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DK 7979.311 PDU switched

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ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES

FRIEDHELM LOH GROUP



DK 7979.311 - PDU switched

High-end IT rack power distribution: Smart PDU with measurement function per phase and individually switchable output slots.



Features

Model No.	DK 7979.311
Product description	High-end power distribution in a compact design for IT network and server racks. With switching function and power measurement at the infeed or per phase.
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 $\pm 1\%$ (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 voltage, current, output</p> <p>Operating hours meter, total and cyclical, resettable</p>

Features

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>Monitoring of the optionally available overvoltage protection</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 warning/alarm limits per phase or infeed</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> <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>

Features

Measurement functions, description	Emergency power supply to PDU web server via PoE, sequential disconnection of the outputs Switching function per output slot Avoids overload peaks: Sequential activation of the outputs following voltage recovery Relay states are saved even in the event of a power failure Bistable relays: Low current consumption and high switching capacity, also suitable for higher starting currents up to max. 300 A Grouping: Joint switching of multiple outputs Measurement per phase or infeed Powerful CPU (ARM Cortex A8) Digital input (floating contact) Additional alarm output/relay output (changeover contact)
Dimensions	Width: 44 mm Depth: 70 mm Length: 1,095 mm
No. of sockets and type	10 x earthing-pin (type F, CEE 7/3)
Rated operating voltage	230 V (AC)
Rated current (max.)	16 A
Power consumption	3.7 kW
Infeeds	Phases per infeed: 1~
Length of connection cable	3 m
Type of electrical connection	CEE
Interfaces	USB 2.0 port (USB-A) for mass configuration, firmware updates & data logging CAN bus interface (RJ 45) for a maximum of 16 ambient sensors Serial interface RS232 (RJ12) for LTE unit, scripting, CLI Use of own certificates/TLS 1.2 E-mail forwarding in case of alarm (SMTP) User administration including rights management LDAP(S)/Radius/Active Directory connection Syslog server connection (max. 2 servers) Fully redundant Ethernet interface 10/100/1000 Mbit/s
Directives	EMC Directive 2014/30/EU Low Voltage Directive 2014/35/EU

Features

Standards	EN 62368-1 EN 61000-3 EN 61000-4 EN 61000-6 EN 62053-21
Protocols	Web server (HTTP, HTTPS, SSL) SSH, Telnet, NTP TCP/IP v4 & v6, DHCP, DNS SNMP v1, v2c & v3, Modbus/TCP, OPC-UA MIB for linking into 3rd party DCIM software 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 Enclosure type: VX IT 19" mounting angles: ≥ 1,800 mm
Packs of	1 pc(s).
Net weight	4 kg
Gross weight	4 kg
Customs tariff number	85366990
ETIM 9	EC002762
ETIM 8	EC002762
ECLASS 8.0	27142604
Product description	DK PDU switched, compact basic power distribution incl. energy measurement per phase, individually switchable output slots, with network interface and display, WLD: 44x1095x70mm, CEE 7/3: 10x earthing earthing pin

Approvals

Approvals	TÜV
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Approvals

Explanations

Declaration of conformity

Tender text

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 and 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 switched has extensive measurement functions for the current and power monitoring of each phase. And switching functions for each output slot. The integral TFT colour display enables the basic configuration setting and quick access of the electrical consumption data. Two Gigabit network interfaces and the integrated Web server allow 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 switched

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

input current: 16A

No. of phases: 1

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

Rittal Power Pink, black, white

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

Number of slots type IEC 60320/C13

(per phase/fuse): -

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

Number of slots type IEC 60320/C19

(per phase/fuse): -

Number of slots type CEE 7/3 (total): 10

Number of slots type CEE 7/3

(per phase/fuse): 10

No. of circuit breakers: -

Hydraulic-magnetic protective circuit-breaker: 16 A

Slots individually switchable: Yes

Connector PDU input:

EN 60309 / CEE (L+N+PE, 6h)

Length of connection cable: 3m

Connection cable type: H05-VV

No. of wires: 3

Cable cross-section: 2,5mm²

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 phase or infeed

Values recorded (per phase): Voltage (V), current (A)<(,<)>

frequency (Hz), Active power (kW), active energy (kWh)

apparent power (kVA), 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 Typ B)
max. 6 measurement points per PDU possible
(input / per phase / per fuse)
0 mA – 100 mA je RCM
Voltage measuring range: 90V - 255V
Voltage resolution 0.1V
Current measuring range 0 - 16A/32A
Current resolution 0.1A
Measuring accuracy typ. $\pm 1\%$ according to IEC/EN 62 053-21
Freely adjustable limit values (warning/alarm) for
for voltage, current, power: Yes
Operating hours counter: 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 and v6, DHCP, DNS, NTP, Syslog
SNMP v1, v2c und v3, Traps(>,<)>
FTP/SFTP (update/file transfer)
OPC-UA, Modbus/TCP(>,<)>
FTP/SFTP (update/file transfer)<(>,<)>
E-mail forwarding (SMTP)
User administration including rights management: Yes
LDAP(S)/Radius/Active Directory connection: Yes
USB port for firmware update+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, airflow, 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
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
Safety 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
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 switched Model No.: DK 7979.311