Remote Power Feeding System
modular version
DCS-RPS-120 up to 1080 W

A2B PRODUCT

Illustration photo

General Features

- Modular system
- Variable mounted system:
  - 1U shelf with 19“/21“ rack mounting kit
  - DIN rail mounting kit
  - Wall mounting kit
- DC/DC-TPU-120-48 Central unit
- DC/DC-TPU-120-48 Nominal input voltage: 48 V DC
- DC/DC-TPU-120-48 Input voltage operating range: 40 – 60 V DC
- DC/DC-TPU-120-48 Nominal output voltage: 360 V (±180 V) DC
- DC/DC-TPU-120-48 Output voltage operating range: user-configurable in range of 340 – 380 V DC
- DC/DC-RPU-120-48 Remote unit
- DC/DC-RPU-120-48 Nominal input voltage: 360 V (±180 V) DC
- DC/DC-TPU-120-48 Input voltage operating range: 320 - 380V DC
- DC/DC-RPU-120-48 Nominal output voltage: 48 V DC
- DC/DC-TPU-120-48 module Power: 120 W
- Total power of 1U (3x DC/DC-TPU-120-48 module): 360 W
- Required number of pairs for DC/DC-TPU-120-48 module (120 W): 8 for feeding + 1 for communication
- Required number of pairs for 1U shelf (120 W, 240 W or 360 W): 8, 16 or 24 for feeding + 1 for communication
- Parallel configuration system: up to 3x 1U shelf for total system power 1080 W (72 + 1 pairs)
- Surge protection: 250 V DC to protective ground bus
- Overcurrent protection: max 58 mA per pair
- Remote control and monitoring: RS485 or Ethernet (MP module)
- Forced cooling
- Fulfils the recommendations ITU-T K.50 RFT-C and RFT-V together
- Low voltage (48 VDC) service mode


TSU

CERTIFIKÁT ZHODY
CONFORMITY CERTIFICATE
č./No. 171299122

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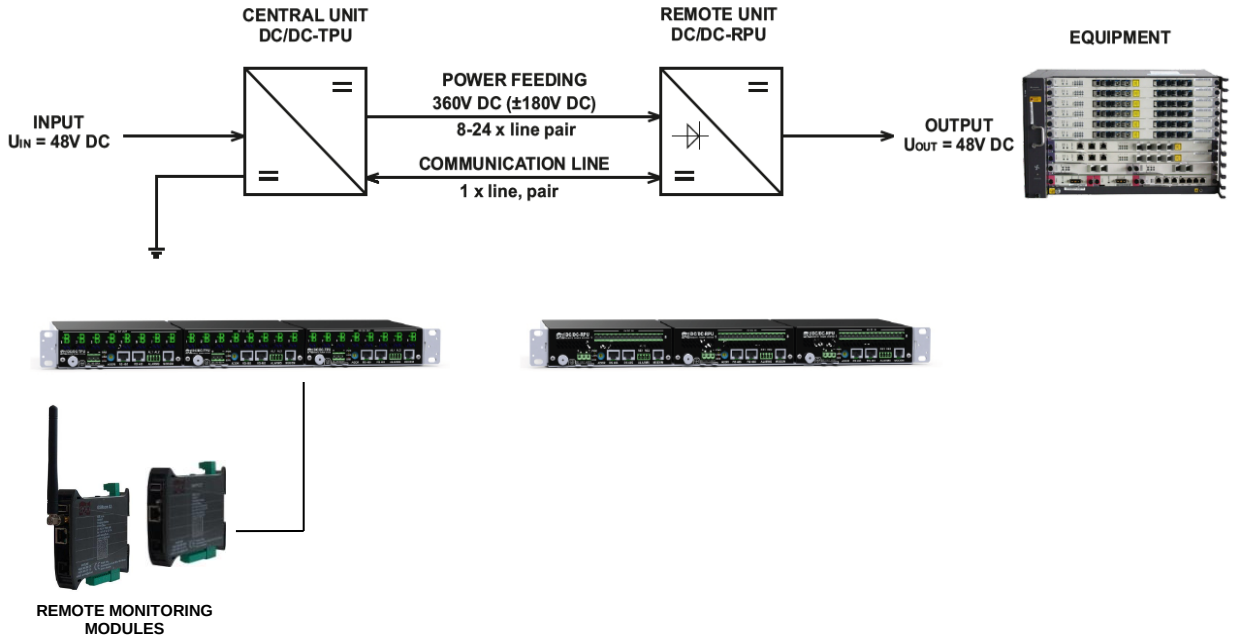
Description

