SmartPDU-40U – MANUAL



ORDER-CODES:
KPMDU-RC-xxxxC13C19-x-xx

DATA SHEET SmartPDU-40U

KentixONE Operating mode

SiteManager Operation	Stand-Alone Operation

Further information on the operating mode

Overview

The SmartPDU is optimized for power supply of end devices in data and network cabinets with simultaneous power monitoring, consumption data logging and environmental monitoring and is typically mounted in a 19 inch rack. With the integrated PowerManager and MultiSensor, up to 100 SmartPDUs can be easily managed. The integrated PowerManager is network-compatible and is supplied with power via Power over Ethernet (PoE).

The SmartPDU can be operated as the main device (operating mode: Main Device) or in a network (operating mode: Satellite Device) with other SmartPDUs. The KentixONE software is already integrated via the integrated web server (HTTPS). Configuration is performed via web browser and, depending on the operating mode, locally on the SmartPDU itself (operating mode: Main Device) or on a central instance such as SiteManager or PowerManager (operating mode: Satellite Device).

The SmartPDU has a height of approx. 178cm (40 height units) and thus fits into all common server cabinets from 42 height units. The SmartPDU delivers a maximum output power of up to 22kVA (depending on the version) and is therefore ideally suited for server racks with high power consumption. Depending on the version, the SmartPDU-40U is also available as a two-phase variant so that electronic terminal devices are protected against possible failures by two separate power supplies. The power is supplied via a 3 meter long connection cable and a CEE plug (IEC60309) corresponding to the design.

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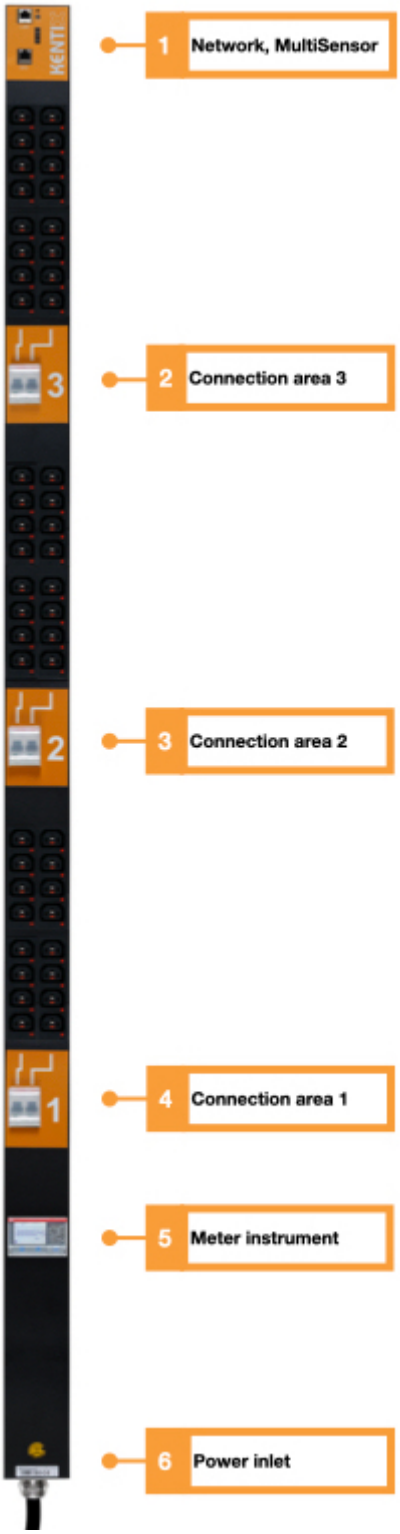
Safety instructions

Installation
Installation and commissioning may only be carried out by trained specialist personnel in accordance with the instructions.
No modifications of any kind may be made to Kentix GmbH products, with the exception of those described in the relevant instructions.
When installing Kentix devices, certain degrees of protection must be guaranteed.
Observe the relevant regulations for installations in the respective environment.
Only operate the products within the defined temperature range.
The instructions should be passed on to the user by the person carrying out the installation.
Kentix accepts no liability for damage to the devices or components caused by incorrect installation. Kentix accepts no liability for incorrectly programmed units.
Kentix accepts no liability for faults, material damage or other damage.
Use of the products, transport and storage
Protect the device from
moisture, dirt and damage during transportation, storage and operation.
Battery powered products
Do not use the products in potentially explosive atmospheres.
Only operate the products within the defined temperature range.
Installation and battery replacement may only be carried out by trained specialist personnel in accordance with the instructions.
Do not charge, short-circuit, open or heat batteries.
Observe the correct polarity when inserting the batteries.
The devices must always be operated with the batteries intended for the product.
When changing the batteries, always replace all batteries.
Dispose of old or used batteries properly.
Keep batteries out of the reach of children.
Maintenance
Kentix devices must be checked for functionality as part of annual maintenance.
Disposal
Electrical appliances and batteries must be disposed of separately from household waste.

