SCHLEIFENBAUER
CUSTOM PDU & POWER MANAGEMENT
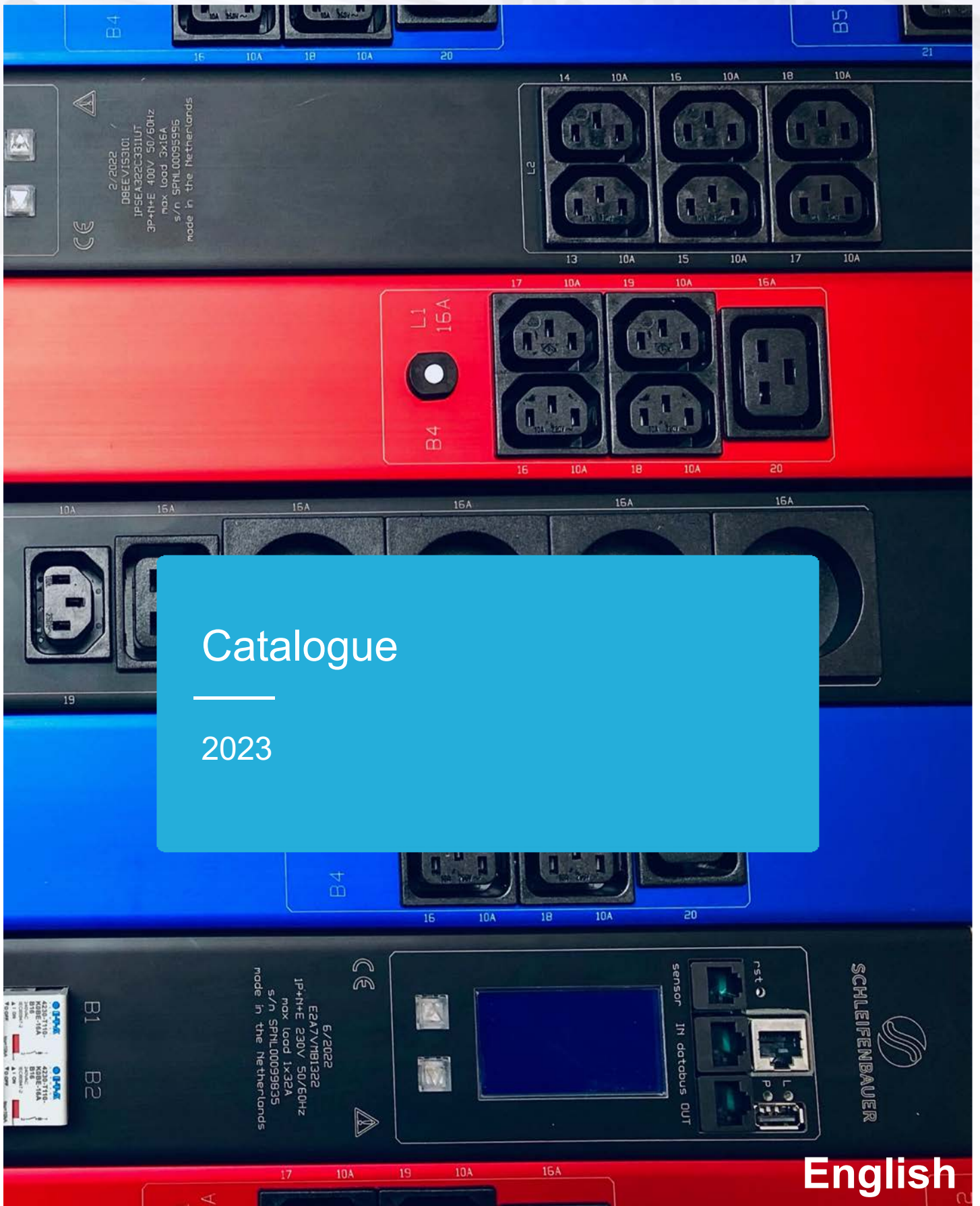
Catalogue

2023

English

SCHLEIFENBAUER

INTRODUCTION

Schleifenbauer is a partner in PDUs since 2008! Our unique concept is different. Instead of you adapting your IT infrastructure to the PDU, Schleifenbauer adapts the PDU to your IT infrastructure. With our extensive stock of PDU components, we can make any configuration imaginable within a maximum of 4 weeks lead time. Schleifenbauer is the only manufacturer that produces customized power distribution units, starting from one piece without additional costs or longer delivery times. Besides customised PDUs, Schleifenbauer produces alternative variants of all standard PDUs available in the market. Our products are known in the market under our own Schleifenbauer brand name but also under private label via our OEM partners.

Schleifenbauer sees a PDU as a crucial element in a server room where quality, efficiency and reliability must be the standard. By making no concessions and seamlessly connecting your PDU to the IT infrastructure and the layout of the server rack, you get the most out of your server room, the IT equipment and the PDU. Think of the best security, cable management, comprehensive power management, remotely controllable PDUs and, above all, flexible design choices and compact always-fit PDUs.

By working only with local suppliers, not only is our carbon footprint as small as possible, it also gives us the opportunity to be independent from scarcity in the raw materials market, to be flexible with sourcing alternatives and to organize procurement as efficiently as possible. We build to order with a lead time of up to 4 weeks from order date.

"Schleifenbauer is there for anyone looking for a PDU partner who can deliver all existing configurations & customised PDUs at no extra costs and within a maximum of 4 weeks"

Schleifenbauer's engineers are constantly working to improve our PDUs and develop new advanced features. The need for customized power distribution units is great, Schleifenbauer has now produced more than 120,000 different types of customized PDUs, but of course you can also come to Schleifenbauer for standard PDUs. From simple power strips to the most extensive intelligent power distribution solutions.

Schleifenbauer offers an extensive choice of different types of outlet sockets, fuses, surge protection, differential current measurement, input cables, plugs and suspension options. Energy can be measured in different ways and outlet sockets can be switched remotely. We offer free management software for this purpose. Schleifenbauer is the most reliable PDU on the market, every component and the total PDU is individually tested. Thus, never a PDU goes out the door that does not meet our highest quality requirements. We offer short lines of communication with our clients and comprehensive service and support.

How It's made video PDUs

2
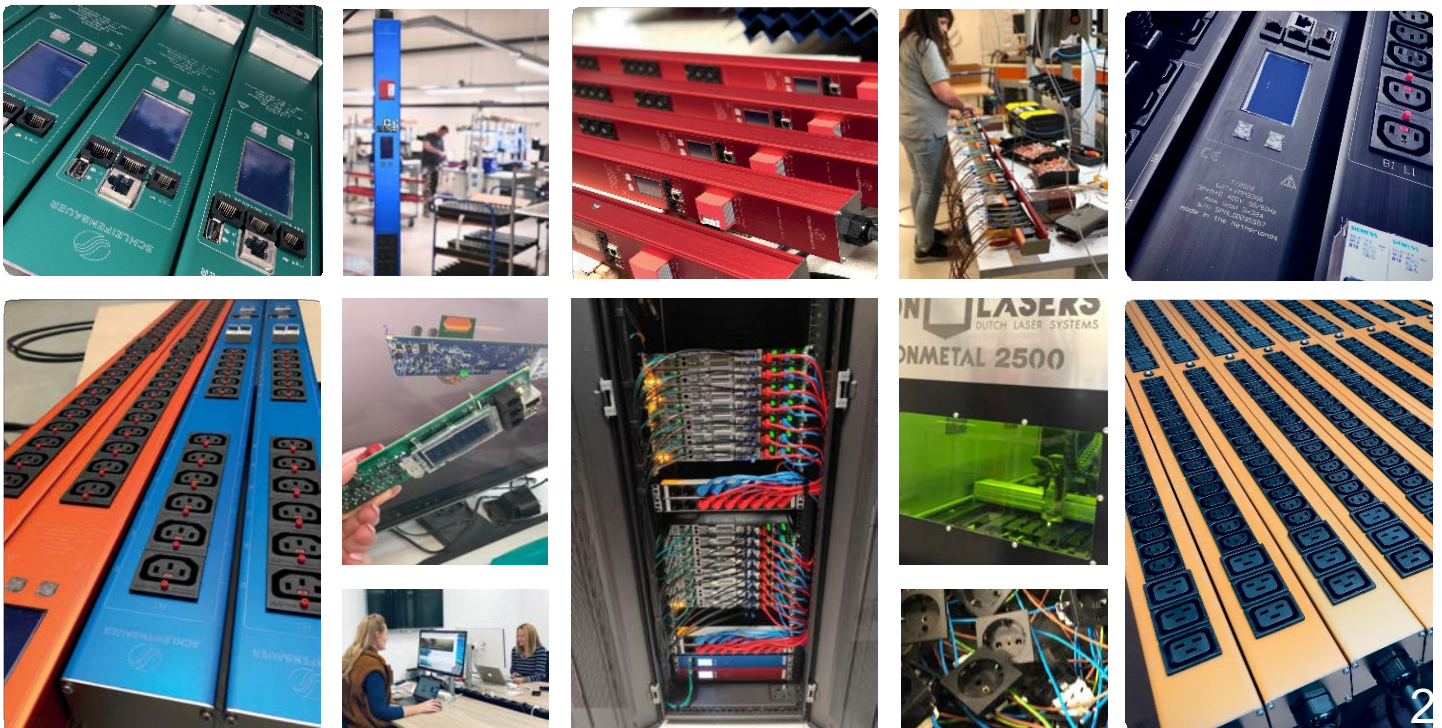
PUE

Data centres primarily rent space for ICT infrastructure, so they never fully control energy consumption. Schleifenbauer PDUs offer data centres the insight between the facility-related power consumption, such as the commissioning of the building with the associated power consumption, and the power consumption of the ICT infrastructure (the IT hardware) of clients who have accommodated their servers in your data centre. Measuring is knowing, which is why Schleifenbauer offers extensive power measurement capabilities on its PDUs.

Power Usage Effectiveness (PUE) is a metric used to measure the energy efficiency of data centers. It is calculated by dividing the total energy consumption of a data centre by the energy consumption of the IT equipment within the data centre.

The formula for calculating PUE is:
PUE = Total Facility Power / IT Equipment Power
The total facility power includes the power consumed by all the non-IT equipment in the data centre, such as cooling and lighting systems, while the IT equipment power includes the power consumed by servers, storage devices, and network equipment.

A lower PUE indicates better energy efficiency, as it means that a larger proportion of the energy consumed by the data centre is being used to power IT equipment. An ideal PUE would be 1, which would mean that all the energy consumed by the data centre is being used to power IT equipment. However, in practice, most data centres have a PUE of around 1.5 to 2.5.

Get to know your energy consumption.
As a data centre, you can work as energy-efficient as possible, but when you cannot separate this from the power consumption your clients use with their equipment, it is difficult to demonstrate how energy-efficient your data centre is. With a Schleifenbauer PDU you place all rented server rack space in your data centre behind an energy meter with which you can show in detail which part of your consumption belongs to your clients. Therefore, let Schleifenbauer PDUs help you achieve your goals for the climate-neutral data centre pact in order to support the European Green Deal.

Return on investment
You can save costs at more than one point with a Schleifenbauer PDU. We have the fastest ROI. For example, the power consumption of a Schleifenbauer PDU is the most energy efficient with less than 3 watt. You also save on the number of IP addresses needed, where others can read a ring of 4 to 16 PDUs, with a Schleifenbauer PDU you can read at least 50 PDUs with 1 IP address.

Our PDUs with individual switching and metering capability at outlet level helps you map out your servers that are not in use but are consuming power (zombie servers). You can switch servers on and off remotely to prevent unnecessary power consumption and it is also no longer necessary to physically turn off equipment on site in the server rack.

Our clear web interface saves time and money by making maintenance as efficient as possible. Our reliability is a cost saver on the long run. Schleifenbauer PDUs have an availability of at least 99.982%. Our RMA (Return Merchandise Authorization) has been below 0.5% since 2008.

IT Equipment Power
The power consumption of the IT equipment connected to the PDU can be read via the databus in different mode options, each with its own advantages.

Schleifenbauer has made their databus redundant. A single cable cut will not affect the readout or control of the PDUs; it will try to get access through the alternative route on the ring. A cable cut is detected by our firmware and an error message will be submitted to the database. This error becomes visible in the "ring" icon (that is open or closed), which can be found on the right side of the "Device list". The disadvantage of a serial bus topology is therefore covered in the Schleifenbauer system.

The advantages of the databus is that it is easy to build, pick a PDU and connect it to a local area network, daisy chain the rest of the PDUs and a databus is created.

PUE = Total Facility Power / IT Equipment Power
Data Centre Infrastructure Efficiency

BRIDGED
- Control multiple PDUs via single IP-adress
- Ring redundancy
- Easy deployment
- Connectivity via webinterface, SNMPv3, Modbus and API

ETHERNET
- One IP-adress per PDU
- High speed communication
- Easy configuration via Service Tool
- Connectivity via webinterface, SNMPv3, Modbus and API

HYBRID
- Redundant access per PDU
- Individual and fast acces per PDU possible
- Easy deployment
- Connectivity via webinterface, SNMPv3, Modbus and API

CONTENT

SCHLEIFENBAUER

Vertical 0U PDUs

Vertical 0U Power Distribution Units are designed to be mounted vertically on the side of a rack or cabinet. Vertical PDUs typically feature multiple outlets, allowing servers, switches, and other equipment to be plugged in and powered. They may also include features such as surge protection, remote power monitoring, and the ability to switch individual outlets on or off depending on requirements and application.

Horizontal 19" 1,5U PDUs

Horizontal 19" Power Distribution Units are designed to be mounted horizontally within a standard 19-inch equipment rack. A 19" horizontal PDU typically features multiple outlets, allowing servers, switches, and other equipment to be plugged in and powered. It may also include features such as surge protection, remote power monitoring, and the ability to switch individual outlets on or off.

In this catalogue, you will find example PDUs that may not directly meet your requirements. No problem, we will adapt the PDU to your wishes. Because we make every PDU customised, you will find an example of every type of PDU. You can send our sales team the part number of the PDU that comes closest to your wish together with the points you would like to see changed. Adding or removing a socket, a different colour, extra protection, adjusting phase distribution, we can adjust everything. We deliver the PDU just as quickly and without charging you extra for these adjustments.

