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## DK 7979.412 PDU managed

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ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES

FRIEDHELM LOH GROUP



# DK 7979.412 - PDU managed

High-end IT rack power distribution with energy measurement and monitoring functions for each individual output slot. Input with CEE connector (16 A/32 A) with C13 and C19 outputs.



## Features

|                     |   |
|---------------------|---|
| Model No.           | DK 7979.412   |
| Design              | PDU, managed  |
| Product description | High-end power distribution in a compact design for IT network and server racks. Depending on the design, they come with an extensive range of management functions for energy measurement and monitoring.  |
| Benefits            | <p>For vertical mounting, it may be attached in the zero-U space of the Rittal VX IT or TS IT rack with no need for tools</p> <p>Colour coding of phases and fuse circuits (L1=pink, L2=black, L3=white)</p> <p>Tool-free divider kit for VX IT</p> <p>PDU self-supplied, no external power supply required</p> <p>Measurement accuracy <math>\pm 1\%</math> (kWh) to EN 62 053-21</p> <p>Programmable startup behaviour following voltage recovery (on/off/last status)</p> <p>Programmable switching behaviour (time/programmable logic)</p> <p>Integral real-time clock with battery buffering (max. 10 years, battery replaceable)</p> <p>Integral electromagnetic buzzer for acoustic alarms</p> <p>Adjustable limit values (warning/alarm) for current, voltage, output, individual settings for each output slot</p> |

# Features

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| Technical specifications | <p>Display/controller unit in the PDU enclosure rotatable through 180° and replaceable</p> <p>Integral, fully-redundant power pack, power supply from all phases</p> <p>Error-tolerant PDU power supply redundant across all phases</p> <p>Voltage V, current A, frequency Hz</p> <p>Active power, active energy, apparent power, apparent energy</p> <p>Power factor (cosPhi) and phase angle</p> <p>Zero conductor current measurement/load imbalance detection</p> <p>Fuse monitoring for PDUs with integral fuse</p> <p>Bright TFT display, 128 x 128 pixels (RGB) with back-lighting and energy-saving mode to display output data and basic PDU configuration</p> <p>Position sensors for display rotation and correct PDU representation on the website</p> <p>Multi-colour LEDs (green/amber/red) to indicate switching states and limits per individual output slot</p> <p>Power LED to indicate voltage</p> <p>Power-saving design, minimal intrinsic power consumption</p> |
| Material                 | <p>Aluminium section, black anodised</p> <p>Slots: Plastic</p>  |
| Supply includes          | <p>Assembly parts</p>   |
| Options                  | <p>Type 3 overvoltage protection with interchangeable arresters while operational, with status monitoring, suitable for integration into PDU enclosure</p> <p>Residual current measurement (type B) per infeed/phase/fuse</p> <p>Monitoring of the optionally available overvoltage protection</p> <p>CMC III CAN bus sensors may be connected for ambient monitoring, max. 16 sensors</p> <p>Other enclosure colours are available</p>   |

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# Features

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| Measurement functions, description | Emergency power supply to PDU web server via PoE, sequential disconnection of the outputs<br>Switching function per output slot<br>Avoids overload peaks: Sequential activation of the outputs following voltage recovery<br>Relay states are saved even in the event of a power failure<br>Bistable relays: Low current consumption and high switching capacity, also suitable for higher starting currents up to max. 300 A<br>Grouping: Joint switching of multiple outputs<br>Measurement per phase or infeed<br>Plus measurement per output slot<br>Powerful CPU (ARM Cortex A8)<br>Digital input (floating contact)<br>Additional alarm output/relay output (changeover contact) |
| Dimensions                         | Width: 44 mm<br>Depth: 70 mm<br>Length: 1,095 mm   |
| No. of sockets and type            | 16 x C13 / 2 x C19   |
| Sockets                            | 16 x C 13<br>2 x C 19  |
| Rated operating voltage            | 230 V (AC)   |
| Rated current (max.)               | 32 A   |
| Power consumption                  | 7.4 kW   |
| Infeeds                            | Qty.: 1<br>Phases per infeed: 1~   |
| Length of connection cable         | 3 m  |
| Type of electrical connection      | CEE  |