Controls

Front

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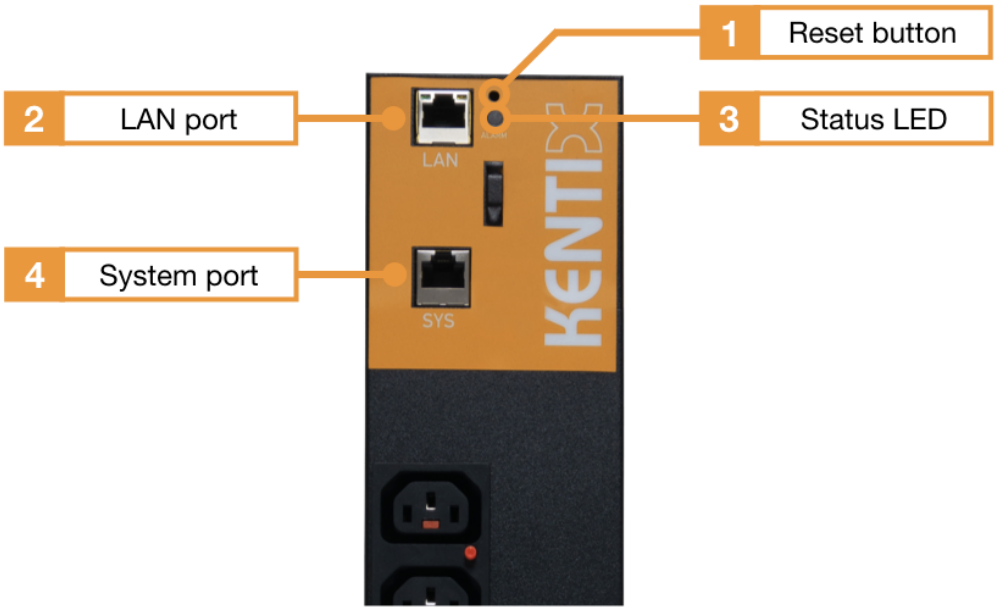


SmartPDU-40U Front view

1. Network connection (PoE) and Kentix system socket, Integrated sensors

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2. Connection area 3 (L3) with fuse C10/C16
3. Connection area 2 (L2) with fuse C10/C16
4. Connection area 1 (L1) with fuse C10/C16
5. Current meter with display (MID calibrated) and residual current measurement (RCM) measurement
6. Power connection depending on type 5-pole 16/32A or 3-pole 32A, cable length 3m



1. Reset button
2. Ethernet port with Power over Ethernet (100MBit, PoE Class 3)
3. Status LED:
   GREEN: POWER OK, no alarms pending
   RED**:** POWER OK, alarms pending
4. Kentix system port (type B)

Top view

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SmartPDU-40U SD card

1. MicroSD card slot

The SD card is required to perform a mass update or to save automatic data backups.

The micro SD card must be inserted into the PDU in the removed state.

SmartPDU-40U variants

KPMDU- Type – Number of sockets – Connector plug

Type	Description
KPMDU-RC- Number of sockets **–** connector plug	with residual current measurement (RCM)
KPMDU-RCSW- Number of sockets **–** connector plug	with residual current measurement (RCM) and sockets are switchable

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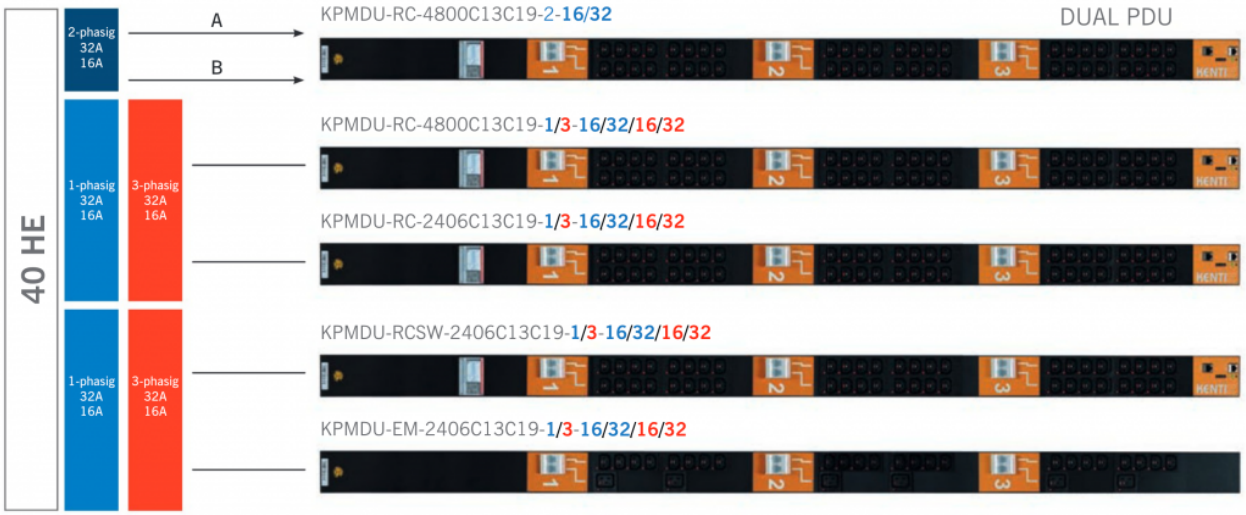
Type	Description
KPMDU-EM- Number of sockets **–** connector plug	Passive PDU

Number of sockets	Description
KPMDU- Type **-2406C13C19-** Connector plug	24x C13 sockets, 6x C19 sockets
KPMDU- Type **-4800C13C19-** Connector plug	48x C13 sockets