Send your request to sales@schleifenbauer.eu. Our sales team will make a PDU design based on your requirements and present it to you without obligation, including drawings and technical specifications. Our aim is to send you your proposal the same working day.

It is also possible to use the product selector on our website https://www.schleifenbauer.eu/en/product-selector/.

Non-intelligent PDUs

A basic non-intelligent power pistribution unit is a power distribution device that does not have any advanced monitoring or management capabilities. There are several reasons why a data center might choose to use a non-intelligent PDU:

1. Cost: Non-intelligent PDUs are less costly than intelligent PDUs. This can be a significant factor for small or budget-constrained data centers.
2. Simplicity: Non-intelligent PDUs are simple to install and use. They require no additional configuration or setup, and they do not require any special training or expertise to operate.
3. Reliability: Non-intelligent PDUs are generally more reliable than intelligent PDUs, as they have fewer components and points of failure.
4. Compatibility: Non-intelligent PDUs are compatible with a wider range of equipment and devices, as they do not rely on specific protocols or interfaces.

However, it's important to note that non-intelligent PDUs do not offer the same level of visibility and control as intelligent PDUs. They cannot provide detailed power usage data, and they cannot be remotely monitored or managed. This can limit their usefulness in larger or more complex data center environments.

Model
BASIC PDU

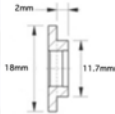| Number	Part number	Description	Page
1	223DVNN1101	Vertical PDU (0 U), single phase 16 A, basic (8 x C13) (1 x C19)	7
2	2BDDHNN1101	Horizontal PDU, single phase 16 A, basic (12 x C13 IEC Lock)	8
3	7E95DNN1101	Double horizontal PDU, single phase 16 A, basic (15 x Schuko)	9
4	C830VNN1321	Dertical PDU (0 U), single phase 32 A, basic (2 x C19 IEC Lock) (2 x Schuko) (1 x CEE)	10
5	2DD9VNN1321	Vertical PDU (0 U), single phase 32 A, basic (24 x C13) (6 x C19)	11
6	5A81HNN1321	Horizontal PDU, single phase 32 A, basic (12 x C13) (2 x C19)	12
7	9F48DNN1321	Double horizontal PDU, single phase 32 A, basic (20 x C13)	13
8	B4EFVNN3101	Vertical PDU (0 U), three phase 16 A, basic (24 x C13) (6 x C19)	14
9	43E3HNN3101	Horizontal PDU, three phase 16 A, basic (9 x C13 IEC Lock)	15
10	FD06VNN3361	Vertical PDU (0 U), three phase 32 A, basic (30 x C13) (18 x C19)	16
11	66FCHNN3361	Horizontal PDU, three phase 32 A, basic (6 x C19 IEC Lock)	17
12	9116DNN3361	Double horizontal PDU, three phase 32 A, basic (12 x C13)	18
13	0D75DNN3361	Double horizontal PDU, three phase 32 A, basic (9 x C19)	19
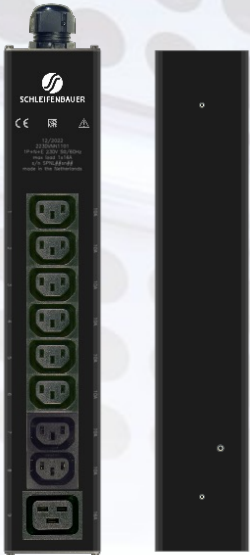
223DVNN1101

BASIC PDU

1. Summary:

- vertical PDU (0 U)
- single phase 16 A
- basic
- 9 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 340 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=266, positions=37, 303mm)
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	n/a
OUTLETS	8 x IEC 60320 C13 , 1 x IEC 60320 C19

1 Phase 16A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (0U [vertical], 3.6kVA, 9 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 8 x C13, 1 x C19 outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.

Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

2BDDHNN1101

BASIC PDU

2. Summary:

- horizontal PDU
- single phase 16 A
- basic
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 52.5 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	n/a
OUTLETS	12 x IEC 60320 C13 (IEC Lock)

1 Phase 16A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (1.5U [horizontal 19"], 3.6kVA, 12 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 12 x C13 IEC-Lock outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.
Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.
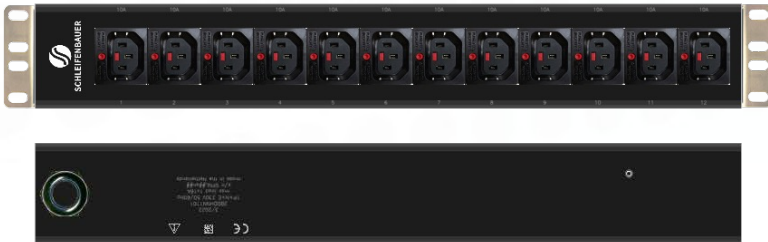
7E95DNN1101

BASIC PDU

3. Summary:

- double horizontal PDU
- single phase 16 A
- basic
- 15 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	n/a
OUTLETS	15 x CEE 7/3 (Schuko, type F)

1 Phase 16A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (1.5U [horizontal 19"], 3.6kVA, 15 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 15 x CEE 7/3 Schuko outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.

Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

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1 Phase 16 ampere 3.6 kVA

C830VNN1321

BASIC PDU

SPECIFICATIONS

DIMENSIONS	L x W x D = 415 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover table mount
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 2,0m (strain relief height 2,5cm)
FUSES	2 x Thermal breaker 16A (ETA)
OUTLETS	2 x IEC 60320 C19 (IEC Lock), 2 x CEE 7/3 (Schuko, type F), 1 x IEC 60309 (blue, single phase, 16A)

1 Phase 32A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (0U [vertical], 7.4kVA, 5 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 2 x C19 IEC-Lock, 2 x CEE 7/3 Schuko, 1 x IEC 60309 CEE Chassis outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.

Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.
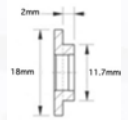
2DD9VNN1321

BASIC PDU

5. Summary:

- vertical PDU (0 U)
- single phase 32 A
- basic
- 30 outlets

DIMENSIONS	L x W x D = 980 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=534, positions=223, 757mm)
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	2 x Thermal breaker 16A (ETA)
OUTLETS	24 x IEC 60320 C13 , 6 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (0U [vertical], 7.4kVA, 30 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 24 x C13, 6 x C19 outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.

Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

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1 Phase 32 ampere 7.4 kVA

5A81HNN1321

BASIC PDU

6. Summary:

- horizontal PDU
- single phase 32 A
- basic
- 14 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 52.5 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	2 x Thermal breaker 16A (ETA)
OUTLETS	12 x IEC 60320 C13 , 2 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 14 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 12 x C13, 2 x C19 outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.

Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.
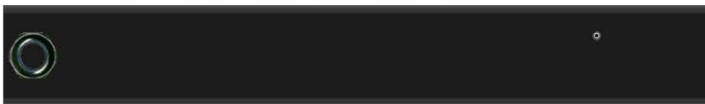
This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

9F48DNN1321

BASIC PDU

7. Summary:

- double horizontal PDU
- single phase 32 A
- basic
- 20 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	2 x Thermal breaker 16A (ETA)
OUTLETS	20 x IEC 60320 C13

1 Phase 32A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 20 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 20 x C13 outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.

Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

1 Phase 32 ampere 7.4 kVA
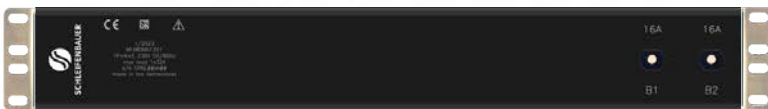
B4EFVNN3101

BASIC PDU

8. Summary:

- vertical PDU (0 U)
- three phase 16 A
- basic
- 30 outlets

DIMENSIONS	L x W x D = 960 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=534, positions=213, 747mm)
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	n/a
OUTLETS	24 x IEC 60320 C13 , 6 x IEC 60320 C19

3 Phase 16A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (0U [vertical], 11kVA, 30 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 24 x C13, 6 x C19 outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.
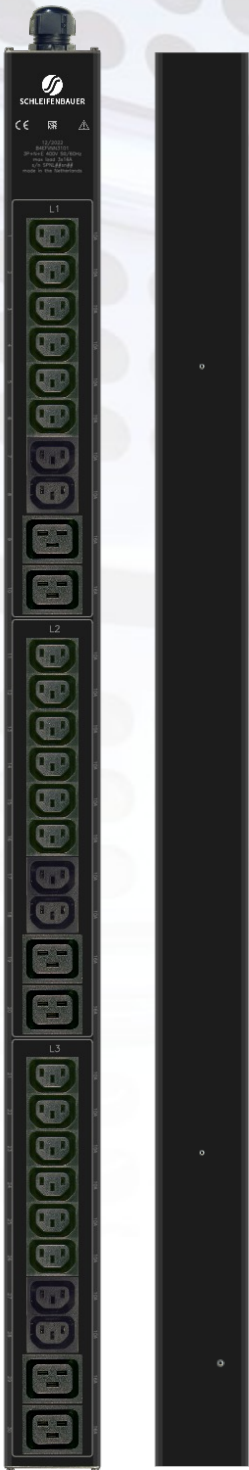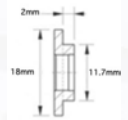
Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

43E3HNN3101

BASIC PDU

9. Summary:

- horizontal PDU
- three phase 16 A
- basic
- 9 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 52.5 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	n/a
OUTLETS	9 x IEC 60320 C13 (IEC Lock)
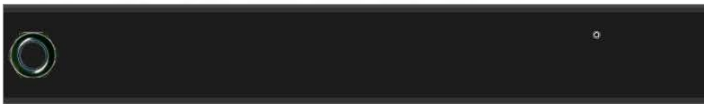
3 Phase 16A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (1.5U [horizontal 19"], 11kVA, 9 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 9 x C13 IEC-Lock outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.
Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

3 Phase 16 ampere 11 kVA

FD06VNN3361

BASIC PDU

10. Summary:

- vertical PDU (0 U)
- three phase 32 A
- basic
- 48 outlets

DIMENSIONS	L x W x D = 1800 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1334, positions=233, 1567mm)
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	6 x Thermal breaker 16A (ETA)
ADDITIONAL PROTECTION	1 x overvoltage protection
OUTLETS	30 x IEC 60320 C13 , 18 x IEC 60320 C19
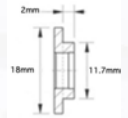
3 Phase 32A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (0U [vertical], 22kVA, 48 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 30 x C13, 18 x C19 outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.

Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

66FCHNN3361

BASIC PDU

11. Summary:

- horizontal PDU
- three phase 32 A
- basic
- 6 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 52.5 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	6 x Thermal breaker 16A (ETA)
OUTLETS	6 x IEC 60320 C19 (IEC Lock)
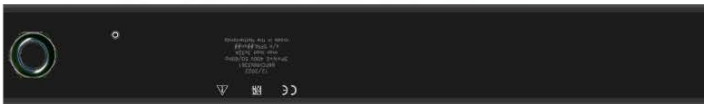
3 Phase 32A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (1.5U [horizontal 19"], 22kVA, 6 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 6 x C19 IEC-Lock.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.

Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

3 Phase 32 ampere 22 kVA

9116DNN3361

BASIC PDU

12. Summary:

- double horizontal PDU
- three phase 32 A
- basic
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	6 x Thermal breaker 16A (ETA)
OUTLETS	12 x IEC 60320 C13

3 Phase 32A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (1.5U [horizontal 19"], 22kVA, 12 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 12 x C13 outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.

Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

0D75DNN3361

BASIC PDU

13. Summary:

- double horizontal PDU
- three phase 32 A
- basic
- 9 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
FUSES	6 x Thermal breaker 16A (ETA)
OUTLETS	9 x IEC 60320 C19

3 Phase 32A Tender Text/Bid Submittal Text: Basic non-intelligent rack power distribution unit (1.5U [horizontal 19"], 22kVA, 9 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 9 x C19 outlets.

Non-intelligent PDUs have multiple outlet sockets for connecting different devices such as servers, network equipment and storage devices. They can also be equipped with surge protection and specific fuses to ensure that connected devices are appropriately protected against power surges or other electrical disturbances.

Simple and reliable, these types of PDUs are suitable for basic power distribution requirements in small to medium-sized data centres, server rooms and all other applications where power distribution is required. In situations where no power metering or extra intelligent functions are required, a basic PDU is a cost-effective solution.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Input meterd PDUs

Metered inlet PDUs meter power at the PDU inlet-level and display data both locally and over a network.

Metered input power distribution units (PDUs) are commonly used in data centers to provide accurate and real-time measurement of the power being consumed by servers, networking equipment, and other devices. Here are a few reasons why metered input PDUs are important in data centers:

1. Accurate power measurement: With a metered input PDU, you can accurately measure the amount of power being consumed by individual devices or groups of devices. This information is important for capacity planning, billing, and ensuring that the data center's power infrastructure is being used efficiently.
2. Overload prevention: By monitoring power consumption at the PDU level, you can prevent overloading of individual circuits and avoid potential downtime caused by tripped circuit breakers.
3. Energy efficiency: By tracking power consumption at the device level, you can identify energy-hungry equipment and take steps to optimize power usage, which can result in cost savings and reduced environmental impact.
4. Compliance: Metered input PDUs can help data centers comply with regulatory requirements for power usage reporting, such as the Energy Star program, which promotes energy efficiency in data centers.

Overall, metered input PDUs provide data center operators with valuable insights into power usage, which can help optimize energy usage, prevent downtime, and ensure compliance with regulatory requirements.

