

AC-DC Converter REC2400-230-48-K5

Rectifier System for Telecom applications

Specification

General

| | |
|-------------------|--|
| Electrical safety | EN 60950, UL 94 |
| Protection class | 1 |
| Pollution degree | 2 |
| Isolation | primary – secondary 3.75 kV DC |
| PFC | according to EN 61000-3-2, >0,98 at 100% load; >0,95 at 60% load |
| Hot plug-in | modules can be replaced during operation |
| Ventilation | forced ventilation, electronically monitored fans |
| MTBF | 140 000 h |

Electrical data

Input

| | |
|--------------------------|------------------------------------|
| Mains input voltage nom. | $U_N = 230V_{AC}, 50/60Hz$ |
| Voltage range | $\pm 20\% (184-276) V_{AC}$ |
| Frequency range | 45-66Hz, sine wave |
| Mains connection | 1-3 phase |
| Commercial power line | TT and TN-Net according to EN60950 |

Output

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|--------------------------|---|
| Output voltage | -48V _{DC} , positive pole is connected to chassis / protective earth |
| Output voltage tolerance | temperature controlled battery loading characteristic |
| Output power | from 600-2400W, module size = 600W, without derating up to 60°C ambient temperature |
| Output characteristic | UPI characteristic, transition from P to I at $\leq 33V_{DC}$ |
| Output ripple | <100 mVpp |
| Efficiency | >90% at nominal load |
| Parallel operation | redundant de-coupling of the 600W modules with diode function |
| Load sharing | active, accuracy $\pm 10\%$ |



Picture may differ from actual device

Environmental conditions

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|--------------------------------------|--|
| Conditions during operation | ETS 300 019-1-3 class 3.3, extended to +60°C ambient temperature |
| during transport | ETS 300 019-1-2 class 2.3 |
| during stocking | ETS 300 019-1-1 class 1.2 |
| Isolation group | according to EN 60950, pollution degree 2 |
| Ambient temperature during operation | -25°C to +60°C |
| Cold start | -40°C, adherence of tolerances from -25°C |
| Maximum ambient temperature | +70°C, from +60°C with derating = 2,5% per 1°C |
| Rel. humidity | 0% to 100%, start-up after drying |
| Maximum operation altitude | 3000 meters |
| Protection | IP 20 |
| EMC | |
| Emission | EN 55022, class B, ETS 300 386 V1.3.1 |
| Immunity | EN 55024, EN 61000-6-2 (Industrial areas) |

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Signals

| | |
|----------------|---|
| Alarm contacts | 4 programmable, potential free alarm contacts, max. 125V _{DC} , 500mA |
| Visual | Controller: LED 1 (green) = DC o.k., LED 2 (green) = AC o.k., LED 3 (red) = Failure Rectifier: LED 1 (green) = DC o.k., LED 2 (green) = AC o.k. |
| RS 232 | interface for data reading, parameter adjustment |

Battery management

| | |
|------------------------|---|
| Symmetry control | 3 monitoring inputs |
| LVD | integrated low voltage disconnect relay |
| Battery test | adjustable via RS 232 interface in combination with a monitoring software |
| Temperature monitoring | PT1000 sensor input at the controller |

Protection functions

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|-----------------|--|
| AC input | overvoltage, according to EN 61000-4-1 (VDE 0160): 750V _{AC} 0,1/1,3ms |
| DC output | overvoltage, repetitive trace function, tripping value $\leq 60V_{DC}$ short circuit current $I_c = 18A$ each rectifier module (without accumulator), short-circuit proof |
| Leakage current | a fixed protective earth (PE) connection must be setup |

Cooling

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|-------------------|---|
| Rectifier modules | horizontally forced ventilation, with fan failure detection |
|-------------------|---|

Mechanical data

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|------------------|--|
| Construction | for mounting in ETSI- and 19"-racks (flanges can be changed) |
| Dimension | 19" x 240mm x 3U (W x D x H) |
| Weight | Module rack + controller + fuse panel |
| Single rectifier | approx. 12kg approx. 1,5kg |

Connection terminals

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|-------------|--|
| AC input | screw clamps (1-3 phase) inside module rack, for sheathed cable 5 pole: 5 x 1,5mm ² or 3 pole: 3 x 2,5mm ² |
| DC input | screw clamps, type HDFKV, 16mm ² |
| Signal | male connector, type Phoenix MC1,5/17-G3,5,1,5mm ² |
| RS 232 | female connector, 9 pole |
| DC output 1 | screw clamps, type HDFKV, 16mm ² |
| DC output 2 | screw clamps, type HDFKV, 16mm ² |
| DC output 3 | screw clamps, type HDFKV, 16mm ² |

Distribution / Fuse panel

| | |
|-------------|---|
| DC Input | circuit breaker, magneto-hydraulic, 80A, 2 pole |
| DC Output 1 | circuit breaker, magneto-hydraulic, 63A, 1 pole |
| DC Output 2 | circuit breaker, magneto-hydraulic, 63A, 1 pole |
| DC Output 3 | circuit breaker, magneto-hydraulic, 10A, 1 pole |

Warranty

24 months

Order code

Fully equipped module rack (2400 W) REC2400-230-48-K5