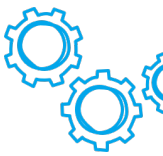




SMPS-T-01-1-120-DC24V-5A

The primary pulsed SMPS switch mode power supply is suitable for a wide range of automation applications in the machine building industry. As central unit of the DC 24 V level they can be used in combination with the 4230-T MCB for AC primary circuit protection. Thanks to the compact design it helps save space in the control cabinet. The 150 % power boost of the power supplies ensures increased machine uptime. Thanks to their mode options (continuous current/hiccup) and their wide output voltage range, they are suitable for a wide range of applications. Thanks to their flexible expandability, you can easily connect several power supplies in series, making future expansions possible without any problems.

SMPS-T-01-1-120-DC24V-5A



## TYPICAL FEATURES

- Efficiency factor of more than 90 %
- only 35 mm wide aluminium enclosure
- 150 % overload
- Constant current or hiccup mode limitation, adjustable by the user
- Wide range of output voltage

## TYP. APPLICATIONS

Process engineering, e.g. industrial switch and control systems, machine building industry, telecommunication systems

## WEB LINKS

[Further information](#), [International approvals](#), [Technical basics](#), [REACH](#), [RoHS](#), [Contact](#)

## YOUR BENEFITS

- High efficiency and space-savings through compact design
- Increased machine uptime through 150 % power boost
- Flexible application area through mode selection (constant current/hiccup) and wide range of output voltage
- Flexibly expandable through facilitated connection of the power supplies in series

## APPROVALS / CERTIFICATIONS



## COMPLIANCE



## GENERAL INFORMATION

### SAFETY AND INSTALLATION INSTRUCTIONS



Installation must be done by a qualified electrician.

- The device must only be supplied with power after proper installation.
- The user must ensure that the cable cross section complies with the applicable current rating. The national standards (e.g. for Germany DIN VDE 0100) must be observed for installation and selection of feed and return cables.
- Recommended circuit breaker for the primary input cable protection: E-T-A 4230 IN C4A circuit breaker
- In addition, special precautions must be taken in the system or machine (e.g. use of a safety PLC), which reliably prevent an automatic re-start of parts of the system (cf. Machinery Directive 2006/42/EU and EN 60204-1, Safety of Machinery). In the event of a failure (short circuit/overload) the load circuit is disconnected by the circuit breaker or the switch mode power supply.

## TECHNICAL DATA ( $T_u = +25\text{ °C}$ , $U_b = \text{AC } 230\text{ V}$ , $I_o = 5\text{ A}$ )

### INPUT CIRCUIT

|   |  |
|---|--|
| <b>Rated input voltage range <math>U_e</math></b> | AC 90...264 V<br>DC 110...345 V  |
| <b>Rated input voltage <math>U_n</math></b>       | AC 230 V   |
| <b>Input current</b>                              | 0.7 A typ. at $U_b = \text{AC } 240\text{ V}$<br>1.4 A typ. at $U_b = \text{AC } 120\text{ V}$ |
| <b>Mains frequency</b>                            | 47...63 Hz   |
| <b>Inrush current</b>                             | at AC 230 V: max. 32 A   |
| <b>Power loss</b>                                 | at $U_b$ 230 V, $I_o$ 5 A: < 13.5 W  |
| <b>Power factor correction</b>                    | > 0.9 (active)   |
| <b>Input protection</b>                           | Integral T3 fuse, 15 A / AC 250 V  |
| <b>Recommended back-up fuse</b>                   | 1 pole MCB e.g. E-T-A type 4230; C4 protector  |