Model
METERED PDU

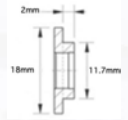| Number	Part number	Description	Page
14	E91AVIN1101	Vertical PDU (0 U), single phase 16 A, metered input (18 x C13) (6 x C19)	21
15	C8CAHIN1101	Horizontal PDU, single phase 16 A, metered input (12 x C13)	22
16	1121DIN1101	Double horizontal PDU, single phase 16 A, metered input (12 x Schuko)	23
17	E9BDVIN1321	Vertical PDU (0 U), single phase 32 A, metered input (36 x C13) (6 x C19)	24
18	550EHIN1321	Horizontal PDU, single phase 32 A, metered input (8 x C13)	25
19	2C11DIN1321	Double horizontal PDU, single phase 32 A, metered input (20 x C13)	26
20	DDEBVMN1322	Vertical PDU (0 U), single phase 32 A, metered branches (2x) (18 x C13) (6 x C19)	27
21	1FB5HMN1322	Horizontal PDU, single phase 32 A, metered branches (2x) (4 x C13) (2 x C19)	28
22	60CADMN1322	Double horizontal PDU, single phase 32 A, metered branches (2x) (7 x Schuko)	29
23	1F5BVIN3101	Vertical PDU (0 U), three phase 16 A, metered input (36 x C13) (6 x C19)	30
24	D0B9HIN3101	Horizontal PDU, three phase 16 A, metered input (9 x C13)	31
25	D49EDIN3101	Double horizontal PDU, three phase 16 A, metered input (9 x C13) (3 x C19)	32
26	2B1FVIN3361	Vertical PDU (0 U), three phase 32 A, metered input (36 x C13) (12 x C19)	33
27	9B45VMN3366	Vertical PDU (0 U), three phase 32 A, metered branches (6x) (30 x C13) (6 x C19)	34
28	7496DIN3361	Double horizontal PDU, three phase 32 A, metered input (9 x C19)	35
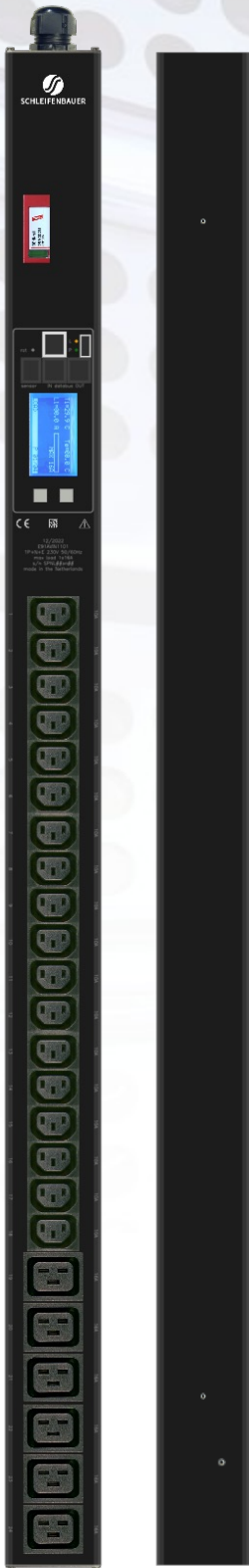
E91AVIN1101

METERED PDU

- vertical PDU (0 U)
- single phase 16 A
- metered input
- 24 outlets

DIMENSIONS	L x W x D = 1030 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=800, positions=115, 915mm)
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
ADDITIONAL PROTECTION	1 x overvoltage protection w/ remote signalling
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	18 x IEC 60320 C13 , 6 x IEC 60320 C19

1 Phase 16A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (0U [vertical], 3.6kVA, 24 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 18 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

C8CAHIN1101

METERED PDU

15. Summary:

- horizontal PDU
- single phase 16 A
- metered input
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 52.5 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C13

1 Phase 16A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 3.6kVA, 12 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 12 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

22

1121DIN1101

METERED PDU

16. Summary:

- double horizontal PDU
- single phase 16 A
- metered input
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 I Ethernet: RJ45 I sensorport: RJ12 I USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x CEE 7/3 (Schuko, type F)

1 Phase 16A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 3.6kVA, 12 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 12 x schuko CEE 7/3 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

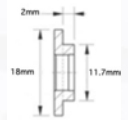| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

E9BDVIN1321

METERED PDU

17. Summary:

- vertical PDU (0 U)
- single phase 32 A
- metered input
- 42 outlets

DIMENSIONS	L x W x D = 1410 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1066, positions=172, 1238mm)
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 ǀ Ethernet: RJ45 ǀ sensorport: RJ12 ǀ USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	36 x IEC 60320 C13 , 6 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (0U [vertical], 7.4kVA, 42 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 36 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

1 Phase 32 ampere 7.4 kVA

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

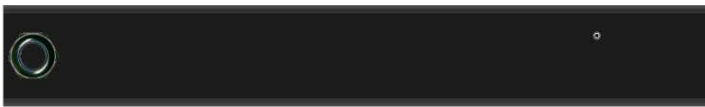| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

550EHIN1321

METERED PDU

18. Summary:

- horizontal PDU
- single phase 32 A
- metered input
- 8 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 52.5 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	8 x IEC 60320 C13

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 8 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 8 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

2C11DIN1321

METERED PDU

19. Summary:

- double horizontal PDU
- single phase 32 A
- metered input
- 20 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	20 x IEC 60320 C13

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 20 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 20 x C13 outlets.
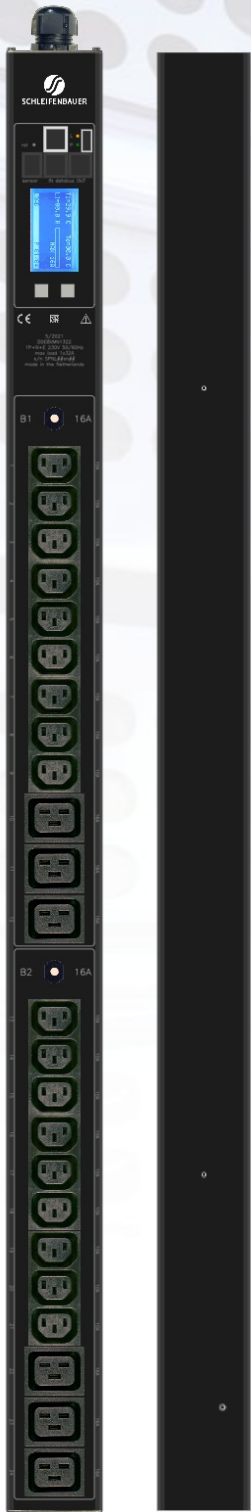
FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

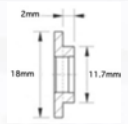| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

DDEBVMN1322

BRANCH METERED PDU

20. Summary:

- vertical PDU (0 U)
- single phase 32 A
- metered branches (2x)
- 24 outlets

DIMENSIONS	L x W x D = 990 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=534, positions=228, 762mm)
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
BRANCH METERING	2 x volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	18 x IEC 60320 C13 , 6 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (0U [vertical], 7.4kVA, 24 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 18 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per branch, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

1 Phase 32 ampere 7.4 kVA

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔		

1FB5HMN1322

BRANCH METERED PDU

21. Summary:

- horizontal PDU
- single phase 32 A
- metered branches (2x)
- 6 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 52.5 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
BRANCH METERING	2 x volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	4 x IEC 60320 C13 , 2 x IEC 60320 C19
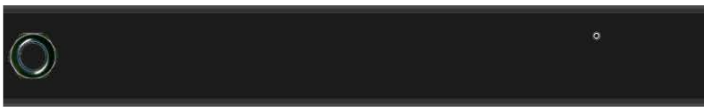
1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 6 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 4 x C13, 2 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per branch, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✓	✓		

60CADMN1322

BRANCH METERED PDU

22. Summary:

- double horizontal PDU
- single phase 32 A
- metered branches (2x)
- 7 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
BRANCH METERING	2 x volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	7 x CEE 7/3 (Schuko, type F)

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 7 outlets). INPUT: 230v, 32a - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 7 x Schuko CEE 7/3 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per branch, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

1 Phase 32 ampere 7.4 kVA

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔		

1F5BVIN3101

METERED PDU

23. Summary:

- vertical PDU (0 U)
- three phase 16 A
- metered input
- 42 outlets

DIMENSIONS	L x W x D = 1380 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1066, positions=157, 1223mm)
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	36 x IEC 60320 C13 , 6 x IEC 60320 C19

3 Phase 16A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (0U [vertical], 11kVA, 42 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 36 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

3 Phase 16 ampere 11 kVA

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

D0B9HIN3101

METERED PDU

24. Summary:

- horizontal PDU
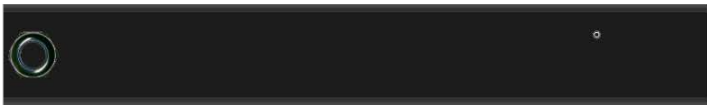- three phase 16 A
- metered input
- 9 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 52.5 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 l Ethernet: RJ45 l sensorport: RJ12 l USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	9 x IEC 60320 C13

3 Phase 16A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 11kVA, 9 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 9 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

3 Phase 16 ampere 11 kVA

31

D49EDIN3101

METERED PDU

25. Summary:

- double horizontal PDU
- three phase 16 A
- metered input
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	9 x IEC 60320 C13 , 3 x IEC 60320 C19

3 Phase 16A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 11kVA, 12 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 9 x C13, 3 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

2B1FVIN3361

METERED PDU

26. Summary:

- vertical PDU (0 U)
- three phase 32 A
- metered input
- 48 outlets

DIMENSIONS	L x W x D = 1815 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1333, positions=241, 1574mm)
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	36 x IEC 60320 C13 , 12 x IEC 60320 C19

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (0U [vertical], 22kVA, 48 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 36 x C13, 12 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

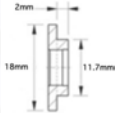| Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

3 Phase 32 ampere 22 kVA

9B45VMN3366

BRANCH METERED PDU

27. Summary:

- vertical PDU (0 U)
- three phase 32 A
- metered branches (6x)
- 36 outlets

DIMENSIONS	L x W x D = 1490 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1066, positions=212, 1278mm)
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
BRANCH METERING	6 x volt, ampere, kWh, power factor
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	30 x IEC 60320 C13 , 6 x IEC 60320 C19

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (0U [vertical], 22kVA, 36 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 30 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per branch, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔		

3 Phase 32 ampere 22 kVA

7496DIN3361

METERED PDU

28. Summary:

- double horizontal PDU
- three phase 32 A
- metered input
- 9 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	9 x IEC 60320 C19

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 22kVA, 9 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 9 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			

Per output metered PDUs

Metered outlet PDUs offer the same features as metered inlet PDUs, plus metering at the outlet-level and the display of data both locally and over a network.

Measuring outputs on a PDU is important for several reasons:

1.Power monitoring: PDU outputs can provide real-time information about power consumption, which is critical for power management, capacity planning, and identifying potential issues such as overloads or underutilization.

2.Billing and cost allocation: Many organizations use PDUs to track power usage for billing and cost allocation purposes. Measuring PDU outputs can help ensure that each department or client is billed accurately based on their actual power usage.

3.Equipment protection: By monitoring PDU outputs, IT staff can ensure that equipment is not drawing too much power, which can cause overheating and damage to the devices. Monitoring also helps to identify potential issues before they become serious problems.

4.Compliance: In some industries, such as healthcare or finance, compliance regulations require organizations to monitor power usage and report any anomalies or issues. Measuring PDU outputs can help organizations meet these requirements and avoid costly penalties.

Overall, measuring outputs on a PDU is an important part of power management and monitoring in data centers and other industrial settings. It provides valuable information that can help optimize power usage, improve equipment performance, and ensure compliance with regulatory requirements.

Model
MONITORED PDU

Number	Part number	Description	Page
29	15AFVIM1101	Vertical PDU (0 U), single phase 16 A, metered input, metered outlets (18 x C13) (3 x C19)	37
30	2D60HIM1101	Horizontal PDU, single phase 16 A, metered input, metered outlets (8 x C13)	38
31	45ABDIM1101	Double horizontal PDU, single phase 16 A, metered input, metered outlets (12 x C13 IEC Lock)	39
32	3E55VIM1321	Vertical PDU (0 U), single phase 32 A, metered input, metered outlets (24 x C13) (6 x C19)	40
33	3EBEVMM1322	Vertical PDU (0 U), single phase 32 A, metered branches (2x), metered outlets (18 x C13) (6 x C19)	41
34	3AA1DIM1321	Double horizontal PDU, single phase 32 A, metered input, metered outlets (16 x C13) (2 x C19)	42
35	63F5DMM1322	Double horizontal PDU, single phase 32 A, metered branches (2x), metered outlets (16 x C13) (2 x C19)	43
36	2B7AVIM3101	Vertical PDU (0 U), three phase 16 A, metered input, metered outlets (30 x C13 IEC Lock) (6 x C19 IEC Lock)	44
37	370FDIM3101	Double horizontal PDU, three phase 16 A, metered input, metered outlets (12 x C13)	45
38	0FAFVIM3361	Vertical PDU (0 U), three phase 32 A, metered input, metered outlets (18 x C13 IEC Lock) (6 x C19 IEC Lock)	46
39	E47DDIM3361	Double horizontal PDU, three phase 32 A, metered input, metered outlets (6 x C19 IEC Lock)	47
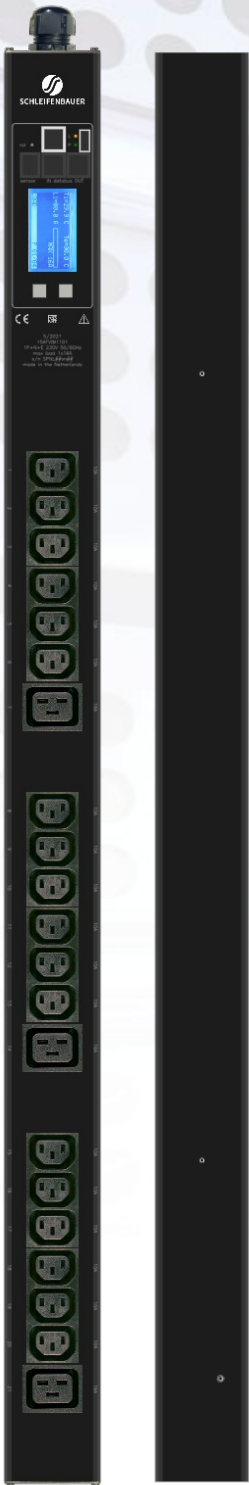
15AFVIM1101