Compact power supply system **DCS-RPS** is a complete device designed to supply power to industrial, control, telecommunication and security systems with the use of telecommunication lines. The system allows for transfer of 1080 W of power to the distance of up to 5 km. The converter system is powered by 48 V DC nominal input voltage, 48 V DC nominal output voltage and by maximum transmitted power of up to 1080 W.

The DCS-RPS system contains:

- DC/DC-TPU module: converter from 48 V DC to 360 V (±180 V) DC (central unit–power feeding side).
- DC/DC- RPU module: Aggregation of supply lines, diode isolation: and down converter from 360 V (±180 V) DC to 48 V DC on the remote side (receiving side / supplied side).
- MP module: Remote control and monitoring (Ethernet or GPRS)



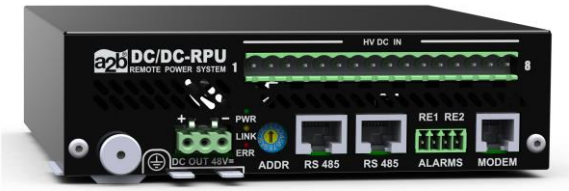
Connecting block schematics of the DCS-RPS system

Application

- Remote Power Feeding for Industrial, control, telecommunications and security systems using telecommunication lines (cables) as a transmission medium for transmitting electrical power.