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# Features

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| Interfaces                             | USB 2.0 port (USB-A) for mass configuration, firmware updates & data logging<br>CAN bus interface (RJ 45) for a maximum of 16 ambient sensors<br>Serial interface RS232 (RJ12) for LTE unit, scripting, CLI<br>Use of own certificates/TLS 1.2<br>E-mail forwarding in case of alarm (SMTP)<br>User administration including rights management<br>LDAP(S)/Radius/Active Directory connection<br>Syslog server connection (max. 2 servers)<br>Fully redundant Ethernet interface 10/100/1000 Mbit/s |
| Number RJ45 ports for sensor units max | 2  |
| Directives                             | EMC Directive 2014/30/EU<br>Low Voltage Directive 2014/35/EU   |
| Standards                              | EN 62368-1<br>EN 61000-3<br>EN 61000-4<br>EN 61000-6<br>EN 62053-21  |
| Protocols                              | Web server (HTTP, HTTPS, SSL) SSH, Telnet, NTP<br>TCP/IP v4 & v6, DHCP, DNS<br>SNMP v1, v2c & v3, Modbus/TCP, OPC-UA<br>MIB for linking into 3rd party DCIM software<br>FTP/SFTP (update/file transfer)  |
| Operating temperature range            | 5 °C...50 °C   |
| Ambient humidity (non-condensing)      | 10...95 %  |
| Storage temperature range              | -20 °C...70 °C   |
| To fit                                 | Enclosure type: VX IT enclosure frame: ≥ 1,200 mm<br>Enclosure type: VX IT 19" mounting angles: ≥ 1,800 mm   |
| Packs of                               | 1 pc(s).   |
| Net weight                             | 4.5 kg   |
| Gross weight                           | 4.5 kg   |
| Customs tariff number                  | 85366990   |

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# Features

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| ETIM 9              | EC002762  |
| ETIM 8              | EC002762  |
| ECLASS 8.0          | 27142604  |
| Product description | DK PDU managed, high-end power distribution incl. energy measurement, switching and monitoring functions per output slot, with network interface and display, WLD: 44x1095x70 mm, IEC 60320: 16x C13 + 2x C19 |

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# Approvals

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|              |   |
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| Approvals    | Cyber Security Certificate<br>TÜV-tested safety |
| Explanations | Declaration of conformity                       |

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# Tender text

Rittal PDU managed Model No.: DK 7979.412

Compact power distributor for deployment in IT server and network enclosures. Vertical installation in the Zero-U space using the supplied universal brackets for common IT racks. Suitable for tool-free quick assembly in the Rittal VX IT and TS IT racks using the special supplied plug-%-play fastener. Robust aluminium housing with permanently mounted output slots, IEC 60320/C13 or IEC 60320/C19 as well as CEE 7/3 (earthing-pin) and BS 1363 (UK), depending on the type (see below for details). The IEC C13 / C19 output slots can be protected with a lock against unintentional removal of the connectors. Unused slots can be closed with slot covers available as accessories. This precludes an unintentional overloading of individual phases or circuits. The fuse circuits and

phases are colour-coded for multiphase PDU variants. A fixed-mounted connection cable with IEC C20 or CEE connector appropriate for the variant makes the PDU available for immediate deployment.

The PDU managed has extensive measurement and switching functions for the current and power monitoring of each output slot. The integral TFT colour display enables the basic configuration setting and quick access to the electrical consumption data. Two Gigabit network interfaces and the integrated Web server allow remote access and data transmission using various protocols. The consumption parameters can be forwarded to a DCIM software via SNMP, OPC-UA, Modbus/TCP. For monitoring the ambient parameters, up to 16 sensors (for example temperature / humidity / smoke / leakage / access) as well as VX IT and TS IT handle systems from the CMC accessories program can be connected to the CAN sensor interface.

Optionally, an overvoltage protection module (type3) can be placed on the PDU at the infeed; the overvoltage protection module is equipped with arrestors that can be replaced during operation. For intelligent PDUs, the status is monitored via the network interface, the PDU basic has a floating alarm contact for monitoring the overvoltage protection. As option, intelligent PDU variants can be supplied with an AC/DC sensitive residual current measurement (RCM type B) with up to 6 measurement points. This changes the PDU length and the number of installed slots for each standard length.