MONITORED PDU

29. Summary:

- vertical PDU (0 U)
- single phase 16 A
- metered input
- metered outlets
- 21 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 970 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=534, positions=218, 752mm)
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
METERED OUTLETS	21 times volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	18 x IEC 60320 C13 , 3 x IEC 60320 C19
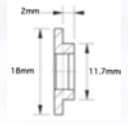
1 Phase 16A Tender Text/Bid Submittal Text: Input and output energy metered rack power distribution unit (0U [vertical], 3.6kVA, 21 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 18 x C13, 3 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	

1 Phase 16 ampere 3.6 kVA

2D60HIM1101

MONITORED PDU

30. Summary:

- horizontal PDU
- single phase 16 A
- metered input
- metered outlets
- 8 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 52.5 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
METERED OUTLETS	8 times volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	8 x IEC 60320 C13
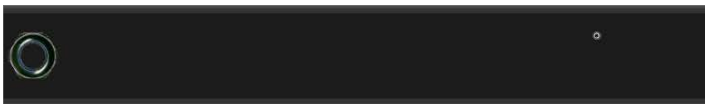
1 Phase 16A Tender Text/Bid Submittal Text: Input and output energy metered rack power distribution unit (1.5U [horizontal 19"], 3.6kVA, 8 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 8 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	

45ABDIM1101

MONITORED PDU

31. Summary:

- double horizontal PDU
- single phase 16 A
- metered input
- metered outlets
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 ǀ Ethernet: RJ45 ǀ sensorport: RJ12 ǀ USB
INPUT METERING	volt, ampere, kWh, power factor
METERED OUTLETS	12 times volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C13 (IEC Lock)

1 Phase 16A Tender Text/Bid Submittal Text: Input and output energy metered rack power distribution unit (1.5U [horizontal 19"], 3.6kVA, 12 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 12 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	

3E55VIM1321

MONITORED PDU

32. Summary:

- vertical PDU (0 U)
- single phase 32 A
- metered input
- metered outlets
- 30 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1345 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1067, positions=139, 1206mm)
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
METERED OUTLETS	30 times volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	24 x IEC 60320 C13 , 6 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Input and output energy metered rack power distribution unit (0U [vertical], 7.4kVA, 30 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 24 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.
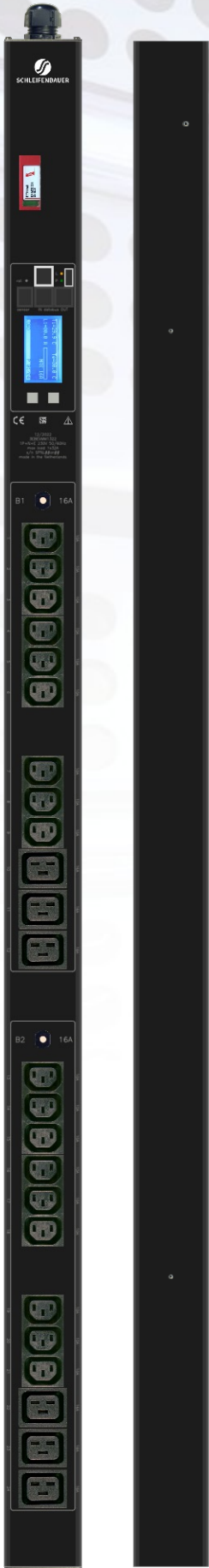
1 Phase 32 ampere 7.4 kVA

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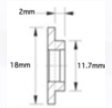| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	

3EBEVMM1322

MONITORED PDU

33. Summary:

- vertical PDU (0 U)
- single phase 32 A
- metered branches (2x)
- metered outlets
- 24 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1290 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=800, positions=245, 1045mm)
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
BRANCH METERING	2 x volt, ampere, kWh, power factor
METERED OUTLETS	24 times volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
ADDITIONAL PROTECTION	1 x overvoltage protection w/ remote signalling
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	18 x IEC 60320 C13 , 6 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Input and output energy metered rack power distribution unit (0U [vertical], 7.4kVA, 24 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 18 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per branch, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

1 Phase 32 ampere 7.4 kVA

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔	✔	

3AA1DIM1321

MONITORED PDU

34. Summary:

- double horizontal PDU
- single phase 32 A
- metered input
- metered outlets
- 18 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
METERED OUTLETS	18 times volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	16 x IEC 60320 C13 , 2 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Input and output energy metered rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 18 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 16 x C13, 2 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	

63F5DMM1322

MONITORED PDU

35. Summary:

- double horizontal PDU
- single phase 32 A
- metered branches (2x)
- metered outlets
- 18 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 I Ethernet: RJ45 I sensorport: RJ12 I USB
BRANCH METERING	2 x volt, ampere, kWh, power factor
METERED OUTLETS	18 times volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	16 x IEC 60320 C13 , 2 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Input and output energy metered rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 18 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 16 x C13, 2 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per branch, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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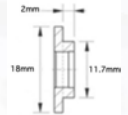| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔	✔	

43

1 Phase 32 ampere 7.4 kVA

2B7AVIM3101

MONITORED PDU

36. Summary:

- vertical PDU (0 U)
- three phase 16 A
- metered input
- metered outlets
- 36 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1750 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1334, positions=208, 1542mm)
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
METERED OUTLETS	36 times volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	30 x IEC 60320 C13 (IEC Lock), 6 x IEC 60320 C19 (IEC Lock)

3 Phase 16A Tender Text/Bid Submittal Text: Input and output energy metered rack power distribution unit (0U [vertical], 11kVA, 36 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 30 x C13 IEC Lock, 6 x C19 IEC Lock outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	

3 Phase 16 ampere 11 kVA

44

370FDIM3101

MONITORED PDU

37. Summary:

- double horizontal PDU
- three phase 16 A
- metered input
- metered outlets
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
METERED OUTLETS	12 times volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C13

3 Phase 16A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 11kVA, 12 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 12 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	

0FAFVIM3361

MONITORED PDU

38. Summary:

- vertical PDU (0 U)
- three phase 32 A
- metered input
- metered outlets
- 24 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1450 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1066, positions=192, 1258mm)
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
METERED OUTLETS	24 times volt, ampere, kWh, power factor
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	18 x IEC 60320 C13 (IEC Lock), 6 x IEC 60320 C19 (IEC Lock)

3 Phase 32A Tender Text/Bid Submittal Text: Input and output energy metered rack power distribution unit (0U [vertical], 22kVA, 24 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 18 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✓		✓	

3 Phase 32 ampere 22 kVA

E47DDIM3361

MONITORED PDU

39. Summary:

- double horizontal PDU
- three phase 32 A
- metered input
- metered outlets
- 6 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
METERED OUTLETS	6 times volt, ampere, kWh, power factor
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	6 x IEC 60320 C19 (IEC Lock)

3 Phase 32A Tender Text/Bid Submittal Text: Input and output energy metered rack power distribution unit (1.5U [horizontal 19"], 22kVA, 6 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 6 x C19 IEC Lock outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	

Per output switched PDUs

Switched PDUs offer the same features as metered inlet PDUs and enable authorized users to securely power-cycle outlets remotely and in any order. Power-sequencing delays minimize inrush currents, prevent unauthorized device provisioning, and can power off devices that are not in use to conserve energy, or reboot devices to quickly restore services.

Remote switching outputs on a Power Distribution Unit (PDU) allows you to remotely control the power supply to individual devices or groups of devices, without the need for physical access to the PDU or the devices themselves.
This is useful in a number of situations, such as:

1. Energy efficiency: By being able to remotely switch off devices when they are not in use, you can reduce energy consumption and lower your electricity bills.
2. Convenience: In situations where physical access to the PDU or devices is difficult or inconvenient, remote switching allows you to control the power supply from a remote location.
3. Safety: Remote switching allows you to quickly and safely shut down devices in the event of an emergency or power outage.
4. Automation: Remote switching can be integrated with automation systems to allow for more efficient and automated control of devices.

Overall, remote switching outputs on a PDU provides greater flexibility and control over the power supply to devices, allowing for more efficient and convenient management of your IT infrastructure.

Model
SWITCHED PDU

Number	Part number	Description	Page
40	6453VIS1101	Vertical PDU (0 U), single phase 16 A, metered input, switched outlets (22 x C13 IEC Lock) (2 x C19 IEC Lock)	49
41	26A9DIS1101	Double horizontal PDU, single phase 16 A, metered input, switched outlets (12 x C13 IEC Lock)	50
42	C285VIS1321	Vertical PDU (0 U), single phase 32 A, metered input, switched outlets (18 x C13) (6 x C19)	51
43	78A6VMS1322	Vertical PDU (0 U), single phase 32 A, metered branches (2x), switched outlets (24 x C13 IEC Lock)	52
44	40A2DIS1321	Double horizontal PDU, single phase 32 A, metered input, switched outlets (12 x C13)	53
45	4EB5DMS1322	Double horizontal PDU, single phase 32 A, metered branches (2x), switched outlets (12 x C13)	54
46	48E2VIS3101	Vertical PDU (0 U), three phase 16 A, metered input, switched outlets (42 x C13)	55
47	8DA6DIS3101	Double horizontal PDU, three phase 16 A, metered input, switched outlets (6 x Schuko)	56
48	86D1VIS3361	Vertical PDU (0 U), three phase 32 A, metered input, switched outlets (24 x C13) (6 x C19)	57
49	CD52VMS3366	Vertical PDU (0 U), three phase 32 A, metered branches (6x), switched outlets (24 x C13) (6 x C19)	58
50	5F42DIS3361	Double horizontal PDU, three phase 32 A, metered input, switched outlets (6 x C19)	59

6453VIS1101

SWITCHED PDU

40. Summary:

- vertical PDU (0 U)
- single phase 16 A
- metered input
- switched outlets
- 24 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1400 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1066, positions=167, 1233mm)
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	24 times bistable close to zero crossing switching relays
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	22 x IEC 60320 C13 (IEC Lock), 2 x IEC 60320 C19 (IEC Lock)

1 Phase 16A Tender Text/Bid Submittal Text: Input energy metered per outlet remote switchable rack power distribution unit (0U [vertical], 3.6kVA, 24 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 22 x C13 IEC Lock, 2 x C19 IEC Lock outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

1 Phase 16 ampere 3.6 kVA

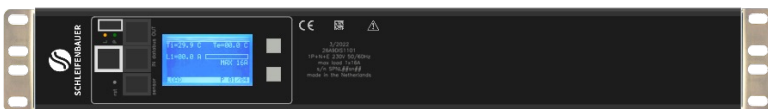| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✓			✓

26A9DIS1101

SWITCHED PDU

41. Summary:

- double horizontal PDU
- single phase 16 A
- metered input
- switched outlets
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	12 times bistable close to zero crossing switching relays
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C13 (IEC Lock)

1 Phase 16A Tender Text/Bid Submittal Text: Input energy metered and remote outlet switchable rack power distribution unit (1.5U [horizontal 19"], 3.6kVA, 12 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 12 x C13 IEC Lock outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

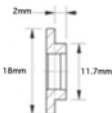| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			✔

1 Phase 16 ampere 3.6 kVA

C285VIS1321

SWITCHED PDU

42. Summary:

- vertical PDU (0 U)
- single phase 32 A
- metered input
- switched outlets
- 24 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1350 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1066, positions=142, 1208mm)
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	24 times bistable close to zero crossing switching relays
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	18 x IEC 60320 C13 , 6 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered and remote outlet switchable rack power distribution unit (0U [vertical], 7.4kVA, 24 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 18 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

1 Phase 32 ampere 7.4 kVA

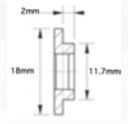| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			✔

78A6VMS1322

SWITCHED PDU

43. Summary:

- vertical PDU (0 U)
- single phase 32 A
- metered branches (2x)
- switched outlets
- 24 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1465 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1067, positions=199, 1266mm)
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
BRANCH METERING	2 x volt, ampere, kWh, power factor
SWITCHED OUTLETS	24 times bistable close to zero crossing switching relays
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	24 x IEC 60320 C13 (IEC Lock)

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered and remote outlet switchable rack power distribution unit (0U [vertical], 7.4kVA, 24 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 24 x C13 IEC Lock outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per branch, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

1 Phase 32 ampere 7.4 kVA

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔		✔

40A2DIS1321

SWITCHED PDU

44. Summary:

- double horizontal PDU
- single phase 32 A
- metered input
- switched outlets
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	12 times bistable close to zero crossing switching relays
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C13

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered and remote outlet switchable rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 12 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 12 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per branch, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			✔

53

1 Phase 32 ampere 7.4 kVA

4EB5DMS1322

SWITCHED PDU

45. Summary:

- double horizontal PDU
- single phase 32 A
- metered branches (2x)
- switched outlets
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
BRANCH METERING	2 x volt, ampere, kWh, power factor
SWITCHED OUTLETS	12 times bistable close to zero crossing switching relays
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C13

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered and remote outlet switchable rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 12 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 12 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per branch, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔		✔

1 Phase 32 ampere 7.4 kVA

F3BAVIS3101

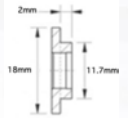*SWITCHED PDU*

46. Summary:

- vertical PDU (0 U)
- three phase 16 A
- metered input
- switched outlets
- 42 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1655 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1067, positions=294, 1361mm)
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	42 times bistable close to zero crossing switching relays
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	42 x IEC 60320 C13

3 Phase 16A Tender Text/Bid Submittal Text: Input energy metered and remote outlet switchable rack power distribution unit (0U [vertical], 11kVA, 42 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 42 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			✔

3 Phase 16 ampere 11 kVA

8DA6DIS3101

SWITCHED PDU

47. Summary:

- double horizontal PDU
- three phase 16 A
- metered input
- switched outlets
- 6 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	6 times bistable close to zero crossing switching relays
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	6 x CEE 7/3 (Schuko, type F)

3 Phase 16A Tender Text/Bid Submittal Text: Input energy metered rack power distribution unit (1.5U [horizontal 19"], 11kVA, 6 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 6 x CEE 7/3 (Schuko, type F).

