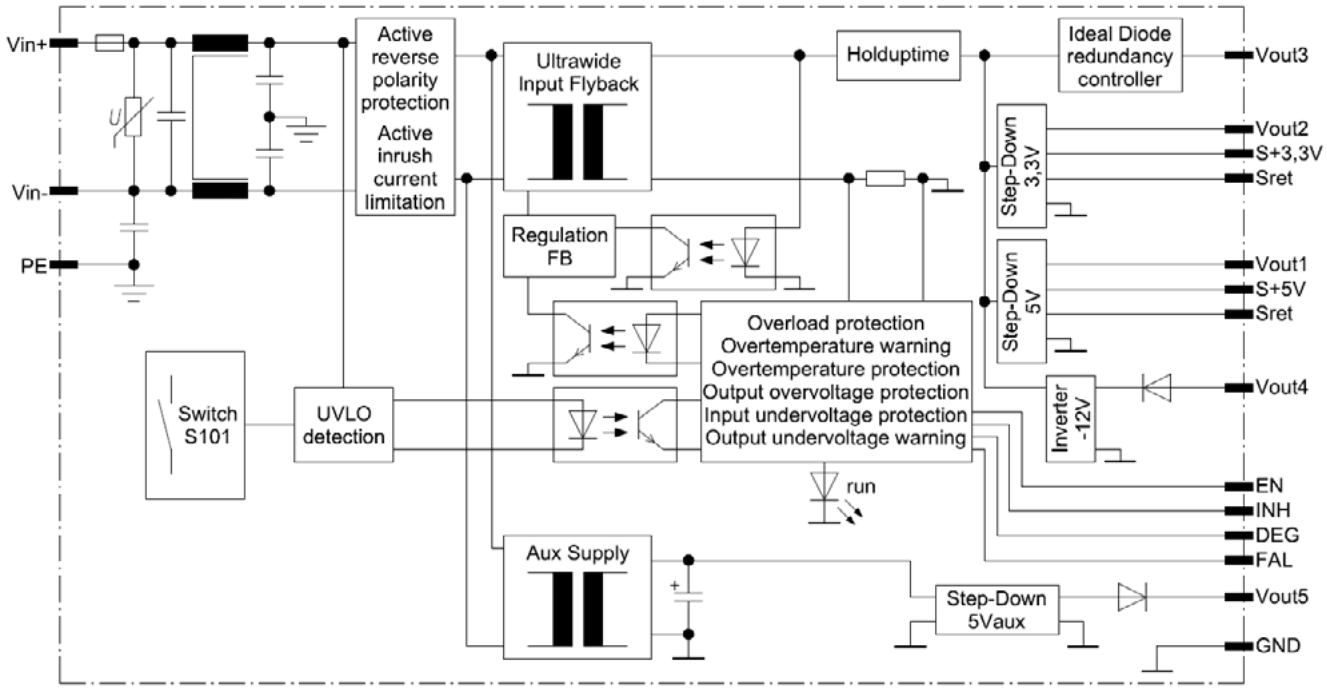
The power supplies have to be installed according to the guidelines currently in force, like other open electronic component assemblies. Plug in not under voltage. Attention must be paid to sufficient ventilation, carry off heat, fastening and protection against accidential contact.
The pin 11 (case/PE) has to be properlyconnected in order to assure operation.

ATTENTION!
At Pout max (for time > 1 min) a warming up of the front plate up to 15 °C over the ambient temperature is possible.

FAULT PROTECTION

The power supplies are equipped with a soldered in-time-lag fuse corresponding to IEC 60127-2 for input protection. In case of fault, the supplying current source must be capable to blow the fuse. In some applications 2 fuses would be necessary, one in each input line.

BLOCK DIAGRAM



ORDERING INFORMATION

ARTICLE	DESCRIPTION
CP3-SVE-M120DC-WV-E1X	CompactPCI DC wide voltage Power Supply 3U/6HP, 120 W. Input voltage nominal 24,36,48,72,96,110 V. Output +3.3 V/14 A, +5 V/20 A, +12 V/10 A, -12 V/0.5 A. M-Connector to backplane, LED, EN50155 compatible, fanless operation, redundant, extended temperature range -40 °C to +70 °C, +85 °C max. 10 minutes (Class TX)

GLOBAL HEADQUARTERS

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