Connector plug	Description
KPMDU- type **–** number of sockets **-3-32**	3-phase, 32A per phase
KPMDU- type **–** number of sockets **-1-32**	1-phase, 32A per phase
KPMDU- type **–** number of sockets **-3-16**	3-phase, 16A per phase
KPMDU- type **–** number of sockets **-2-16**	2x 1-phase, 16A per phase
KPMDU- type **–** number of sockets **-2-32**	2x 1-phase, 32A per phase
KPMDU- type **–** number of sockets **-6-16**	2x 3-phase, 16A per phase

ORDER-CODES
KPMDU-RC-2406C13C19-3-32
KPMDU-RC-2406C13C19-1-32
KPMDU-RC-2406C13C19-3-16
KPMDU-RC-2406C13C19-1-16
KPMDU-RC-4800C13C19-3-32
KPMDU-RC-4800C13C19-1-32
KPMDU-RC-4800C13C19-3-16
KPMDU-RC-4800C13C19-1-16
KPMDU-RC-4800C13C19-2-32
KPMDU-RC-4800C13C19-2-16
KPMDU-RC-4800C13C19-6-16
KPMDU-RCSW-2406C13C19-3-32
KPMDU-RCSW-2406C13C19-3-16
KPMDU-RCSW-4800C13C19-3-32
KPMDU-EM-2406C13C19-3-32

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SmartPDU-40U variants

Functionalities

Cable fuse

Each SmartPDU is equipped exclusively with IEC lock device sockets. This prevents accidental disconnection of the connection cables on the PDU side. When using the appropriate IEC-Lock connection cables, accidental disconnection of the connection cables at the terminal device is prevented. The connection cables are available in black and red.



KPMDU-IL-C13C14-2/3-B (Schwarz)

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KPMDU-IL-C13C14-2/3-R (Red)



KPMDU-IL-C19C20-2/3-B (Schwarz)



KPMDU-IL-C19C20-2/3-R (Red)

Integrated residual current measurement (RCM): Testing according to

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DGUV V3

Depending on the version, the Kentix SmartPDU has an integrated residual current meter (RCM). This allows the plant inspection to be carried out in accordance with DGUV V3. This residual current measurement allows defective power supplies (server power supplies) to be detected at an early stage.