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			✔

3 Phase 16 ampere 11 kVA

86D1VIS3361

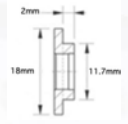*SWITCHED PDU*

48. Summary:

- vertical PDU (0 U)
- three phase 32 A
- metered input
- switched outlets
- 30 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1745 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1333, positions=206, 1539mm)
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	30 times bistable close to zero crossing switching relays
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	24 x IEC 60320 C13 , 6 x IEC 60320 C19

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered and remote outlet switchable rack power distribution unit (0U [vertical], 22kVA, 30 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 24 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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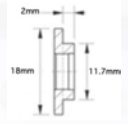| Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			✔

3 Phase 32 ampere 22 kVA

CD52VMS3366

SWITCHED PDU

49. Summary:

- vertical PDU (0 U)
- three phase 32 A
- metered branches (6x)
- switched outlets
- 30 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1580 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1066, positions=257, 1323mm)
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
BRANCH METERING	6 x volt, ampere, kWh, power factor
SWITCHED OUTLETS	30 times bistable close to zero crossing switching relays
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	24 x IEC 60320 C13 , 6 x IEC 60320 C19

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered and remote outlet switchable rack power distribution unit (0U [vertical], 22kVA, 30 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 24 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per branch, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔		✔

3 Phase 32 ampere 22 kVA

5F42DIS3361

SWITCHED PDU

50. Summary:

- double horizontal PDU
- three phase 32 A
- metered input
- switched outlets
- 6 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	6 times bistable close to zero crossing switching relays
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	6 x IEC 60320 C19

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered and remote outlet switchable rack power distribution unit (1.5U [horizontal 19"], 22kVA, 6 outlets). INPUT: 400v, 32a - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔			✔

Per output switched & outlet metering PDUs

Switched PDUs with outlet metering combine all capabilities of the switched PDUs and outlet metered PDUs. Enable authorized users to securely power-cycle outlets remotely and in any order. Power-sequencing delays minimize inrush currents, prevent unauthorized device provisioning, and can power off devices that are not in use to conserve energy, or reboot devices to quickly restore services, plus metering at the outlet-level and the display of data both locally and over a network.

Managed PDUs with switched and metered outlets are useful in data centers because they offer a number of benefits that traditional PDUs do not. Here are a few reasons why managed PDUs with switched and metered outlets are preferred in data centers:

1. Remote Management: Managed PDUs allow for remote management and control, which can be extremely helpful in data center environments where technicians may not be physically present at all times. With remote management capabilities, you can easily monitor power consumption, turn outlets on and off, and make adjustments to your power usage without having to be on-site.
2. Improved Efficiency: Metered outlets on managed PDUs can provide valuable insight into how much power each device is using. This information can be used to optimize power usage and increase overall efficiency. Additionally, the switch functionality can allow you to easily turn off outlets that are not in use, further reducing energy consumption.
3. Increased Flexibility: Managed PDUs with switched and metered outlets offer a level of flexibility that traditional PDUs do not. With the ability to remotely control outlets and monitor power usage, you can quickly make changes to your power infrastructure as needed. This can be particularly useful in dynamic data center environments where changes are common.
4. Enhanced Security: Managed PDUs with switched and metered outlets often include advanced security features such as user authentication and authorization, which can help prevent unauthorized access to critical systems.

Overall, managed PDUs with switched and metered outlets offer a range of benefits that can help improve the efficiency, flexibility, and security of data center power infrastructure.

Model

MANAGED PDU

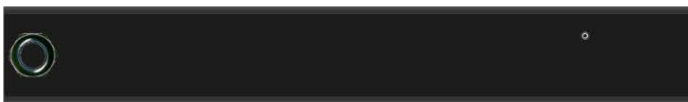| Number	Part number	Description	Page
51	0522VIB1101	Vertical PDU (0 U), single phase 16 A, metered input, metered outlets,switched outlets (12 x C13) (6 x C19)	61
52	6080HIB1101	Horizontal PDU, single phase 16 A, metered input, metered outlets,switched outlets (6 x C13)	62
53	DB12DIB1101	Double horizontal PDU, single phase 16 A, metered input, metered outlets,switched outlets (8 x C13) (1 x Schuko)	63
54	9112VIB1321	Vertical PDU (0 U), single phase 32 A, metered input, metered outlets,switched outlets (12 x C19)	64
55	3592VMB1322	Vertical PDU (0 U), single phase 32 A, metered branches (2x), metered outlets,switched outlets (24 x C13) (6 x C19)	65
56	5576DIB1321	Double horizontal PDU, single phase 32 A, metered input, metered outlets,switched outlets (12 x C13)	66
57	D782DMB1322	Double horizontal PDU, single phase 32 A, metered branches (2x), metered outlets,switched outlets (12 x C13)	67
58	7423VIB3101	Vertical PDU (0 U), three phase 16 A, metered input, metered outlets,switched outlets (12 x C19)	68
59	D0EADIB3101	Double horizontal PDU, three phase 16 A, metered input, metered outlets,switched outlets (12 x C13)	69
60	2731VIB3361	Vertical PDU (0 U), three phase 32 A, metered input, metered outlets,switched outlets (24 x C13) (12 x C19)	70
61	4AF7VMB3366	Vertical PDU (0 U), three phase 32 A, metered branches (6x), metered outlets,switched outlets (30 x C13) (6 x C19)	71
62	86DEWIB3361	Double vertical PDU, three phase 32 A, metered input, metered outlets,switched outlets (36 x C13 IEC Lock) (6 x C19 IEC Lock)	72
63	728FDIB3361	Double horizontal PDU, three phase 32 A, metered input, metered outlets,switched outlets (6 x C19 IEC Lock)	73

0522VIB1101

MANAGED PDU

51. Summary:

- vertical PDU (0 U)
- single phase 16 A
- metered input
- metered outlets, switched outlets
- 18 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1030 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=800, positions=115, 915mm)
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	18 times bistable close to zero crossing switching relays
METERED OUTLETS	18 times volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C13 , 6 x IEC 60320 C19

1 Phase 16A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (0U [vertical], 3.6kVA, 18 outlets). INPUT: 230v, 16a - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 12 x C13 IEC Lock, 6 x C19 IEC Lock outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	✔

1 Phase 16 ampere 3.6 kVA

61

6080HIB1101

MANAGED PDU

52. Summary:

- horizontal PDU
- single phase 16 A
- metered input
- metered outlets, switched outlets
- 6 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 52.5 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 l Ethernet: RJ45 l sensorport: RJ12 l USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	6 times bistable close to zero crossing switching relays
METERED OUTLETS	6 times volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	6 x IEC 60320 C13

1 Phase 16A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (1.5U [horizontal 19"], 3.6kVA, 6 outlets). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 6 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	✔

1 Phase 16 ampere 3.6 kVA

62

DB12DIB1101

MANAGED PDU

53. Summary:

- double horizontal PDU
- single phase 16 A
- metered input
- metered outlets, switched outlets
- 9 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	9 times bistable close to zero crossing switching relays
METERED OUTLETS	9 times volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	8 x IEC 60320 C13 , 1 x CEE 7/3 (Schuko, type F)

1 Phase 16A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (1.5U [horizontal 19"], 3.6kVA, 9 outlets). INPUT: 230v, 16a - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 8 x C13 outlets 1 x CEE 7/3 (Schuko, type F).

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	✔

1 Phase 16 ampere 3.6 kVA

63

9112VIB1321

MANAGED PDU

54. Summary:

- vertical PDU (0 U)
- single phase 32 A
- metered input
- metered outlets, switched outlets
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 905 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=533, positions=186, 719mm)
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	12 times bistable close to zero crossing switching relays
METERED OUTLETS	12 times volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (0U [vertical], 7.4kVA, 12 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 12 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	✔

1 Phase 32 ampere 7.4 kVA

3592VMB1322

MANAGED PDU

55. Summary:

- vertical PDU (0 U)
- single phase 32 A
- metered branches (2x)
- metered outlets, switched outlets
- 30 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1595 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1067, positions=264, 1331mm)
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 l Ethernet: RJ45 l sensorport: RJ12 l USB
BRANCH METERING	2 x volt, ampere, kWh, power factor
SWITCHED OUTLETS	30 times bistable close to zero crossing switching relays
METERED OUTLETS	30 times volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	24 x IEC 60320 C13 , 6 x IEC 60320 C19

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (0U [vertical], 7.4kVA, 30 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 24 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per branch, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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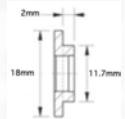| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔	✔	✔

1 Phase 32 ampere 7.4 kVA

5576DIB1321

MANAGED PDU

56. Summary:

- double horizontal PDU
- single phase 32 A
- metered input
- metered outlets, switched outlets
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	12 times bistable close to zero crossing switching relays
METERED OUTLETS	12 times volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C13

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 12 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 12 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	✔

66

D782DMB1322

MANAGED PDU

57. Summary:

- double horizontal PDU
- single phase 32 A
- metered branches (2x)
- metered outlets, switched outlets
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 l Ethernet: RJ45 l sensorport: RJ12 l USB
BRANCH METERING	2 x volt, ampere, kWh, power factor
SWITCHED OUTLETS	12 times bistable close to zero crossing switching relays
METERED OUTLETS	12 times volt, ampere, kWh, power factor
FUSES	2 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C13

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (1.5U [horizontal 19"], 7.4kVA, 12 outlets). INPUT: 230v, 32A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 12 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per branch, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

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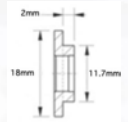| Features	Metering on phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔	✔	✔

7423VIB3101

MANAGED PDU

58. Summary:

- vertical PDU (0 U)
- three phase 16 A
- metered input
- metered outlets, switched outlets
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 875 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=533, positions=171, 704mm)
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	12 times bistable close to zero crossing switching relays
METERED OUTLETS	12 times volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C19

3 Phase 16A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (0U [vertical], 11kVA, 42 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 42 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✓		✓	✓

3 Phase 16 ampere 11 kVA

68

D0EADIB3101

MANAGED PDU

59. Summary:

- double horizontal PDU
- three phase 16 A
- metered input
- metered outlets, switched outlets
- 12 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	12 times bistable close to zero crossing switching relays
METERED OUTLETS	12 times volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	12 x IEC 60320 C13

3 Phase 16A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (1.5U [horizontal 19"], 11kVA, 12 outlets). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 12 x C13 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

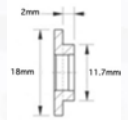| Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	✔

69

2731VIB3361

MANAGED PDU

60. Summary:

- vertical PDU (0 U) three
- phase 32 A metered
- input
- metered outlets, switched outlets
- 36 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1835 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1333, positions=251, 1584mm)
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	36 times bistable close to zero crossing switching relays
METERED OUTLETS	36 times volt, ampere, kWh, power factor
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	24 x IEC 60320 C13 , 12 x IEC 60320 C19

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (0U [vertical], 22kVA, 36 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 24 x C13, 12 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✓		✓	✓

3 Phase 32 ampere 22 kVA

4AF7VMB3366

MANAGED PDU

61. Summary:

- vertical PDU (0 U)
- three phase 32 A
- metered branches (6x)
- metered outlets, switched outlets
- 36 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1835 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	Toolless mount buttons (brackets not included) (distance=1333, positions=251, 1584mm)
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
BRANCH METERING	6 x volt, ampere, kWh, power factor
SWITCHED OUTLETS	36 times bistable close to zero crossing switching relays
METERED OUTLETS	36 times volt, ampere, kWh, power factor
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	30 x IEC 60320 C13 , 6 x IEC 60320 C19

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (0U [vertical], 22kVA, 36 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 30 x C13, 6 x C19 outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per branch, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

3 Phase 32 ampere 22 kVA

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔	✔	✔	✔

86DEWIB3361

MANAGED PDU

62. Summary:

- double vertical PDU
- three phase 32 A
- metered input
- metered outlets, switched outlets
- 42 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 1880 x 65 x 105 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry front-side top
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	42 times bistable close to zero crossing switching relays
METERED OUTLETS	42 times volt, ampere, kWh, power factor
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	36 x IEC 60320 C13 (IEC Lock), 6 x IEC 60320 C19 (IEC Lock)

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (0U [vertical], 22kVA, 42 outlets). INPUT: 400v, 32a - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 36 x C13 IEC Lock , 6 x C19 IEC Lock outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	✔

3 Phase 32 ampere 22 kVA

728FDIB3361

MANAGED PDU

63. Summary:

- double horizontal PDU
- three phase 32 A
- metered input
- metered outlets, switched outlets
- 6 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 440 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 3,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 ǀ Ethernet: RJ45 ǀ sensorport: RJ12 ǀ USB
INPUT METERING	volt, ampere, kWh, power factor
SWITCHED OUTLETS	6 times bistable close to zero crossing switching relays
METERED OUTLETS	6 times volt, ampere, kWh, power factor
FUSES	6 x Thermal breaker 16A (ETA)
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	6 x IEC 60320 C19 (IEC Lock)

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered, per outlet metered & remote switchable rack power distribution unit (1.5U [horizontal 19"], 22kVA, 6 outlets). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 6 x C19 IEC Lock outlets.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, per phase, per outlet, per outlet remote switchable, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events (optional breaker metering). Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. No switching on power loss and automatic recovery. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This PDU is an example. You can have everything on this PDU modified as you wish. This is possible from as little as 1 piece, without longer delivery time or extra costs. See the possible PDU modifications on pages 85 to 92.

Features	Metering per phase	Branch Metering	Outlet Metering	Outlet Switching
Intelligence	✔		✔	✔

Inline Meter

Turn any existing basic PDU into a smart power metered PDU. Our Inline meters are available in 1 phase 16 ampere, 3 phase 16 ampere, 1 phase 32 ampere and 3 phase 32 ampere. The horizontal Inline Meters are 'half 19-inch' models, and allowing 2 inline meters to be placed side by side in a server cabinet.

The inline meter is installed between the power source and the equipment being measured, and it measures the current and voltage passing through it to calculate the power consumption of the equipment. The meter usually displays the measured values on a display screen or sends the data to a monitoring system for analysis and reporting.

Inline meters can be useful in data centres with an install base of basic non intelligent PDUs where selectively a basic PDU can be equipped with an inline meter because they allow administrators to monitor the power consumption of equipment in real time, which can help identify inefficient equipment or configurations that consume more power than necessary. This information can be used to optimise energy consumption, reduce costs and improve the overall efficiency of the data centre.