### OUTPUT CIRCUIT

|  |  |
|--|--|
| <b>Output power rating</b>                     | 120 W  |
| <b>Rated output voltage <math>U_o</math></b>   | DC 24 V SELV   |
| <b>Rated output current <math>I_o</math></b>   | 5 A  |
| <b>Overload limit in constant current mode</b> | 7.5 A  |
| <b>Output voltage accuracy</b>                 | $\pm 1\%$  |
| <b>Minimum load</b>                            | 0 %  |
| <b>Load regulation</b>                         | $\pm 3\%$  |
| <b>Voltage setting range</b>                   | DC 11.5...29 V   |
| <b>Continuous rated load</b>                   | 5 A at $U_o = \text{DC } 24\text{ V}$  |
| <b>Power boost factor</b>                      | Typ. 150 %   |
| <b>Hold-up time</b>                            | $\geq 20\text{ ms}$ at AC 120 V<br>$\geq 30\text{ ms}$ at AC 240 V   |
| <b>Residual ripple</b>                         | $\leq 60\text{ mVpp}$  |
| <b>Reverse voltage resistance</b>              | Min. DC 33 V   |
| <b>Touch (leakage) current</b>                 | $\leq 0.5\text{ mA}$   |
| <b>Capacitive load</b>                         | Max. 2400 $\mu\text{F}$  |
| <b>Operating conditions signalling</b>         | DC OK - green LED<br>OVERLOAD - red LED<br>DC OK - potential-free contact  |
| <b>Limit value display</b>                     | DC OK - 90 % of $U_o$ when switched ON (21.6 V)<br>OVERLOAD - 110 % of $I_n$ when switched on (5.5 A)<br>OVERLOAD - Hiccup mode at 7.5 A (max. 5 s)<br>OVERLOAD - C.C. (Constant Current) at 7.5 A |
| <b>Parallel mode</b>                           | 4 power supplies max. at 0.1...0.8 $I_o$   |

## ELECTRICAL DATA

|  |  |
|--|--|
| <b>Rated insulation voltage</b>                | Input to output: AC 3 kV / DC 4.2 kV<br>Protective ground input: AC 1.56 kV / DC 2.2 kV<br>Protective ground output: AC 0.53 kV / DC 0.75 kV |
| <b>Efficiency</b>                              | Typ. > 90 %  |
| <b>Life time expectation</b>                   | 74,640 h (8.5 years) at 25 °C ambient, full load   |
| <b>Insulation co-ordination (EN IEC 60664)</b> | Pollution degree: 2  |

## MECHANICAL DATA

|                                    |  |
|------------------------------------|--|
| <b>Mounting dimensions (WxHxD)</b> | 35 x 103 x 134.15 mm (version with terminals)                          |
| <b>Mounting position</b>           | Wall mounting with input terminals pointing downwards (see dimensions) |
| <b>Mass</b>                        | Approx. 450 g  |
| <b>Material</b>                    | Aluminium  |
| <b>Mounting data</b>               | Fixation on DIN rail (TS35/7.5 or TS35/15)                             |
| <b>Convection cooling</b>          | normal air convection, distances: see drawing                          |

## MOUNTING VALUES

| Input terminal connection capacity                    | Cable cross section [mm <sup>2</sup> ] | Cable cross section [AWG] | Stripping length [mm] |
|---|--|---------------------------|-----------------------|
| rigid   | 0.2...2.5                              | 26...12                   | 11...12               |
| flexible  | 0.2...2.5                              | 26...12                   | 11...12               |
| flexible with wire end ferrule with plastic sleeve    | 0.25...2.5                             | 26...12                   | 11...12               |
| flexible with wire end ferrule without plastic sleeve | 0.25...2.5                             | 26...12                   | 11...12               |
| Output terminal connection capacity                   | Cable cross section [mm <sup>2</sup> ] | Cable cross section [AWG] | Stripping length [mm] |
| rigid   | 0.2...2.5                              | 26...12                   | 10                    |
| flexible  | 0.2...2.5                              | 26...12                   | 10                    |
| flexible with wire end ferrule with plastic sleeve    | 0.2...2.5                              | 26...12                   | 10                    |
| flexible with wire end ferrule without plastic sleeve | 0.2...2.5                              | 26...12                   | 10                    |