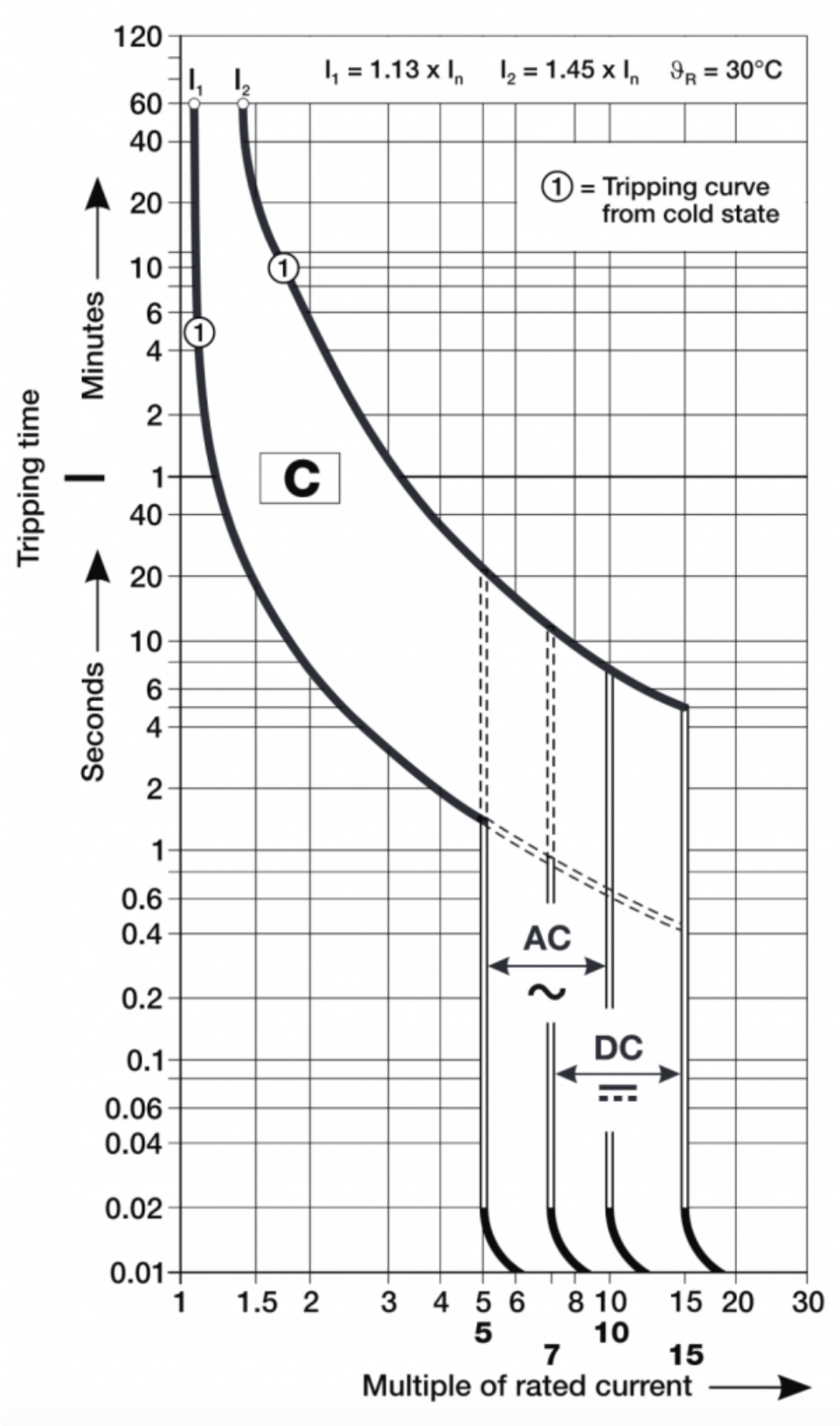
Circuit breaker

The SmartPDU is equipped with two circuit breakers per segment. All circuit breakers have type C tripping characteristics for increased inrush current. This ensures that in the event of a power failure and subsequent power recovery, the fuses are not immediately tripped by the inrush current when the connected terminal devices are started simultaneously. The inrush current can therefore be 5 times the rated current for a short time. Details of the current curve can be taken from the following diagram.

I1= Fixed non-tripping current at 30°C

I2= Fixed tripping current at 30°C

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Fuse characteristic with C-characteristic

Factory settings

For initial configuration, use the IP address printed on the device or the address assigned via DHCP in a web browser (HTTPS). Please note the network settings of your connected PC.

The factory IP addresses at a glance:

SiteManager and AlarmManager	192.168.100.222
MultiSensor	192.168.100.223
AccessManager	192.168.100.224
PowerManager	192.168.100.225
SmartPDU	192.168.100.226
Leakage sensor	192.168.100.227

Factory IP addresses, subnet mask: 255.255.255.0

For devices with a firmware version lower than 8.6.0, the login credentials for the default administrator account are: admin / password
For devices with firmware version 8.6.0 or higher, the login credentials for the default administrator account are: admin/Password1!

Reset to factory settings

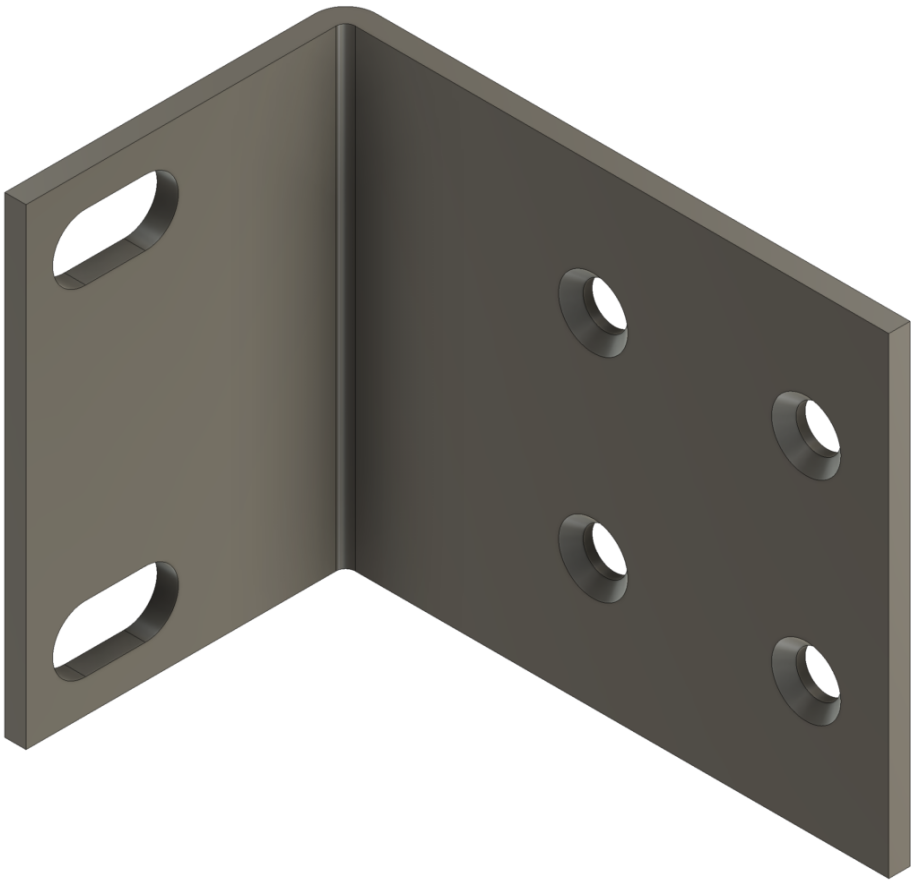
1. Restart the device (disconnect and reconnect the power supply).
2. The status LED lights up briefly and then goes out.
3. As soon as the status LED lights up green continuously, press and hold the reset button for 15 seconds until the device emits an acoustic feedback.
4. The device loads the factory settings and performs a restart.
5. After approx. 2 minutes, the device can be reached with the factory settings.

All existing settings and data will be irrevocably deleted!
We recommend regular system backups.