Model
INLINE METER

Number	Part number	Description	Page
64	7095VIP1101	Vertical PDU (0 U), single phase 16 A, metered input, inline (1 x CEE 3G2,5)	75
65	5C81DIP1101	Double horizontal PDU, single phase 16 A, metered input, inline (1 x CEE 3G2,5)	76
66	815AVIP1301	Vertical PDU (0 U), single phase 32 A, metered input, inline (1 x CEE 3G6)	77
67	50E7DIP1301	Double horizontal PDU, single phase 32 A, metered input, inline (1 x CEE 3G6)	78
68	7880VIP3101	Vertical PDU (0 U), three phase 16 A, metered input, inline (1 x CEE 5G2,5)	79
69	A800DIP3101	Double horizontal PDU, three phase 16 A, metered input, inline (1 x CEE 5G2,5)	69
70	AFC1VIP3301	Vertical PDU (0 U), three phase 32 A, metered input, inline (1 x CEE 5G6)	81
71	9A5BDIP3301	Double horizontal PDU, three phase 32 A, metered input, inline (1 x CEE 5G6)	82

7095VIP1101

INLINE METER

64. Summary:

- vertical PDU (0 U)
- single phase 16 A
- metered input
- inline
- 1 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 280 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover table mount
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 2,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	1 x Exit lead (3G2,5 halogenfree) with IEC60309 socket 0,5m

1 Phase 16A Tender Text/Bid Submittal Text: Input energy metered inline meter (0U [vertical], 3.6kVA. INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 1 x IEC60309 socket.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 Inline meter PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This Inline Meter is an example. You can have this Inline Meter modified as you wish like the colour and cable length. This is possible from as little as 1 piece, without longer delivery time or extra costs.

5C81DIP1101

INLINE METER

65. Summary:

- double horizontal PDU
- single phase 16 A
- metered input
- inline
- 1 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 209 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 16 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G2,5 halogenfree) with CEE plug 2,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	1 x Exit lead (3G2,5 halogenfree) with IEC60309 socket 0,5m

1 Phase 16A Tender Text/Bid Submittal Text: Input energy metered inline meter (1.5U [horizontal half 19"], 3.6kVA). INPUT: 230v, 16A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 1 x IEC60309 socket.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 Inline meter PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC of mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This Inline Meter is an example. You can have this Inline Meter modified as you wish like the colour and cable length. This is possible from as little as 1 piece, without longer delivery time or extra costs.

815AVIP1301

INLINE METER

66. Summary:

- vertical PDU (0 U)
- single phase 32 A
- metered input
- inline
- 1 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 280 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover table mount
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 2,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	1 x Exit lead (3G6 halogenfree) with IEC60309 socket 0,5m

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered inline meter (0U [vertical], 7.4kVA). INPUT: 230v, 32a - IEC 60309 2P+E 6h 32A plug (2P3W); OUTPUT: 1 x IEC60309 socket.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 Inline meter PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This Inline Meter is an example. You can have this Inline Meter modified as you wish like the colour and cable length. This is possible from as little as 1 piece, without longer delivery time or extra costs.

50E7DIP1301

INLINE METER

67. Summary:

- double horizontal PDU
- single phase 32 A
- metered input
- inline
- 1 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 209 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	single phase 32 A, 230VAC - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (3G6 halogenfree) with CEE plug 2,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45 | Ethernet: RJ45 | sensorport: RJ12 | USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	1 x Exit lead (3G6 halogenfree) with IEC60309 socket 0,5m

1 Phase 32A Tender Text/Bid Submittal Text: Input energy metered inline meter (1.5U [horizontal half 19"], 7.4kVA). INPUT: 230v, 32A - IEC 60309 2P+E 6h 16A plug (2P3W); OUTPUT: 1 x IEC60309 socket.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via Embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This Inline Meter is an example. You can have this Inline Meter modified as you wish like the colour and cable length. This is possible from as little as 1 piece, without longer delivery time or extra costs.

1 Phase 32 ampere 7.4 kVA

7880VIP3101

INLINE METER

68. Summary:

- vertical PDU (0 U)
- three phase 16 A
- metered input
- inline
- 1 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 280 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover table mount
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 2,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	1 x Exit lead (5G2,5 halogenfree) with IEC60309 socket 0,5m

3 Phase 16A Tender Text/Bid Submittal Text: Input energy metered inline meter (0U [vertical], 11kVA). INPUT: 400v, 16A - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 1 x IEC60309 socket.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 Inline meter PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC of mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This Inline Meter is an example. You can have this Inline Meter modified as you wish like the colour and cable length. This is possible from as little as 1 piece, without longer delivery time or extra costs.

3 Phase 16 ampere 11 kVA

A800DIP3101

INLINE METER

69. Summary:

- double horizontal PDU
- three phase 16 A
- metered input
- inline
- 1 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 209 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 16 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G2,5 halogenfree) with CEE plug 2,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	1 x Exit lead (5G2,5 halogenfree) with IEC60309 socket 0,5m

3 Phase 16A Tender Text/Bid Submittal Text: Input energy metered inline meter (1.5U [horizontal half 19"], 11kVA). INPUT: 400v, 16Aa - IEC 60309 3P+N+E 6h 16A plug (4P5W); OUTPUT: 1 x IEC60309 socket.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 Inline meter PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC or mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This Inline Meter is an example. You can have this Inline Meter modified as you wish like the colour and cable length. This is possible from as little as 1 piece, without longer delivery time or extra costs.

3 Phase 16 ampere 11 kVA

AFC1VIP3301

INLINE METER

70. Summary:

- vertical PDU (0 U)
- three phase 32 A
- metered input
- inline
- 1 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 280 x 65 x 52.5 mm (0U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover table mount
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry side-cover top
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 2,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	1 x Exit lead (5G6 halogenfree) with IEC60309 socket 0,5m

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered inline meter (0U [vertical], 22kVA). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 1 x IEC60309 socket.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 Inline meter PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC of mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This Inline Meter is an example. You can have this Inline Meter modified as you wish like the colour and cable length. This is possible from as little as 1 piece, without longer delivery time or extra costs.

9A5BDIP3301

INLINE METER

71. Summary:

- double horizontal PDU
- three phase 32 A
- metered input
- inline
- 1 outlets

SPECIFICATIONS

DIMENSIONS	L x W x D = 209 x 65 x 105 mm (1.5 U) (excl. strain relief, mounting & cable bending radius)
ENCLOSURE	Profile color black, aluminium with stainless steel covers (IP20)
MOUNT	sidecover 19 inch double deep housing
POWER INPUT	three phase 32 A, 230/400V - 50/60Hz
CABLE ENTRY	power entry rear-side left
CABLE & PLUG	Power lead (5G6 halogenfree) with CEE plug 2,0m (strain relief height 2,5cm)
CONNECTIVITY	databus: 2 x RJ45	Ethernet: RJ45	sensorport: RJ12	USB
INPUT METERING	volt, ampere, kWh, power factor
FUSES	n/a
DISPLAY	LCD display with backlight and configurable orientation
OUTLETS	1 x Exit lead (5G6 halogenfree) with IEC60309 socket 0,5m

3 Phase 32A Tender Text/Bid Submittal Text: Input energy metered inline meter (1.5U [horizontal half 19"], 22kVA). INPUT: 400v, 32A - IEC 60309 3P+N+E 6h 32A plug (4P5W); OUTPUT: 1 x IEC60309 socket.

FEATURES: Billing-Grade (+/- 1%) Energy Metering [kW, kVA, V, A, Power Factor] - per inlet, remote network monitoring via embedded SSL Security (HTTPS), HTML, IPAPI, WEBAPI, MODBUS/TCP, and SNMPv1/v2c, SNMPv3. Onboard embedded processor with minimum 100MHz clock speed, 8MB SPI Flash with in-house developed system firmware; Cascading up to ~50 Inline meter PDU's using single Ethernet IP address. Environmental monitoring [temp/humidity] capable – up to 100 sensors. Individual outlet numbers engraved on chassis. Automated deployment via Ethernet or USB Flash Drives. Single 10/100 Ethernet port. Web interface adjusted for PC of mobile devices. Status LED for network and system activity. Alarming for multiple alerting events. Custom length and configuration depending on customer specifications. Maximum ambient temperature 60C at full load. Low power usage through smart design. Free service tool for maintenance, configuration, register reading and writing. LCD screen for displaying detailed PDU status.

This Inline Meter is an example. You can have this Inline Meter modified as you wish like the colour and cable length. This is possible from as little as 1 piece, without longer delivery time or extra costs.

Overview of example PDUs

Since we craft all PDUs to be custom-made, tailored precisely to your requirements, this catalog features just one representative PDU example for each configuration. Simply provide us with the article number of the configuration that closely aligns with your needs and specify any desired modifications. We'll promptly send you a customized proposal on the same day. If you don't find a suitable example, don't hesitate to inform us. We have the capability to create virtually any PDU you envision. For a comprehensive overview of all available customization options for PDUs, please refer to pages 85 to 92 in this catalog.

Basic	Input metering	Outlet metering	Outlet switchable	Branch metering	Phase	Ampere	Outlets	Orientation	Part number	Page
✓	–	–	–	–	1	16	(8 x C13) (1 x C19)	vertical PDU (0 U)	223DVNN1101	7
✓	–	–	–	–	1	16	(12 x C13 IEC Lock)	horizontal PDU (19" 1,5 U)	2BDDHNN1101	8
✓	–	–	–	–	1	16	(15 x Schuko)	double horizontal PDU (19" 1,5 U)	7E95DNN1101	9
✓	–	–	–	–	1	32	(2 x C19 IEC Lock) (2 x Schuko) (1 x CEE)	vertical PDU (0 U)	C830VNN1321	10
✓	–	–	–	–	1	32	(24 x C13) (6 x C19)	vertical PDU (0 U)	2DD9VNN1321	11
✓	–	–	–	–	1	32	(12 x C13) (2 x C19)	horizontal PDU (19" 1,5 U)	5A81HNN1321	12
✓	–	–	–	–	1	32	(20 x C13)	double horizontal PDU (19" 1,5 U)	9F48DNN1321	13
✓	–	–	–	–	3	16	(24 x C13) (6 x C19)	vertical PDU (0 U)	B4EFVNN3101	14
✓	–	–	–	–	3	16	(9 x C13 IEC Lock)	horizontal PDU (19" 1,5 U)	43E3HNN3101	15
✓	–	–	–	–	3	32	(30 x C13) (18 x C19)	vertical PDU (0 U)	FD06VNN3361	16
✓	–	–	–	–	3	32	(6 x C19 IEC Lock)	horizontal PDU (19" 1,5 U)	66FCHNN3361	17
✓	–	–	–	–	3	32	(12 x C13)	double horizontal PDU (19" 1,5 U)	9116DNN3361	18
✓	–	–	–	–	3	32	(9 x C19)	double horizontal PDU (19" 1,5 U)	0D75DNN3361	19
–	✓	–	–	–	1	16	(18 x C13) (6 x C19)	vertical PDU (0 U)	E91AVIN1101	21
–	✓	–	–	–	1	16	(12 x C13)	horizontal PDU (19" 1,5 U)	C8CAHIN1101	22
–	✓	–	–	–	1	16	(12 x Schuko)	double horizontal PDU (19" 1,5 U)	1121DIN1101	23
–	✓	–	–	–	1	32	(36 x C13) (6 x C19)	vertical PDU (0 U)	E9BDVIN1321	24
–	✓	–	–	–	1	32	(8 x C13)	horizontal PDU (19" 1,5 U)	550EHIN1321	25
–	✓	–	–	–	1	32	(20 x C13)	double horizontal PDU (19" 1,5 U)	2C11DIN1321	26
–	✓	–	–	✓	1	32	(18 x C13) (6 x C19)	vertical PDU (0 U)	DDEBVMN1322	27
–	✓	–	–	✓	1	32	(4 x C13) (2 x C19)	horizontal PDU (19" 1,5 U)	1FB5HMN1322	28
–	✓	–	–	–	1	32	(7 x Schuko)	double horizontal PDU (19" 1,5 U)	60CADMN1322	29
–	✓	–	–	–	3	16	(36 x C13) (6 x C19)	vertical PDU (0 U)	1F5BVIN3101	30
–	✓	–	–	–	3	16	(9 x C13)	horizontal PDU (19" 1,5 U)	D0B9HIN3101	31
–	✓	–	–	–	3	16	(9 x C13) (3 x C19)	double horizontal PDU (19" 1,5 U)	D49EDIN3101	32
–	✓	–	–	–	3	32	(36 x C13) (12 x C19)	vertical PDU (0 U)	2B1FVIN3361	33
–	✓	–	–	✓	3	32	(30 x C13) (6 x C19)	vertical PDU (0 U)	9B45VMN3366	34
–	✓	–	–	–	3	32	(9 x C19)	double horizontal PDU (19" 1,5 U)	7496DIN3361	35
–	✓	✓	–	–	1	16	(18 x C13) (3 x C19)	vertical PDU (0 U)	15AFVIM1101	37
–	✓	✓	–	–	1	16	(8 x C13)	horizontal PDU (19" 1,5 U)	2D60HIM1101	38
–	✓	✓	–	–	1	16	(12 x C13 IEC Lock)	double horizontal PDU (19" 1,5 U)	45ABDIM1101	39
–	✓	✓	–	–	1	32	(24 x C13) (6 x C19)	vertical PDU (0 U)	3E55VIM1321	40
–	✓	✓	–	✓	1	32	(18 x C13) (6 x C19)	vertical PDU (0 U)	3EBEVMM1322	41
–	✓	✓	–	–	1	32	(16 x C13) (2 x C19)	double horizontal PDU (19" 1,5 U)	3AA1DIM1321	42
–	✓	✓	–	✓	1	32	(16 x C13) (2 x C19)	double horizontal PDU (19" 1,5 U)	63F5DMM1322	43
–	✓	✓	–	–	3	16	(30 x C13 IEC Lock) (6 x C19 IEC Lock)	vertical PDU (0 U)	2B7AVIM3101	44
–	✓	✓	–	–	3	16	(12 x C13)	double horizontal PDU (19" 1,5 U)	370FDIM3101	45
–	✓	✓	–	–	3	32	(18 x C13 IEC Lock) (6 x C19 IEC Lock)	vertical PDU (0 U)	0FAFVIM3361	46
–	✓	✓	–	–	3	32	(6 x C19 IEC Lock)	double horizontal PDU (19" 1,5 U)	E47DDIM3361	47
–	✓	–	✓	–	1	16	(22 x C13 IEC Lock) (2 x C19 IEC Lock)	vertical PDU (0 U)	6453VIS1101	49
–	✓	–	✓	–	1	16	(12 x C13 IEC Lock)	double horizontal PDU (19" 1,5 U)	26A9DIS1101	50
–	✓	–	✓	–	1	32	(18 x C13) (6 x C19)	vertical PDU (0 U)	C285VIS1321	51
–	✓	–	✓	✓	1	32	(24 x C13 IEC Lock)	vertical PDU (0 U)	78A6VMS1322	52
–	✓	–	✓	–	1	32	(12 x C13)	double horizontal PDU (19" 1,5 U)	40A2DIS1321	53
–	✓	–	✓	✓	1	32	(12 x C13)	double horizontal PDU (19" 1,5 U)	4EB5DMS1322	54
–	✓	–	✓	–	3	16	(42 x C13)	vertical PDU (0 U)	F3BAVIS3101	55
–	✓	–	✓	–	3	16	(6 x Schuko)	double horizontal PDU (19" 1,5 U)	8DA6DIS3101	56
–	✓	–	✓	–	3	32	(24 x C13) (6 x C19)	vertical PDU (0 U)	86D1VIS3361	57
–	✓	–	✓	✓	3	32	(24 x C13) (6 x C19)	vertical PDU (0 U)	CD52VMS3366	58
–	✓	–	✓	–	3	32	(6 x C19)	double horizontal PDU (19" 1,5 U)	5F42DIS3361	59
–	✓	✓	✓	–	1	16	(12 x C13) (6 x C19)	vertical PDU (0 U)	0522VIB1101	61
–	✓	✓	✓	–	1	16	(6 x C13)	horizontal PDU (19" 1,5 U)	6080HIB1101	62
–	✓	✓	✓	–	1	16	(8 x C13) (1 x Schuko)	double horizontal PDU (19" 1,5 U)	DB12DIB1101	63
–	✓	✓	✓	–	1	32	(12 x C19)	vertical PDU (0 U)	9112VIB1321	64
–	✓	✓	✓	✓	1	32	(24 x C13) (6 x C19)	vertical PDU (0 U)	3592VMB1322	65
–	✓	✓	✓	–	1	32	(12 x C13)	double horizontal PDU (19" 1,5 U)	5576DIB1321	66
–	✓	✓	✓	✓	1	32	(12 x C13)	double horizontal PDU (19" 1,5 U)	D782DMB1322	67
–	✓	✓	✓	–	3	16	(12 x C19)	vertical PDU (0 U)	7423VIB3101	68
–	✓	–	–	–	3	16	(1 x CEE 5G2,5)	double horizontal PDU (19" 1,5 U)	A800DIP3101	69
–	✓	✓	✓	–	3	16	(12 x C13)	double horizontal PDU (19" 1,5 U)	D0EADIB3101	69
–	✓	✓	✓	–	3	32	(12 x C13)	vertical PDU (0 U)	2731VIB3361	70
–	✓	✓	✓	✓	3	32	(30 x C13) (6 x C19)	vertical PDU (0 U)	4AF7VMB3366	71
–	✓	✓	✓	–	3	32	(36 x C13 IEC Lock) (6 x C19 IEC Lock)	double vertical PDU (19" 1,5 U)	86DEWIB3361	72
–	✓	✓	✓	–	3	32	(6 x C19 IEC Lock)	double horizontal PDU (19" 1,5 U)	728FDIB3361	73
–	✓	–	–	–	1	16	(1 x CEE 3G2,5)	vertical inline meter (0 U)	7095VIP1101	75
–	✓	–	–	–	1	16	(1 x CEE 3G2,5)	double horizontal inline meter (19" 1,5 U)	5C81DIP1101	76
–	✓	–	–	–	1	32	(1 x CEE 3G6)	vertical inline meter (0 U)	815AVIP1301	77
–	✓	–	–	–	1	32	(1 x CEE 3G6)	double horizontal inline meter (19" 1,5 U)	50E7DIP1301	78
–	✓	–	–	–	3	16	(1 x CEE 5G2,5)	vertical inline meter (0 U)	7880VIP3101	79
–	✓	–	–	–	3	32	(1 x CEE 5G6)	vertical inline meter (0 U)	AFC1VIP3301	81
–	✓	–	–	–	3	32	(1 x CEE 5G6)	double horizontal inline meter (19" 1,5 U)	9A5BDIP3301	82