## AMBIENT CONDITIONS

|   |  |
|---|--|
| <b>Ambient temperature</b>  | -35...+70 °C (UL certified up to 60 °C)  |
| <b>Derating</b>   | 1.2 W/°C above +60 °C (see characteristic curve)   |
| <b>Storage temperature</b>  | -40...+80 °C   |
| <b>Damp heat</b>  | <b>Test according to UL 61010</b><br>5...95 % rel. humidity  |
| <b>Vibration</b>  | <b>Test according to IEC 60068-2-6</b><br>Mounted on DIN rail, 2 g (17.8...500 Hz), on X, Y & Z axis, 120 minutes per axis   |
| <b>Shock</b>  | <b>Test according to IEC 60068-2-27, test Ea</b><br>20 g (11 ms), 3 axes, 6 sides, 3 times per side  |
| <b>IP code (standard)</b>   | IP20   |
| <b>EMC requirements (EMC directive, CE logo) emitted interference</b>       | <ul style="list-style-type: none"> <li>• EN55011 (CISPR11) - Class B</li> <li>• EN61000-3-2 - Class A</li> <li>• EN61000-3-3</li> </ul>  |
| <b>EMC requirements (EMC directive, CE logo) resistance to disturbances</b> | <ul style="list-style-type: none"> <li>• EN61000-4-2 - Level 3 (Air), Level 2 (Contact)</li> <li>• EN61000-4-3 - Level 3 (80-1000MHz), Level 2 (1.4-6GHz)</li> <li>• EN61000-4-4 - Level 3</li> <li>• EN61000-4-5 - Level 3</li> <li>• EN61000-4-6 - Level 3</li> <li>• EN61000-4-8 - Level 4</li> <li>• EN61000-4-11 - Level 2</li> </ul> |

|                           |  |
|---------------------------|--|
| <b>MTBF</b>               | > 500,000 hours at 25 °C   |
| <b>Operating altitude</b> | 2,000 m a. sea level (SL)<br>3,000 m a. SL<br>4,000 m a. SL up to +60 °C<br>(from 3,000 m a. SL load reduction 1.4 % and temperature reduction 1 °C per 100 m) |