System components

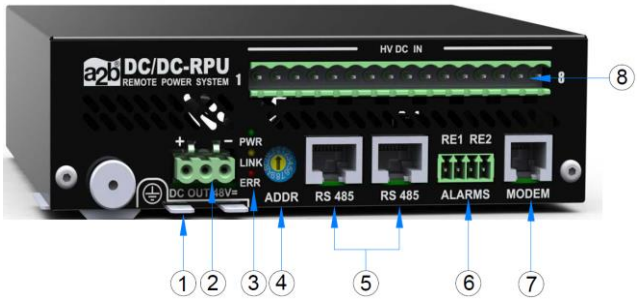
DC/DC-TPU-120-48 module



DC/DC-RPU-120-48 module

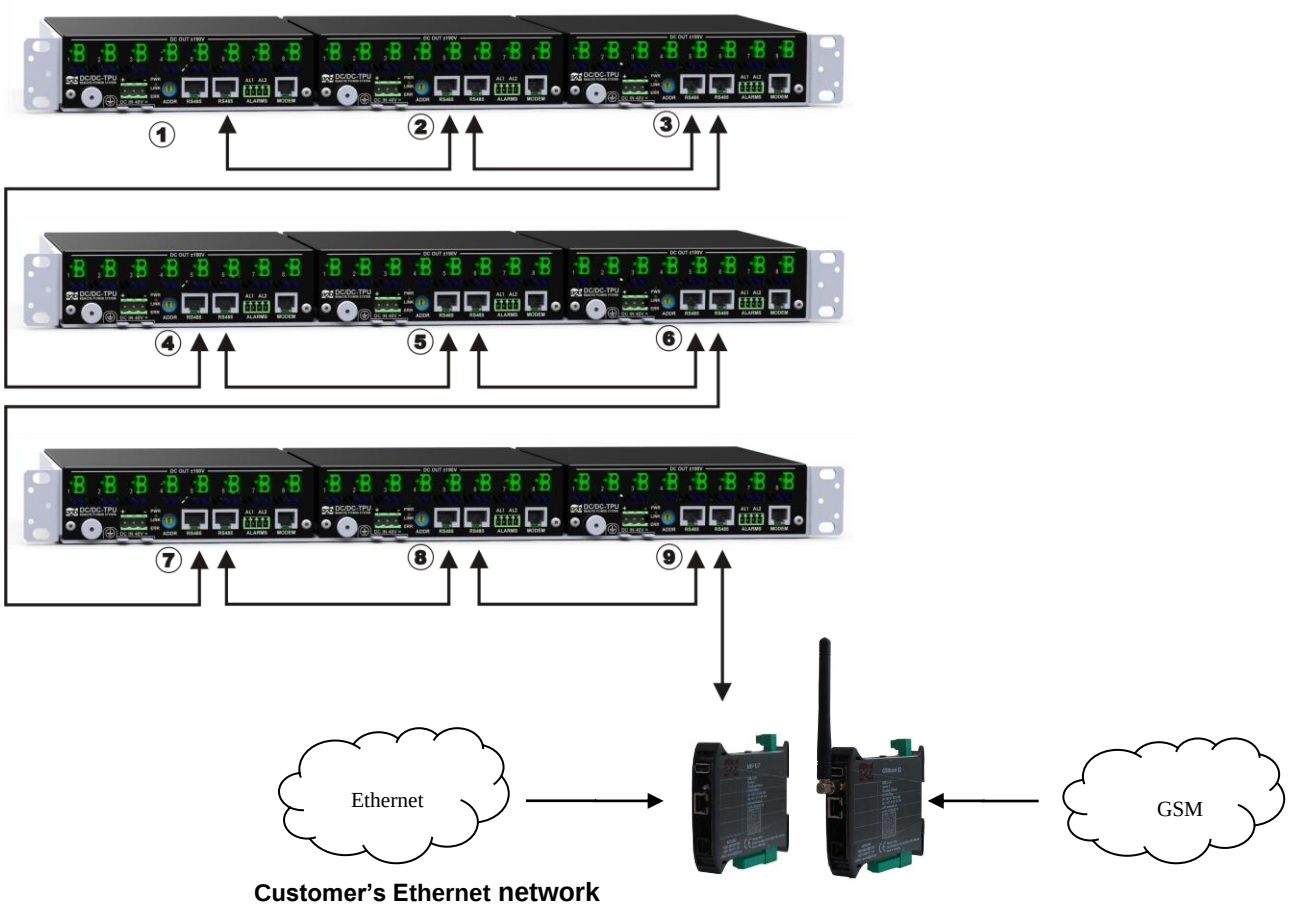
DC/DC-TPU-120-48 module, DC/DC-RPU-120-48 module connectors

DC/DC-TPU-120-48 module		
No	**Connector**	**Description**
1	**Grounding terminals**	
2	**Input voltage connection**	Nominal value of 48 V DC. Input voltage range is 40 ÷ 60 V
3	**Operating state signalisation**	*Green* – device is powered *Yellow* – active internal system communication between DC/DC-TPU-C-120-48 and remote DC/DC-RPU-C-120-48 *Red* – fault condition on the side DC/DC-TPU-C-120-48 or DC/DC-TPU-120-48 also on side of communicating DC/DC-RPU-C-120-48
4	**Rotary switch**	Switch of the user defined module address on the basis of which the module is addressed to RS485 bus and protocol Modbus-RTU. There cannot be multiply identical addresses located on a shared bus of chained modules. Address has to be unique.
5	**RS485**	RS485 bus designed to manage individual modules through protocol on Modbus-RTU. The device is clearly defined by the address of the rotary switch.
6	**Potential free alarm outputs**	AL1 – Urgent alarm AL2 – Non-urgent alarm
7	**Internal communication interface**	Interface between DC/DC-TPU-C-120-48 and remote DC/DC-RPU-C-120-48 designed for the transmition of measured values and conditions on the receiving side DC/DC-RPU-C-120-48.
8	**DC outputs**	8 x outputs 360 V DC (±180 V DC)