Why our customers choose Schleifenbauer PDUs?

- Tailored to Your Every Specification: Our PDUs are meticulously designed to match your unique requirements, and you can start with just one unit without incurring additional costs or lengthy lead times.
- Swift Delivery: We pride ourselves on our fast production turnaround, with a lead time of up to four weeks, ensuring your PDUs reach you promptly.
- Uncompromising Reliability and Quality: Our commitment to delivering high-quality products means you can rely on Schleifenbauer PDUs for consistent performance.
- Continuous Innovation: We are dedicated to the constant enhancement of PDU performance and power management solutions, ensuring you stay ahead in your industry.
- Expert Support: Experience professional support and streamlined communication channels that make resolving any queries or concerns a breeze.
- IP Address Efficiency: Achieve significant IP address savings by monitoring more than 50 PDUs with just one IP address.
- Environmentally Conscious Manufacturing: Our PDUs are manufactured with the lowest carbon footprint possible, proudly made in our factory located in 's-Hertogenbosch, The Netherlands.
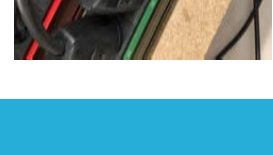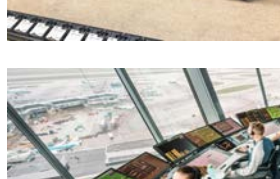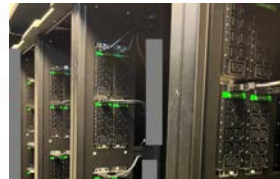
Who are our customers?

- Data centres
- Telecom and cloud hosting providers
- Wholesalers of IT hardware, server racks, servers
- Critical and emergency power equipment suppliers
- Hospital equipment suppliers
- Data centre construction companies
- Electricians installers
- Ship / yacht builders, offshore
- Broadcast companies, concert, event construction
- TV / Audio studios
- Production areas, factory and industrial applications
- Facility wholesalers
- Universities
- Demountable structure builders

How to Select the Perfect Partner for Rack PDUs?
In the world of power distribution units (PDUs), the choices are vast, but do they align with your specific requirements? Are they efficient in their delivery? Can they be trusted for their reliability? Do they seamlessly integrate with your rack, hardware, and cable management, or is there room for improvement? Are you in need of unique outlet types, plug configurations, enhanced overvoltage protection, individual fuses per outlet, or residual current sensors within the PDU? Perhaps you even desire a specific color scheme to set your digital infrastructure apart, or compact PDUs that maximize limited space. Maybe you envision your own branding proudly displayed on your PDU?

At Schleifenbauer, addressing these questions is our specialty! We are the unrivaled experts in the world of PDUs, unwaveringly committed to delivering excellence every single day, with a touch of craftsmanship. Our extensive portfolio encompasses a wide array of PDUs, all characterized by the utmost reliability. In fact, we have crafted and supplied over 120,000 distinct PDU variants to date. Whether you seek standard PDUs or tailor-made solutions, rest assured, it's always YourPDU!

Have it your way!

At Schleifenbauer, we don't believe in providing off-the-shelf PDUs. Instead, we customize each PDU to precisely match your requirements, seamlessly integrating with your infrastructure and IT equipment within the server rack. Our modular PDUs are tailored without additional costs or extended delivery times. Whether you need just one unit or more, we can deliver within a maximum lead time of four weeks. Every aspect of the PDU can be configured to your specifications. Simply share your needs with us, and we'll promptly assemble the perfect PDU for you.

Hello, I'm interested in requesting the PDU with the article number 4AF7VMB3366 as shown in your sample catalog, but with some modifications. Specifically, I would like the PDU to come with a 4-meter cable and MCB fuses. Additionally, could you provide a custom PDU with 18 C13 outlets and 3 Schuko outlets? It should have the capability to measure combined with switch outputs. I'm interested in both a red and a blue variant. Please let me know if these requests can be accommodated.

Not a problem at all. We specialize in customizing PDUs at no additional cost or extended lead times. I'll begin working on the PDU design right away and will send you the proposal, complete with design drawings and technical specifications, later today.

YourPDU®
by Schleifenbauer

Cable / Cable entery

Fuses / Surge protection

Housing

Outputs

Mounting

Management

Outputs Measured

Outputs Switched

Residual Current Monitoring

Sensors
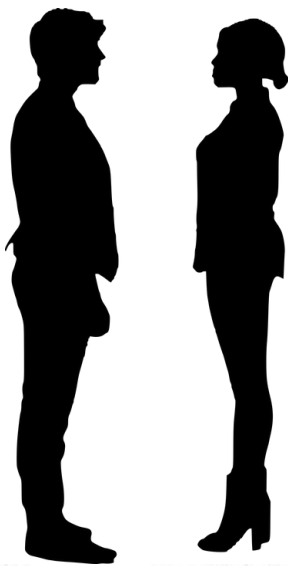
SCHLEIFENBAUER
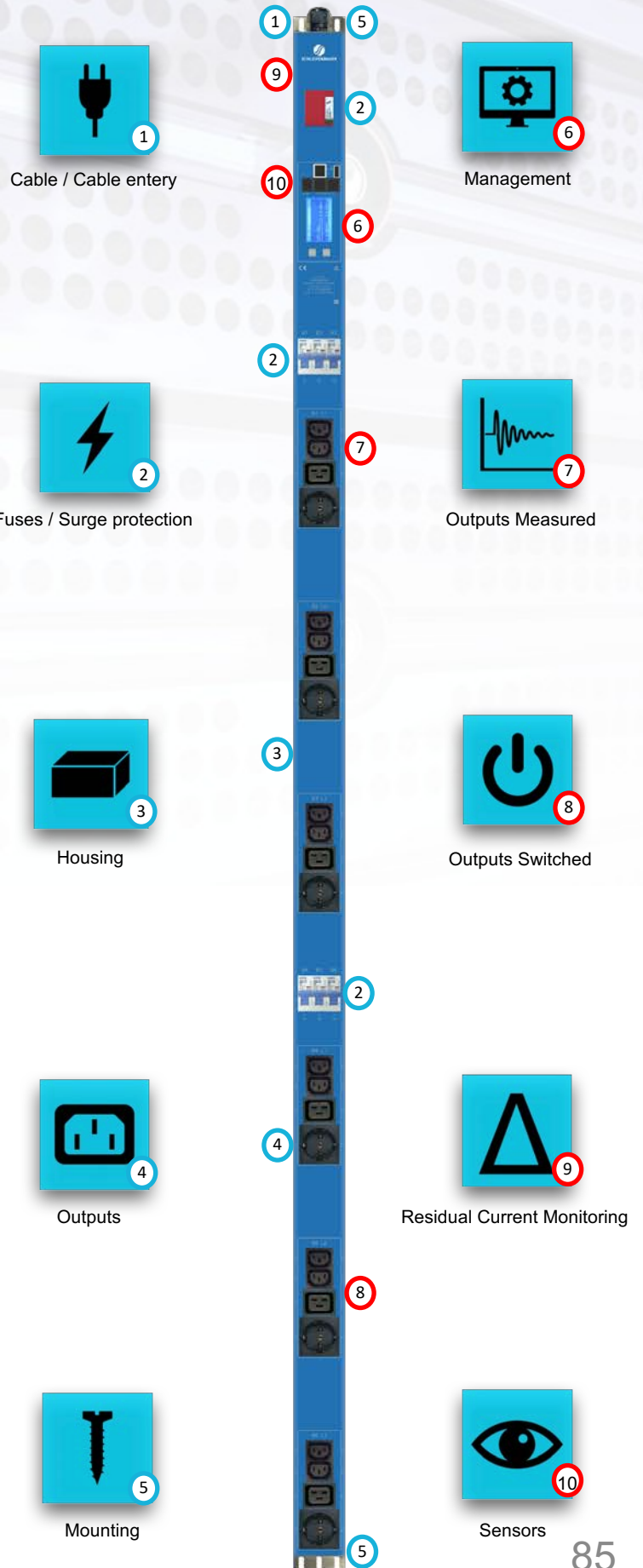
1. ⚡ Cable / Cable entry

Your PDU comes with a connecting lead of the correct length and with the correct connector. Furthermore, the cable connection is provided in the place that you need. The cable, which has been specially manufactured for Schleifenbauer, has LSZH specification and is ultra-flexible. It has an oversized diameter which results in lower build-up of heat and lower energy consumption. In addition to the standard connection with a connector, there is also the option of a Phoenix QPD connection.

C20 Chassis

SPECIFICATIONS:

. Length can be adapted
. Choice of connector type IEC320 C14 & C20 (optional with lock)
. Low Smoke Zero Halogen (LSZH)
. Oversized diameter
. Choose where cable entry is located: top / base / front / rear
. Optional Phoenix QPD connection
. Optional C20 Chassis

CONNECTORS:

Options

1.	CEE 7/7 (Schuko/UTE)	5.	IEC60309 3 phase (IP44/IP67)
2.	IEC320 C14	6.	BS 1363
3.	IEC320 C20	7.	GST 3/18
4.	IEC60309 1 phase (IP44/IP67)	8.	T13

9. T23
10. Cable connection
11. Phoenix QPD
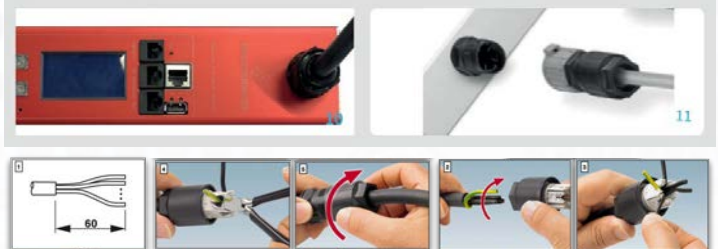
CONNECTIONS:

Phoenix QPD Connection: Do you want to connect your own cabling to the PDU? Order your PDU with a QPD connector. This QPD connector replaces the terminal connector and is an Innovative and time-saving QUICKON quick connector for time savings of up to 80% when connecting on site. Convenient quick and easy assembly without special tools.