Assembly instructions

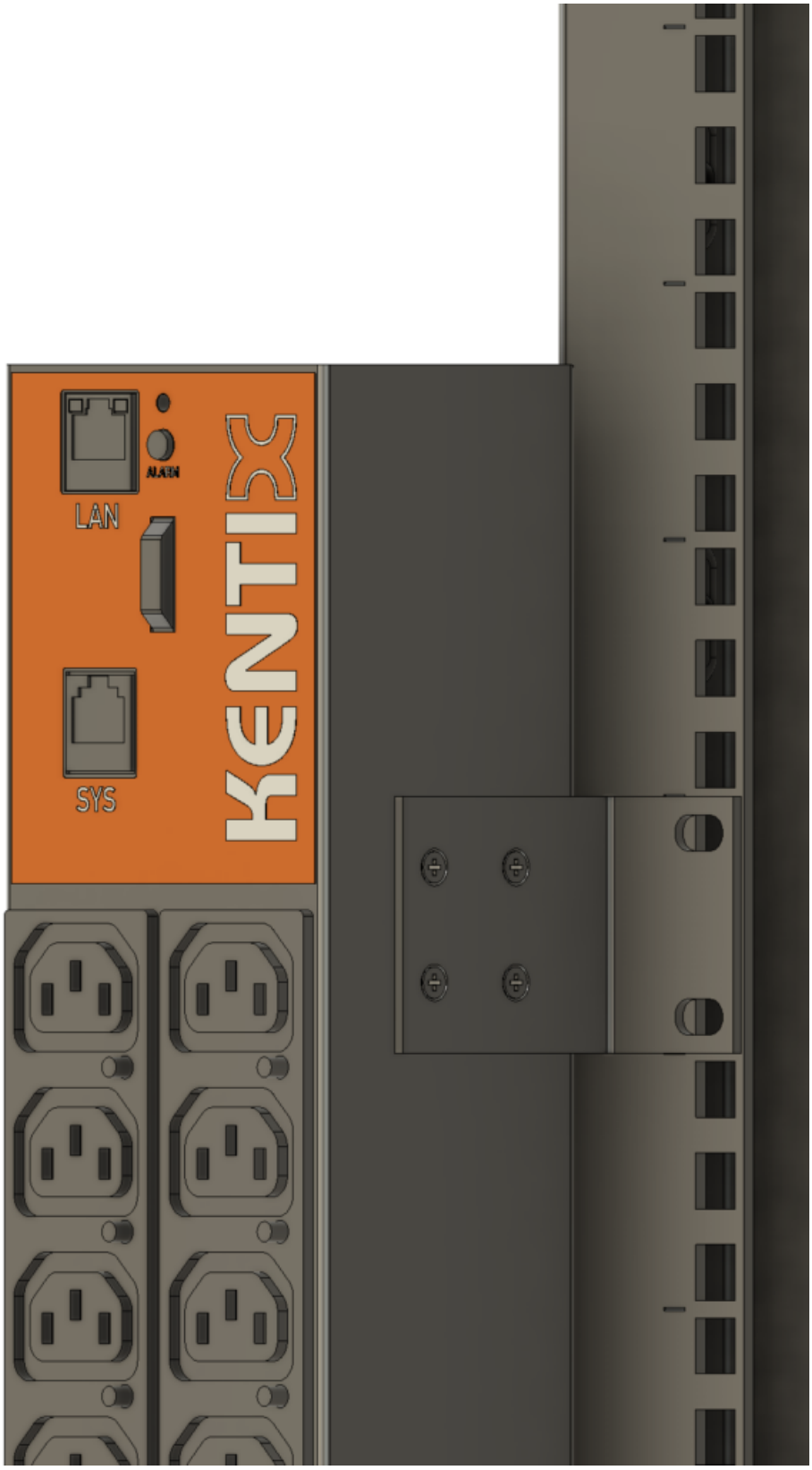
Mounting by means of mounting bracket

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The SmartPDU-40U is mounted vertically in a server rack. Three mounting brackets are supplied with each SmartPDU-40U for mounting. These are used to mount the PDU to a 19 inch rack.

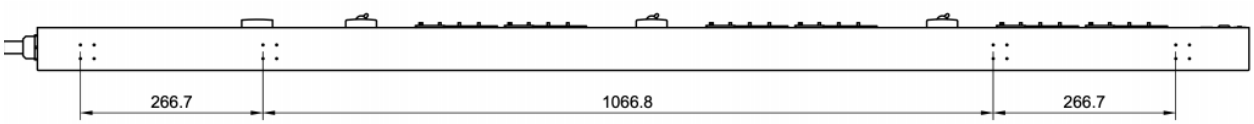
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Assembly steps

1. Screw the mounting bracket to the PDU using countersunk screws (hexagon socket, width across flats: 2).
2. Insert cage nuts (not included in scope of delivery)
3. Screw PDU to the rack with mounting brackets



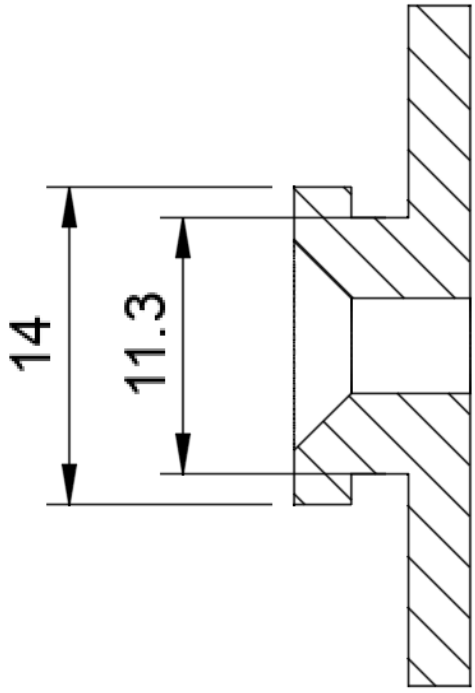
Positions for mounting brackets

ATTENTION! Only use the supplied countersunk screws (M3 x 5) to attach the mounting brackets to the SmartPDU. The use of longer screws can damage the SmartPDU.