DC/DC-RPU-120-48 module		
No	**Connector**	**Description**
1	**Grounding terminals**	
2	**Output voltage connection**	Nominal value of 48 V DC.
3	**Operating state signalization**	*Green* – device is powered *Yellow* – active internal system communication between DC/DC-TPU-C-120-48 and remote DC/DC-RPU-C-120-48 *Red* – fault condition on the side DC/DC-TPU-C-120-48 or DC/DC-TPU-120-48 also on side of communicating DC/DC-RPU-C-120-48
4	**Rotary switch**	Switch of the user defined module address on the basis of which the module is addressed to RS485 bus and protocol Modbus-RTU. There cannot be multiply identical addresses located on a shared bus of chained modules. Address has to be unique.
5	**RS485**	RS485 bus designed to manage active load sharing individual modules through internal protocol. The device is clearly defined by the address of the rotary switch.
6	**Potential free alarm outputs**	RE1 – Digital output 1 RE2 – Digital output 2
7	**Internal communication interface**	Interface between DC/DC-TPU-C-120-48 and remote DC/DC-RPU-C-120-48 designed for the transmition of measured values and conditions on the receiving side DC/DC-RPU-C-120-48.
8	**DC input**	1 x input 48 V DC

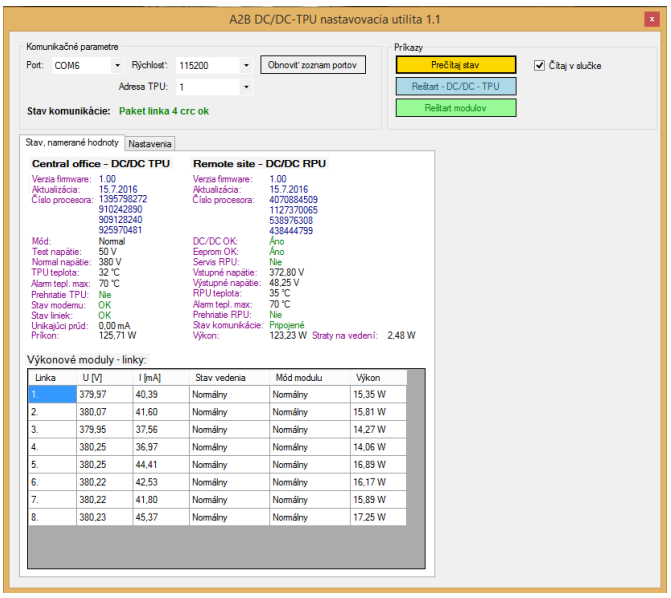
DC/DC-TPU parallel configuration



Customer's Ethernet network

Monitoring

Remote monitoring modules



DC/DC TPU software

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Technical specifications

General information		
System	**DCS-RPS-xxx - 48 (xxx = output power = 120 to 1080 multiply by 120 W)**	
Electrical data		
Nominal input voltage	48 V DC	
Input voltage operating range	40 – 60 V DC	
Nominal output voltage	48 V DC	
Parallel operation	Active power sharing	
Max. parallel modules in system	9 in 3 1U shelfs – total 3U 3 modules per 1U shelf	
Max. output Power	up to 1080 W (multiply by 120 W)	
Max. distance TPU - RPU	5000 m	
Minimum remote pair conductor diameter	0,4 mm	
Modules	**DC/DC-TPU-120-48**	**DC/DC-RPU-120-48**
Electrical data		
Nominal input voltage	48 V DC	360 V (±180 V) DC
Input voltage operating range	40 – 60 V DC	320 V to 380 V DC ±160 V to ±190 V DC
Nominal output voltage	360 V (±180 V) DC	48 V DC
Output voltage operating range	340 V to 380 V DC	46 – 56 V DC