## ORDERING NUMBER CODE



### 1 TYPE NUMBER

SMPS Single phase switch mode power supply for DIN rail mounting

### 2 PANEL CUT-OUT

T DIN rail mounting

### 3 TERMINAL

01 Push-in terminals

### 4 PHASE

1 single phase

### 5 POWER

120 120 Watt  
240 240 Watt  
480 480 Watt

### 6 OUTPUT VOLTAGE

DC24V

### 7 OUTPUT CURRENT

5A  
10A  
20A

## APPROVALS



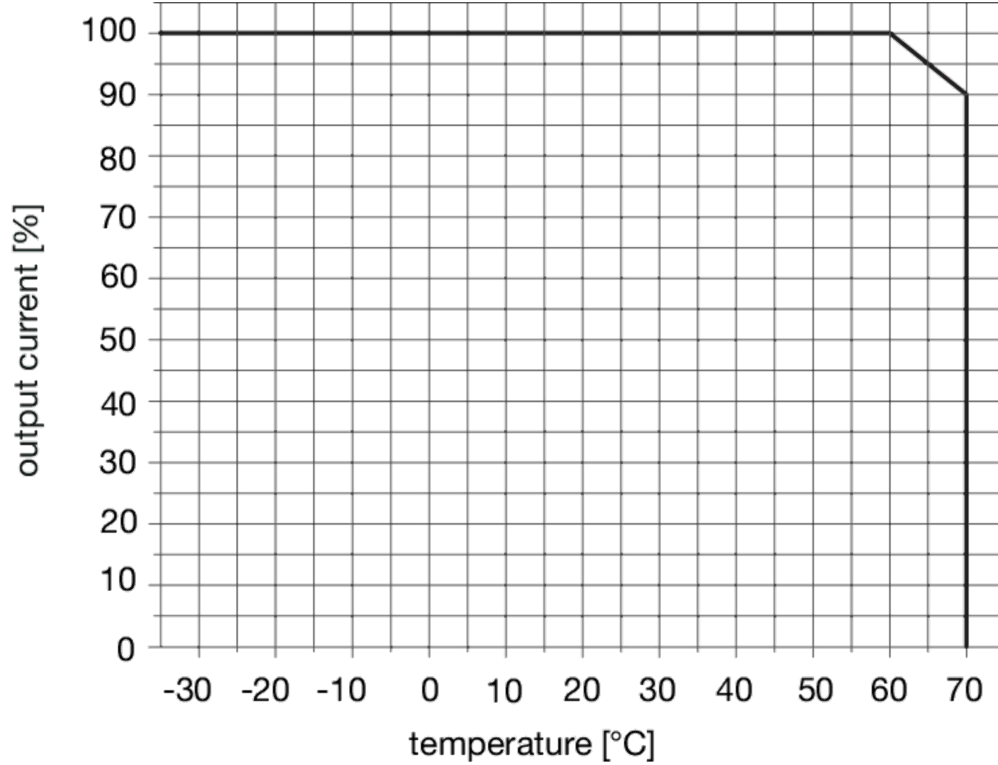
- UL508
- UL61010-1
- UL61010-2-201



- IEC/EN61010-1
- IEC/EN61010-2-201

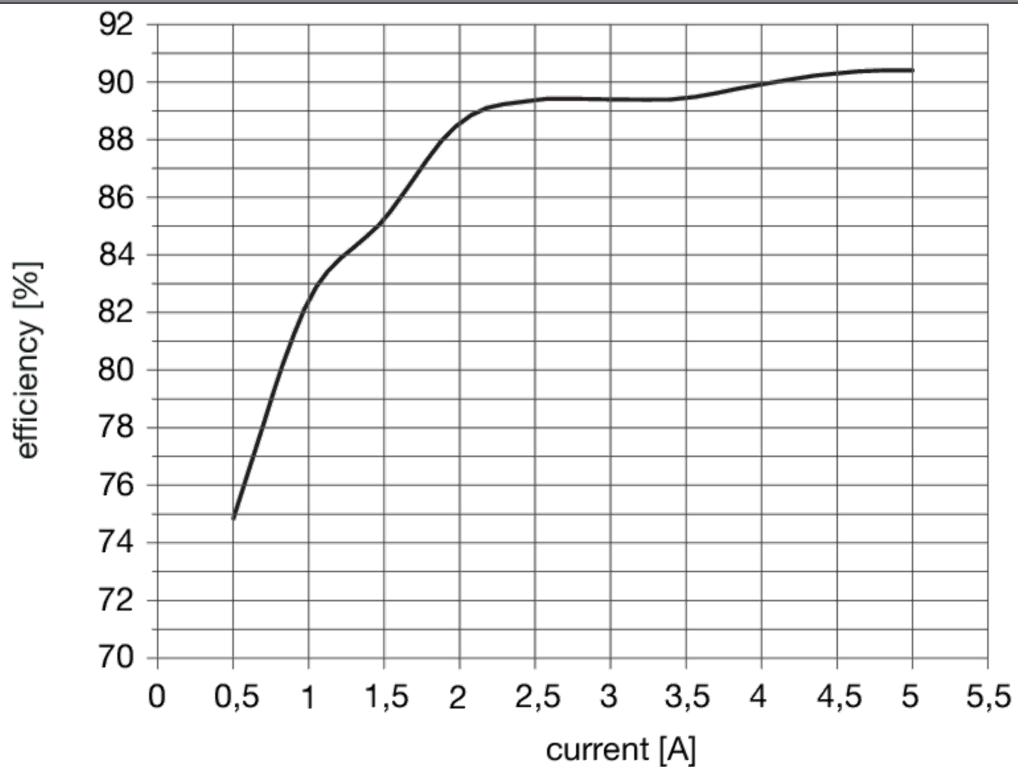
## DERATING

DERATING CURVE AC 240 V 5 A



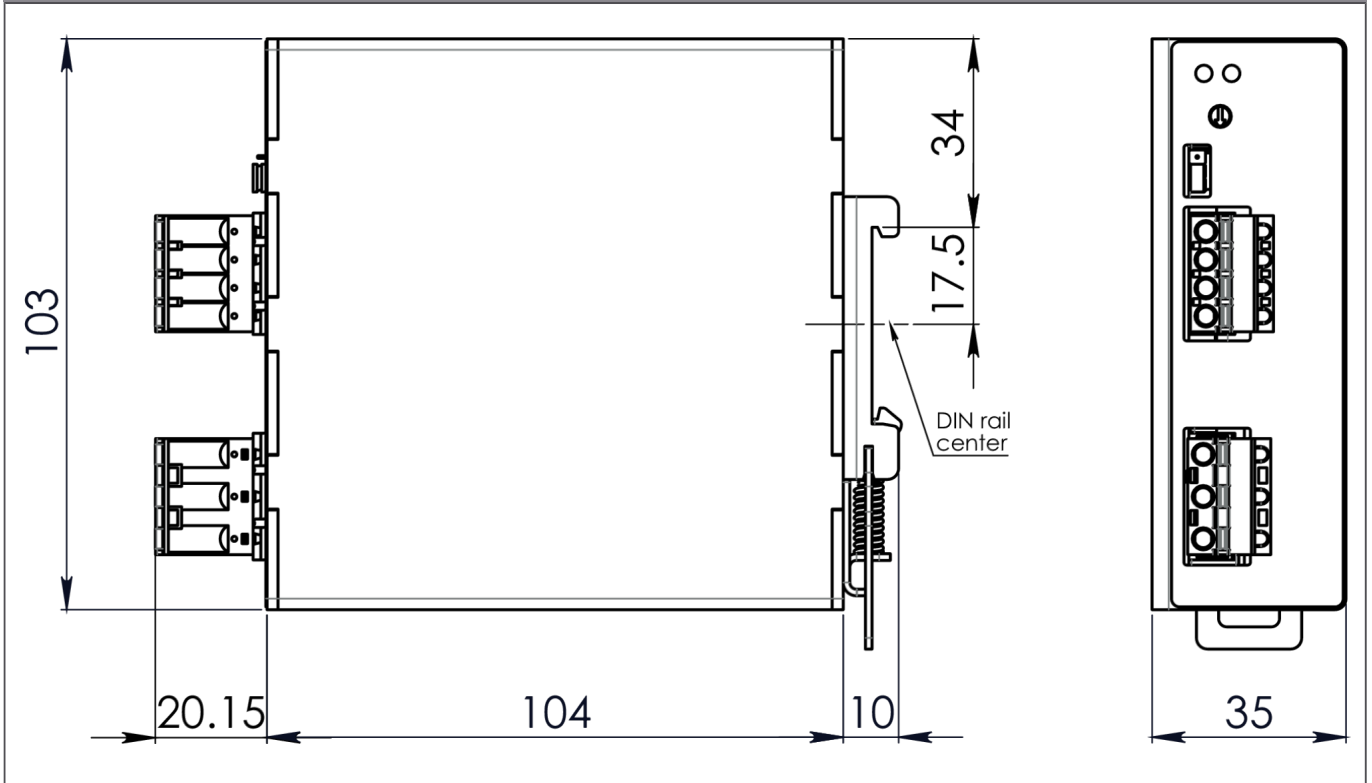
## EFFICIENCY

EFFICIENCY FACTOR AC 240 V 5 A



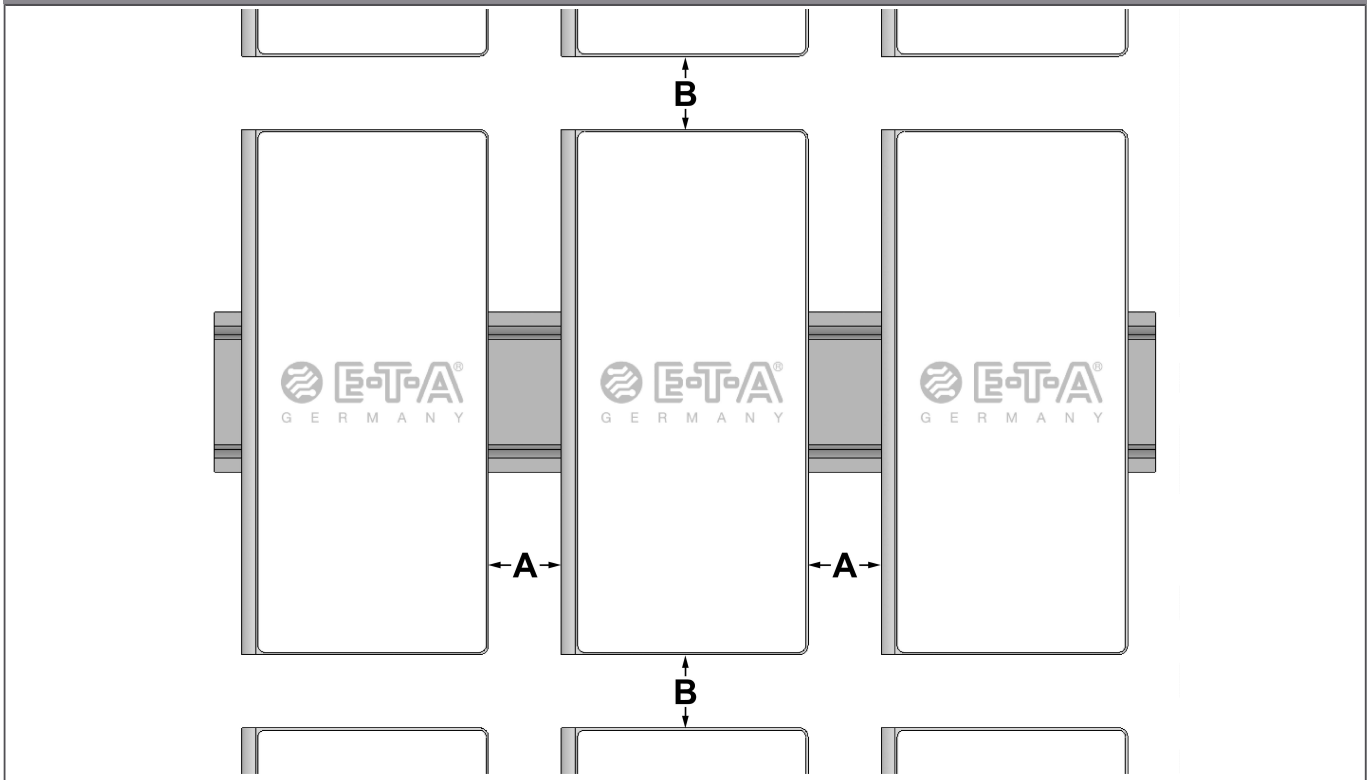
## DIMENSIONS

SMPS-T-01-1-120-DC24V-5A



## INSTALLATION INSTRUCTIONS

INSTALLATION INSTRUCTION



A = 20 mm; B = 50 mm

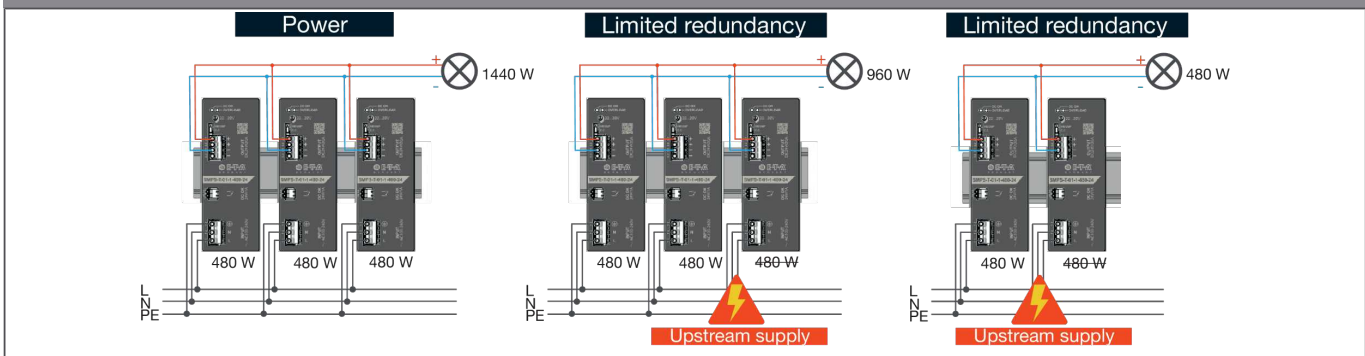