Mounting by means of quick mounting bracket


KPMDU-MBR-1

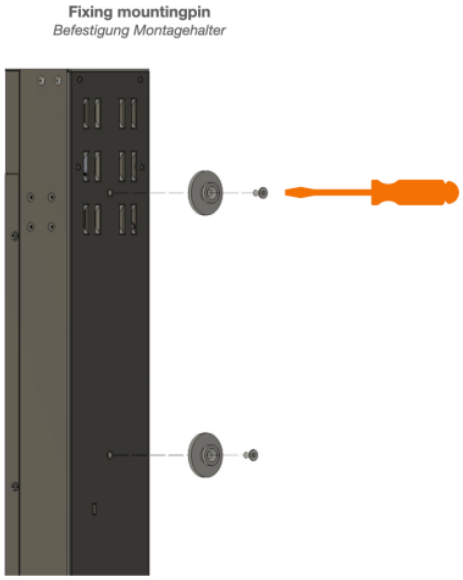
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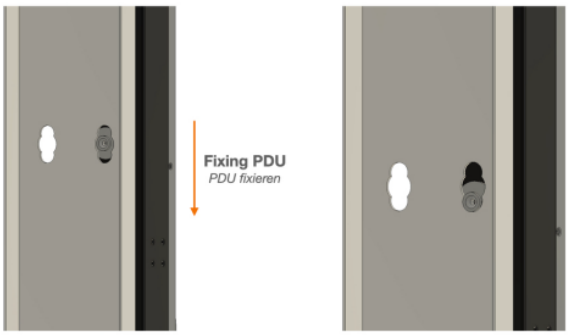
KPMDU-MBR-1 Dimensions [mm]

The quick mounting brackets are used to mount the SmartPDU on the rack if a suspension solution is available. The quick mounting bracket is screwed onto the back of the SmartPDU-40U. There are several holes for this purpose. Two quick mounting brackets must always be used to hang the PDU securely. These are not included with the SmartPDU and must be ordered separately (ORDER-CODE: KPMDU-MBR-1).

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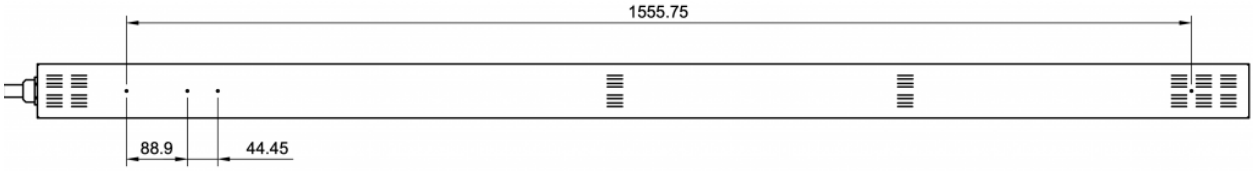
Fastening mounting bracket



Assembly steps

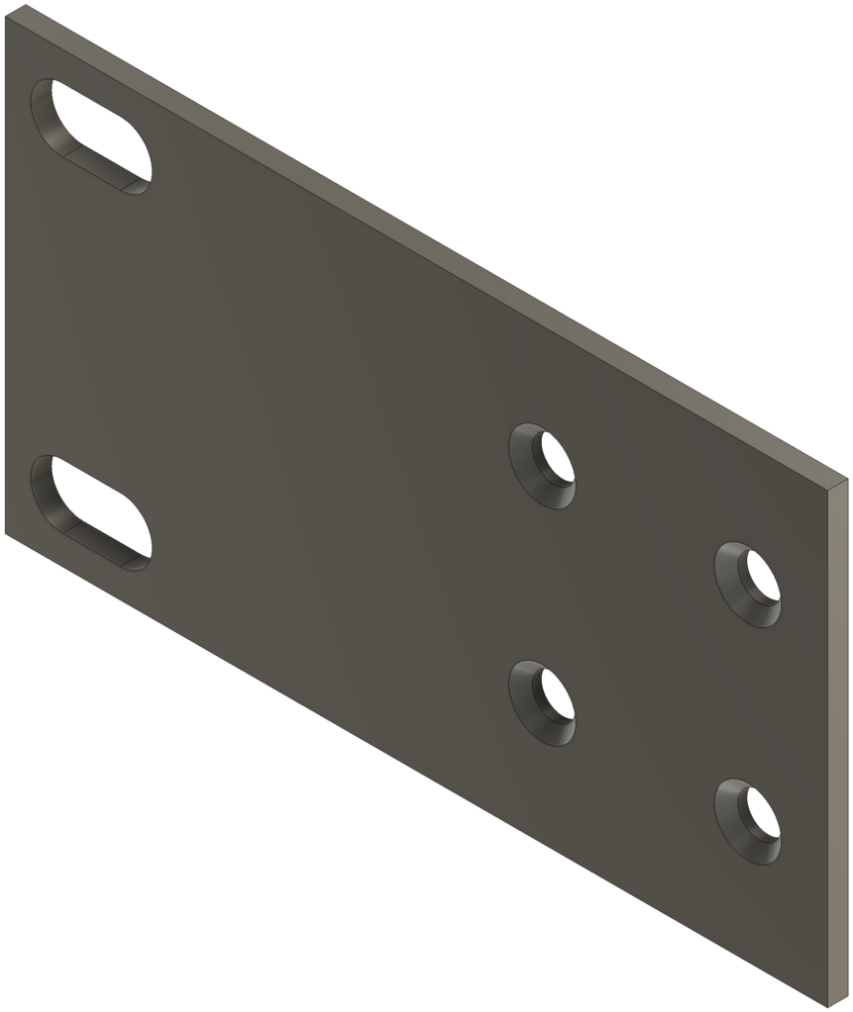
1. Screw quick mounting bracket to SmartPDU
2. Hook SmartPDU into the existing suspension solution