Input current	max. 4,4 A	max. 58 mA / pair
Number of outputs	8	1
Number of inputs	-	8
Output current	max. 58 mA / pair	max. 2,5 A / module
Output power	max. 22 W / pair	max. 120 W / module 15W / pair
Efficiency	90 % at full load 88 % at half load	94 % at full load 92 % at half load
Input protection	Overvoltage, undervoltage, overcurrent	Overvoltage, undervoltage,
Output protection	Overvoltage, overload, short circuit, leakage current, over temperature, open circuit protection	Overvoltage, overload, short circuit, over temperature
Thermal protection	up to 80 °C in module space	
Surge protection	±250 V DC Output to ground bus	±250 V DC Input to ground bus
Communication	**DC/DC-TPU-120-48**	**DC/DC-RPU-120-48**
Visual	3 x LED (green, yellow. red))	3 x LED (green, yellow. red)
Isolated output	2 AL1 – Urgent alarm AL2 – Non-urgent alarm	2 RE1 – Dig. output 1 RE2 – Dig. output 2
Remote communication	RS485 with Modbus-RTU protocol Modem – connection with remote site	RS485 - internal Modem – connection with local site
MP module	Ethernet 10/100Mb, SNMP, MODBUS TCP, 4 dry contact relay, form A 4 digital inputs	

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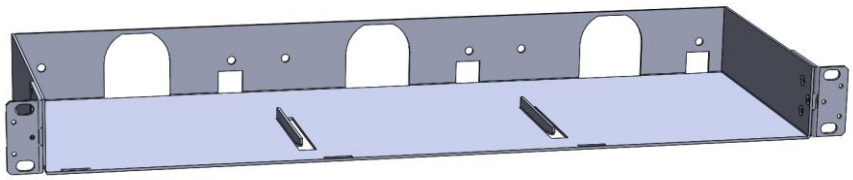
Operating conditions	DC/DC-TPU-120-48	DC/DC-RPU-120-48
Operational conditions	temperature: -25 °C to + 70 °C, humidity 10-95 %, non-condensing	
Storage and transport conditions	temperature: -40 °C to + 70 °C, humidity 10-95 %, non-condensing	
Cooling	built-in fan, forced	
Audible noise	49 dB @ 1m, full load	48 dB @ 1m, full load
Protection class	IP20	IP20
MTBF	> 200000 hours	> 220000 hours

Standards	DC/DC-TPU-120-48	DC/DC-RPU-120-48
EMC	EN55032 (EN55022) class B EN61000-3-2:2002 ETSI EN 300386	
Immunity	EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6	
Safety	EN 60950-1 EN 60950-21	

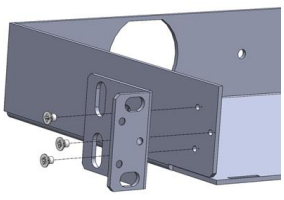
Modules	DC/DC-TPU-120-48	DC/DC-RPU-120-48
Mechanical data		
Height	44,2 mm (1U)	
Width	147 mm	
Depth	166 mm	
Weight	820 g	

19” / 21” Shelf	
Mechanical data	
Height	44,5 mm (1U)
Width	446 mm
Depth	154 mm
Weight	1500 g

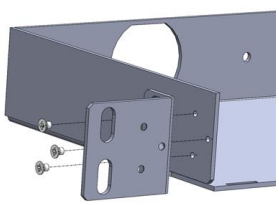
Accessories	DIN rail holder	Wall mount holder
Mechanical data		
Height	44 mm	2 mm
Width	88 mm	165 mm
Depth	90 mm	80 mm