Technical specifications managed

Input voltage range (L/N/PE): 230 VAC, 50-60Hz

input current: 32A

No. of phases: 1

Marking of phases (3-phase PDU only L1, L2, L3):

Rittal Power Pink, black, white

Number of slots type IEC 60320/C13 (total): 16

Number of slots type IEC 60320/C13

(per phase/fuse): 16 / 8

Number of slots type IEC 60320/C19 (total): 2

Number of slots type IEC 60320/C19

(per phase/fuse): 2 / 1

Number of slots type CEE 7/3 (total): -

Number of slots type CEE 7/3  
(per phase/fuse): -  
No. of circuit breakers: 2  
Hydraulic-magnetic protective circuit-breaker: 16 A  
Slots individually switchable: Yes  
Connector PDU input:  
IEC 60309 / CEE (L+N+PE, 6h)  
Length of connection cable: 3m  
Connection cable type: H05-VV  
No. of wires: 3  
Cable cross-section: 4mm<sup>2</sup>  
PDU housing width: 44mm  
PDU housing depth: 70mm  
PDU housing height: 1095mm  
PDU material: Aluminium, anodised, in RAL 9005 (black)<(,<)>  
other colours available on request  
PDU mounting adaptor (VX IT / TS IT) –Mounting options:  
Frame + Zero-U space + cable route  
Measurement functions: Measurement per output or slot  
Switching function: Switching per output slot  
Values recorded (per phase): Voltage (V), current (A)<(,<)>  
frequency (Hz), Active power (kW), active energy (kWh)  
apparent power (kVA), apparent energy (kVAh)  
reactive power (var), power factor<(,<)>  
THD (voltage and current) for 3 phases<(,<)>  
Crest factor for single-phase<(,<)>  
Neutral conductor current measurement  
fuse monitoring (at 32 A); optional:  
Residual current monitoring (RCM): AC + DC (RCM type B)  
max. 6 measurement points per PDU possible  
(input / per phase / per fuse)  
0 mA – 100 mA je RCM  
Voltage measurement range: 90 - 255 V  
Voltage resolution: 0.1 V  
Current measurement range: 0 - 32 A  
Current resolution: 0.1 A  
Measurement accuracy: 1 %  
Freely settable limit values per slot  
for (warning/alarm): Voltage, current, power: yes  
Operating hours meter: Yes  
Controllerboard: can be rotated  
and replaced during operation

Display: TFT, RGB 128x128 pixels  
Network interface: 2x RJ45, per 10/100/1000 MBit/s  
Supported protocols: IPv4 / IPv6<(,<)>  
integral web server, HTTP, HTTPS, SSL, SSH<(,<)>  
NTP, Telnet, TCP/IP v4 und v6, DHCP, DNS, NTP<(,<)>  
Syslog, SNMP v1, v2c und v3, Traps<(,<)>  
OPC-UA, Modbus/TCP<(,<)>  
FTP/SFTP (update/file transfer)<(,<)>  
E-mail forwarding (SMTP)  
User administration including rights management: Yes  
LDAP(S)/Radius connection: Yes  
USB port for firmware update  
and data logging functions: Yes  
Initial commissioning / mass configuration:  
yes, with predefined CSV file  
CAN bus interface: RJ45, for connecting 16 sensors  
CAN sensor types: Temperature<(,<)>  
temperature/humidity (combined),infrared access sensor<(,<)>  
leakage,ariflow,EFD, NH measurement module, smoke alarm  
vandalism, differential pressure<(,<)>  
VX IT / TS IT handle system  
Plug & play drivers - Rittal RiZone DCIM software: Yes  
Digital input: 1  
Alarm relay: 48 V DC/2 A  
Acoustic signal encoder  
Serial interface:  
RS232 (e.g. for LTE unit 7030.571)  
Conformity: CE  
Standards:  
Safety: EN 62368  
EMV:  
EN 55022 / B  
EN 61000-4-2  
EN 61000-4-3  
EN 61000-6-2  
EN 61000-6-3  
Low Voltage Directive: 2014/35/EU  
EMC Directive: 2014/30/EU  
MTBF (at 40°C) 100.000 hours  
Protection category: IP20 (EN 60529)  
Protection class: Class 1  
Pollution degree: 2

Overvoltage category: II

Environmental properties: 2011/65/EU (RoHS 2), WEEE

Storage temperature: -20°C to +70°C

Ambient temperature: +5°C to +50°C

Ambient humidity: 10-95% rel. humidity, non-condensing

Betriebshöhe (max.ü.NN.): 3000m

Connector lock for C14 and C20 connectors: 1x

(further connector locks optional - DK 7979.020)

Covers C13 (optional accessory): DK 7955.010

Covers C19 (optional accessory): DK 7955.015

Type: Rittal PDU managed Model No.: DK 7979.412