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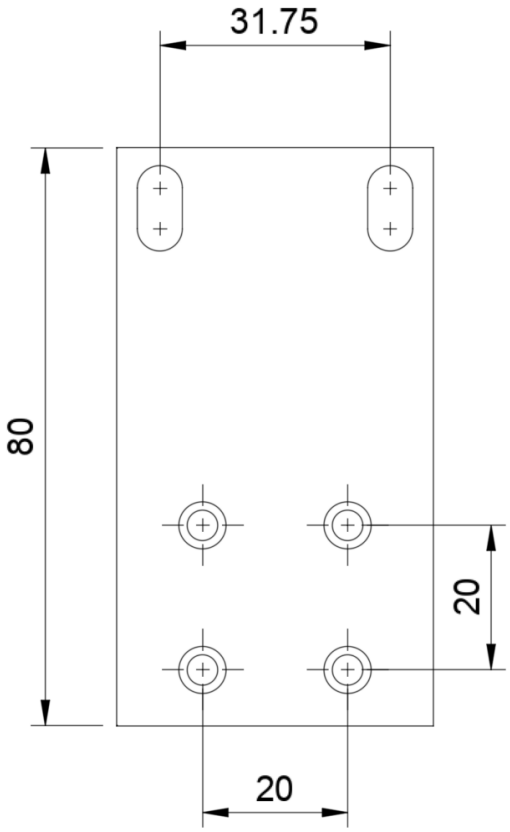


Positions for quick mounting bracket

Fastening by means of mounting plates



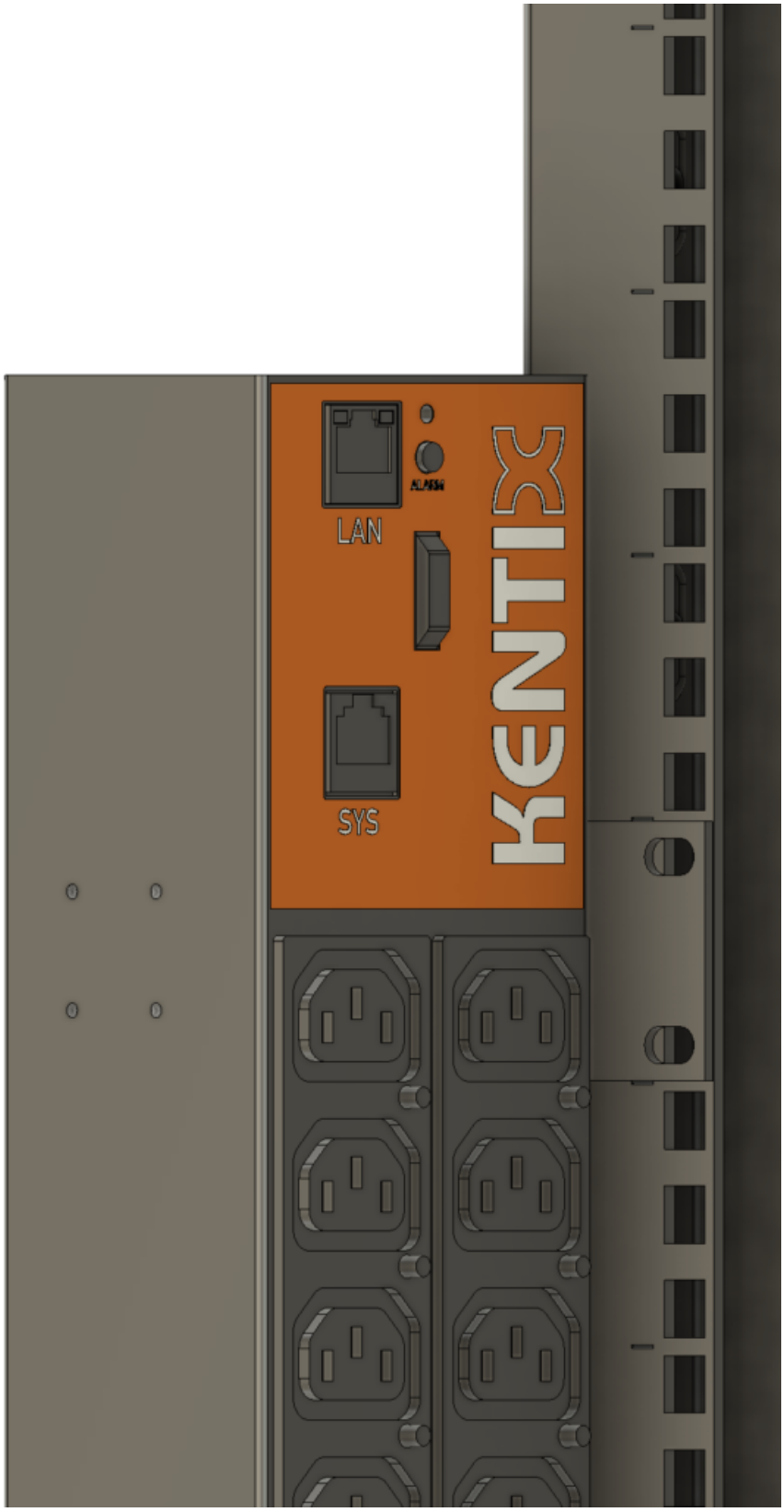
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KPMDU-MBR-3 Dimensions [mm]