## INSTALLATION INSTRUCTIONS

### PIN ASSIGNMENTS

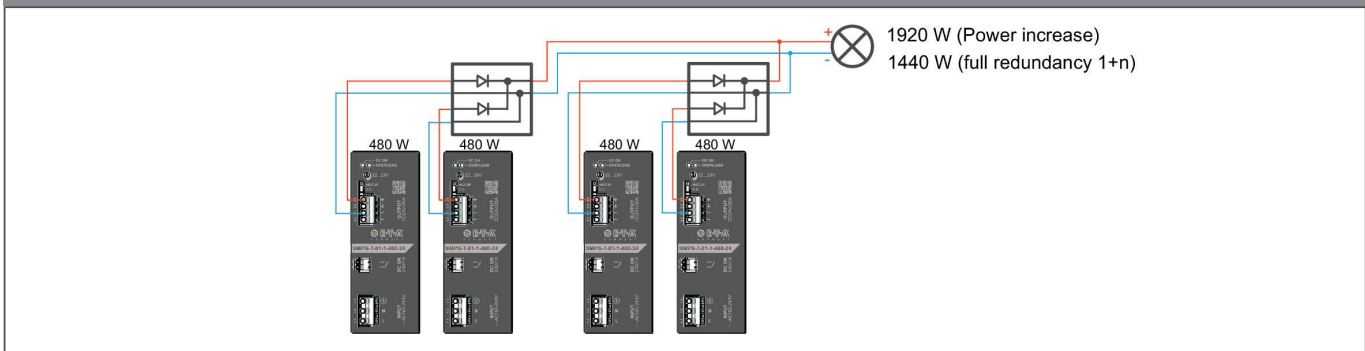
| Pin no. | Name         | Description        |
|---------|--------------|--------------------|
| 1.1     | Earth Ground | Input Connection   |
| 1.2     | Neutral      | Input Connection   |
| 1.3     | Line         | Input Connection   |
| 2.1     | DC +         | Output Connection  |
| 3.1     | DC -         | Output Connection  |
| 13      | NO           | Signalling / DC OK |
| 14      | COM          | Signalling / DC OK |

## APPLICATION EXAMPLES

### PARALLEL OPERATION - LIMITED REDUNDANCY



### PARALLEL OPERATION - INCREASED PERFORMANCE



- All outputs must be set to the same voltage
- Ensure identical load wiring (cable length and cross section)
- If more than three power supplies are paralleled, they must electrically be decoupled