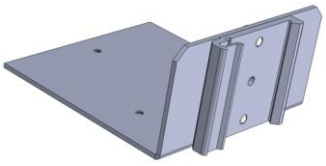
19”/21” Shelf for DC/DC-TPU modules and DC/DC- RPU modules



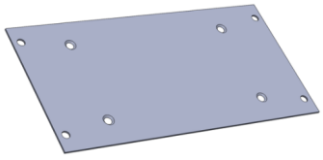
19” holder position



21” holder position

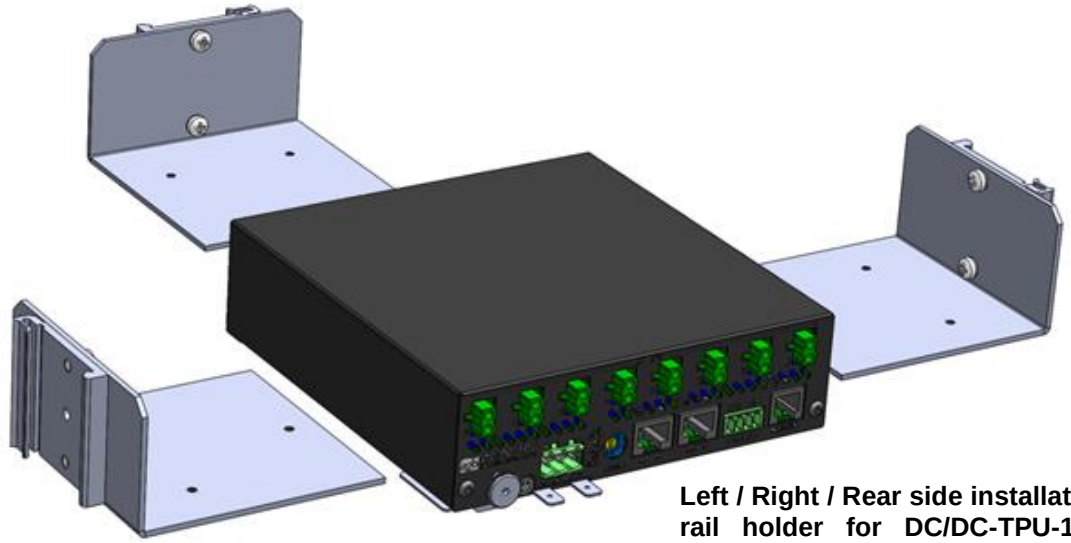


DIN rail holder

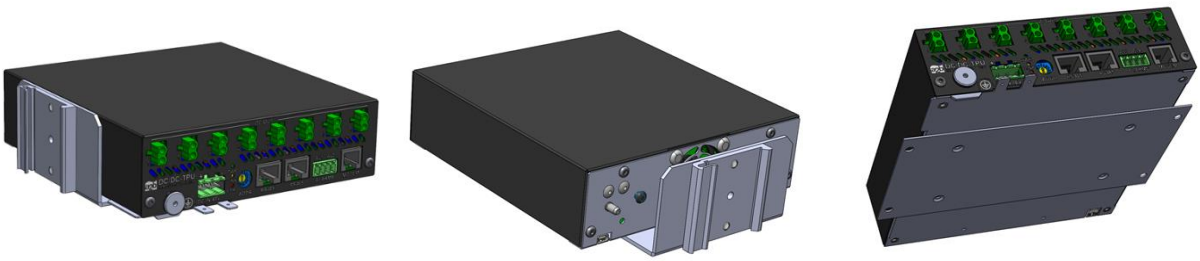


Wall mount holder

Examples of installations



Left / Right / Rear side installations of DIN rail holder for DC/DC-TPU-120-48 and DC/DC-RPU-120-48 modules



Examples for using of DIN rail and Wall mount holders

DC/DC-TPU-120-48 and DC/DC-RPU-120-48 modules installation in the 19”/21” shelf