To mount the SmartPDU, mounting plates can be ordered separately, which allow it to be mounted at a 90° vertical angle to the mounting bracket (ORDER CODE: KPMDU-MBR-3).

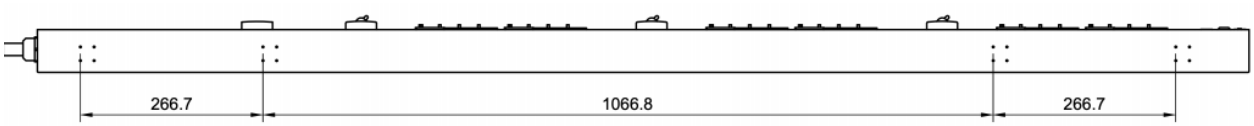
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Assembly steps

1. Screw the mounting plates to the PDU using countersunk screws (hexagon socket, width across flats: 2)
2. Insert cage nuts (not included in scope of delivery)
3. Screw the PDU to the rack with mounting plates



Positions for mounting plates

ATTENTION! Only use the supplied countersunk screws (M3 x 5) to attach the mounting plates to the SmartPDU. The use of longer screws can damage the SmartPDU.

Calibration of the room temperature measurement

Kentix MultiSensors record all important environmental values of a room, including the room temperature. In order to achieve the most accurate temperature possible and to trigger an alarm if the room temperature exceeds the limit value, we recommend calibrating the temperature measurement at the final installation location. This is especially necessary for sensors with Ethernet (PoE) connection, since a certain intrinsic heat falsifies the measurement. For MultiSensors with radio and battery supply, the influence of the intrinsic heat is not present.

Kentix MultiSensors are not calibrated measuring devices, but alarm devices whose measuring accuracy is completely sufficient for reliable reporting and documentation of limit value violations.

However, in order to obtain a good measurement result with reproducible measured values in the event of an alarm, the MultiSensor should be calibrated to the respective installation location after installation. To do this, the temperature in the immediate vicinity (approx. 5-10 cm away) of the MultiSensor must be measured comparatively with a room thermometer that is as accurate as possible. If there is a deviation in temperature between the MultiSensor and the thermometer, the temperature value can be corrected. This is done by entering the determined temperature difference between the MultiSensor and the room thermometer as a correction offset in the KentixONE software. The correction also has a direct influence on the measurement of the relative humidity and on the dew point calculation of the MultiSensor.

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Step	Note
Install MultiSensor at the destination.	The position and orientation of the sensor should not be changed afterwards. Please note the following: – Mount with the X air opening facing downwards – Do not mount in the air flow – Ventilation vents of the sensor must be unobstructed
Perform configuration of the MultiSensor with Kentix ONE.	
At the earliest 30 minutes after commissioning , adjust the temperature of the MultiSensor to the room temperature.	To do this, measure the temperature with an external reference thermometer in the immediate vicinity, approx. 5-10 cm from the MultiSensor. It should be noted that this thermometer also acclimatizes to the room and displays the correct room temperature only after a few minutes.
If a difference between the MultiSensor and the thermometer is detected, this can be entered in the “Offset” field in the KentixONE configuration of the MultiSensor. After saving, the sensor then provides the corrected measured value.	The offset can only be specified by whole degrees, i.e. without decimal places. This results in an accuracy for the temperature of +/- 0.5 degrees.

Configuration with KentixONE

The device is configured via the web browser in KentixONE. The device must be accessible to the central KentixONE instance on the network side. Depending on the device type, a communication key and the IP address or DHCP name of the central KentixONE instance must also be set on the device (MultiSensors, AccessManager, SmartPDU). IP cameras or IO modules, on the other hand, can be integrated directly into KentixONE.

All information about the software can be found in the KentixONE section and the associated documentation.

Before starting the configuration, make sure that the software on all network-compatible Kentix devices is up-to-date. The version status must match on all devices.
You can perform a software update for your KentixONE main instance and all connected satellites at any time via “System – Update”.

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