## FURTHER PRODUCTS


### RELATED PRODUCTS

#### OSMPS1002

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SMPS-T-01-1-240-DC24V-10A



|                  |  |   |
|------------------|--|---|
| <u>0SMPS1003</u> | <p>The primary pulsed SMPS switch mode power supply is suitable for a wide range of automation applications in the machine building industry. As central unit of the DC 24 V level they can be used in combination with the 4230-T MCB for AC primary circuit protection. Thanks to the compact design it helps save space in the control cabinet. The 150 % power boost of the power supplies ensures increased machine uptime. Thanks to their mode options (continuous current/hiccup) and their wide output voltage range, they are suitable for a wide range of applications. Thanks to their flexible expandability, you can easily connect several power supplies in series, making future expansions possible without any problems.</p> <p>SMPS-T-01-1-480-DC24V-20A</p> |  |
|------------------|--|---|

*All information and data given on our products are accurate and reliable to the best of our knowledge, but E-T-A does not accept any responsibility for the use in applications which are not in accordance with the present specification. E-T-A reserves the right to change specifications at any time in the interest of technical improvement. Dimensions are subject to change without notice. Please enquire for the latest dimensional drawing with tolerances if required. All dimensions, data, pictures and descriptions are for information only and are not binding. Amendments, errors and omissions excepted. Ordering part numbers may differ from the device marking.*