2. ⚡ Fuses / Surge protection

Nowadays, it is unthinkable to have a data centre without the highest possible safety protection. It is even a legal requirement to use fuses in certain situations. You can employ fuses in your PDU according to your requirements and the infrastructure. This guarantees continuity and reduces the chance of a power outage.

SPECIFICATIONS:

FUSES

. Miniature circuit breaker (MCB)
. Thermal fuse
. Glass cartridge fuse holder

SURGE PROTECTION

. Protects PDU against surges
. Hot swappable
. Can be replaced by a data centre engineer

Specials
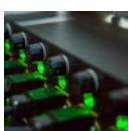
MELT FUSE **LED** **NETFILTER** **SWITCH** **HYDRAULIC MAGNETIC FUSE**

Options
1. Glass cartridge fuse holder
2. Thermal fuse
3. Miniatrure circuit breaker (MCB)
4. Surge protection

*Find more information about:
- Type of fuses on pages 103 till 108
- Dehn surge protection on pages 109 till 112.

YourPDU®
by Schleifenbauer

3. 🗔 Housing

The housing of your PDU is made entirely from aluminium, due to its good thermal properties and so as to keep the weight low. You can determine the length and orientation (horizontal or vertical). Our aluminium housing can be supplied in various colours and is provided with custom engraving.

Options

1. Black
2. Green
3. Orange
4. Blue
5. Red
6. Yellow
7. Custom engraving

SPECIFICATIONS:

. Material: 1.5 mm anodised aluminium
. Adaptable orientation
. Custom engraving
. Wide: 65 mm
. Depth:52,6 mm
. Length: can be adapted
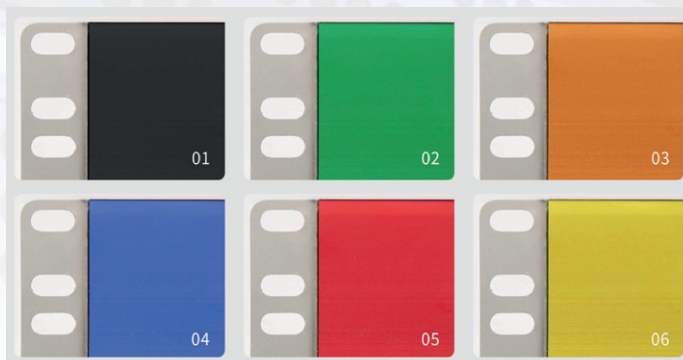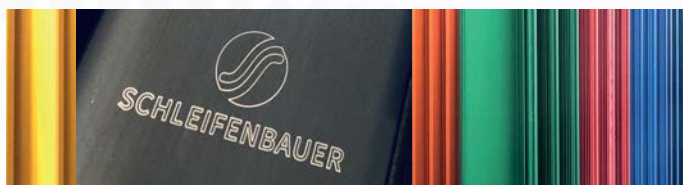
4. 🔌 Outputs

You can fit your PDU with various outputs and types of outputs. You configure both the number and type of outputs. For example, IEC C13, IEC C19 and CEE 7/3(Schuko). You can specify the order in which you want the outputs to be arranged. IEC C13 and IEC C19 connectors are available optionally with a lock.

CEE 1Phase 16A Chassis

SPECIFICATIONS:

Various types of outputs:
. IEC320 C13
. IEC320 C13 IEC-Lock
. IEC320 C19
. IEC320 C19 IEC-Lock
. CEE 7/3 (Schuko)
. CEE 7/5 (UTE)

. IEC603009 1 Phase (IP44/IP67)
. IEC603009 3 Phase (IP44/IP67)
. BS 1363
. GST 18/3 Wieland
. T13
. T23

Options

1. IEC320 C13	5. CEE 7/3 (Schuko)	9. BS 1363
2. IEC320 C13 IEC-Lock	6. CEE 7/5 (UTE)	10. GST 18/3
3. IEC320 C19	7. IEC60309 1 phase (IP44/IP67)	11. T13
4. IEC320 C19 IEC-Lock	8. IEC60309 3 phase (IP44/IP67)	12. T23

5. Mounting

In order to correctly install a PDU in a server rack, you need specific expertise. Schleifenbauer has expertise in house and offers mounting options for every type of server cabinet, whatever the type or manufacturer, using mounting brackets or even "toolless" mounting. What is your ideal mounting?

Options

1. Horizontal 19 inches
2. Toolless mount
3. Table mount
4. Recessed
5. Profile clamps
6. Toolless mount 90 degree angle

SPECIFICATIONS:

. Indipendent of server rack manufacturer
. Independent of type of server rack
. "Toolless mount" option
. Option for custom mounting

Universal bracket

Custom-made mounting brackets

Schleifenbauer has a suitable bracket for almost every situation. If the desired suspension for your PDU is not among them, we can make a custom-made bracket for you. Together with you, we will then look for the best solution. The advantage of the right bracket is that it creates space and efficiency in the server rack. We also have a coupling bracket to attach two PDUs together to form a solid unit. For any project, you can contact our sales team.

*Find more examples of custom brackets on pages 120 till 132.

YourPDU®
by Schleifenbauer
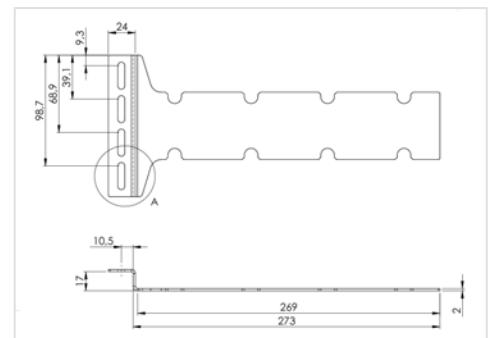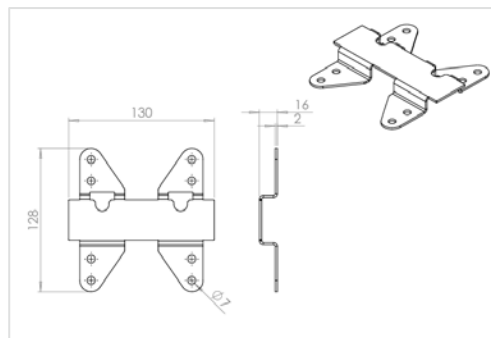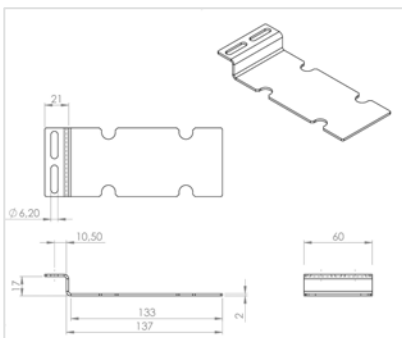
6. Measurement

If you choose remote measurement, the LCD display with LED backlight will provide you with all of the most important information. For instance, measurements status and configuration. The information is displayed horizontally or vertically, depending on your configurations. If a threshold value you have set is exceeded, this will be indicated on the display with an alert. The display and controller hardware is designed by Schleifenbauer and the position on the layout is flexible.

SPECIFICATIONS:

. LCD-backlight
. Horizontal / vertical display
. Optional hot swappable controller

Definilink PDU
Hot swappable
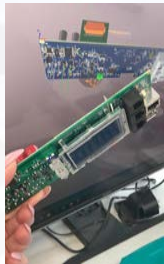
Displayed information can be:
I = Current [A]
P = Power [W]
U = Voltage [V]
Pf = Power factor [%]
Et = Energy total [kW]
Es = Subtotal energy [kW]

The measurement readings on your PDU provide insights into energy flows and enable you to manage these. You can read measurements locally or at a distance (remote) via the databus. Schleifenbauer has made their bus redundant. A single cable cut will not affect the readout or control of the PDUs; it will try to get access through the alternative route on the ring.

- **Web interface**
  The Webinter interface is the online environment for monitoring and managing your Schleifenbauer PDUs. Our Webinter interface is intuitive, all information is clearly displayed and settings are easy to change.

- **Via your own familiar DCIM platform and dashboard**
  With open standards, your PDU data is integrated in your own environment. Communication via various protocols such as SNMP (v1, v2c and v3), Modbus and API. Our applications are realised in well-known DCIM platforms such as Schneider InfraStruxure Manager, Sunbird DCIM and iTRACS®.

SELECT YOUR CONFIGURATION:

Measurement at distance (remote)

Current in A
Power in W and VA
Energy in kWh
Voltage in V Power factor
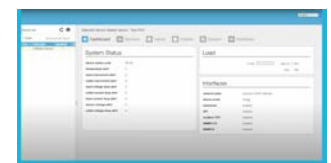
PDU Firmware, software and user manuals can be found at the download section on the support page on our website https://www.schleifenbauer.eu/en/support/.

CHOOSE YOUR SETUP:

Hybrid mode: Redundant acces per PDU. Individual and fast acces per PDU possible. Easy deployment. Connectivity via webinterface, SNMPv3, Modbus and API.
Ethernet mode: One IP-adress per PDU. High   speed communication. Easy   configuration   via   service   tool. Connectivity via webinterface, SNMPv3, Modbus and API.
Bridge mode: Control multiple PDUs (more than 50) via single IP-adress. Ring redundancy. Easy deployment. Connectivity via webinterface, SNMPv3, Modbus and API.
PDU Firmware, software and user manuals can be found at the download section on the support page on our website: www.schleifenbauer.eu/en/support/.

— Ethernet
— Data bus

Hybrid   Ethernet   Bridge
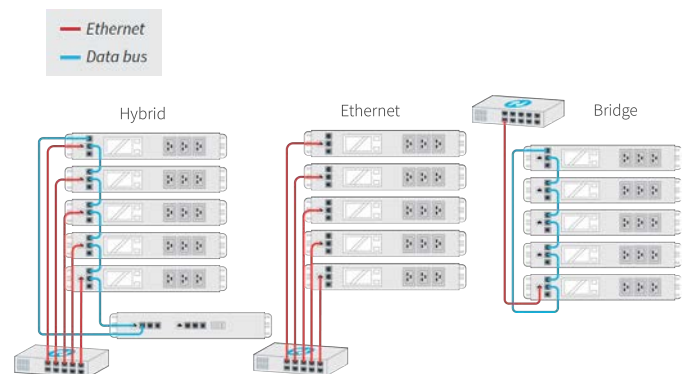
Connection to the LAN setup

Your**PDU**®
by Schleifenbauer

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7. Outputs Measured

The intelligence in the PDU does not need to be limited to complete measurement. You can choose to individually measure the outputs for capacity planning, power management, identify potential overload issues, billing and cost allocation, equipment protection or compiance

SPECIFICATIONS:

. Energy measurement
. Total PDU
. Branch groups
. Individual outputs
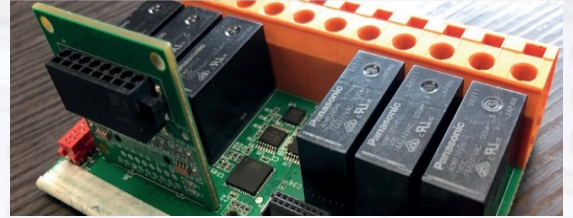
8. Outputs Switched

You can choose to individually activate/deactivate the outets remotely. Makes it also possible, among other things, to define the start-up sequence of connected equipment, intervene in the event of a peak load or enable the reboot of IT equipment.

SPECIFICATIONS:

. Individual outputs remote switchable
. Use of Bi-stable relays with near zero power consumption

9. Residual Current Monitoring

The residual current monitoring meter developed by Schleifenbauer enables you to easily localise leakage flows at circuit level. Residual current monitoring can be used to meet statutory safety requirements. An RCM works by constantly monitoring the current flow in the circuit. It measures the difference in current between the live and neutral conductors. If there is any imbalance in the current, which may be due to a fault such as an electrical leak, the RCM detects it.

SPECIFICATIONS:

. Class B measurement (measurement of AC and DC components)
. Auto-test
. Single and three-phase application

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Optimum value = 0
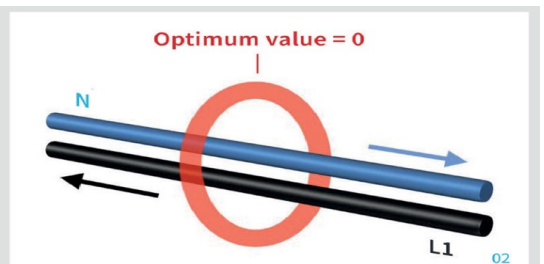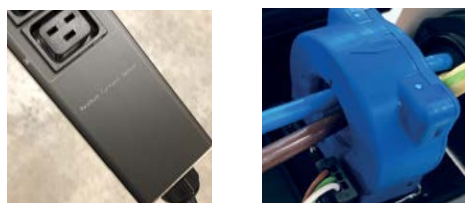
1. Residual Current Sensor
2. Schematic diagram of residual current monitoring

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![Schleifenbauer logo]

10. 👁 Sensors

Digital Sensor developed by Schleifenbauer, with high accuracy and easy connection to your PDU. Your PDU can be fitted optionally with external sensors. Schleifenbauer supplies a combined temperature/humidity sensor. It is also possible to add further sensors such as a water leak sensor based on binary input for potential-free contact.

SPECIFICATIONS:

. Temperature measurement
. Humidity measurement
. Dry switch contact (based on binary input for potential free contact)

Temprature & Humidity Sensor

All intelligent Schleifenbauer power distribution units support the temperature and humidity sensor. This sensor allows administrators to monitor temperature and humidity remotely. Administrators of the server room can set thresholds to identify critical values and take preventive measures. This prevents system failure from occurring and enables the highest level of availability for all mission-critical equipment to be achieved.

ITEM CODE:	123750
TEMP. OPERATING RANGE:	-40°C - 125°C
RH OPERATING RANGE:	0 - 100% RH
RH RESPONSE TIME:	8 sec.
T RESPONSE TIME:	5 sec.
RH ACCURACY (RANGE):	±2% typical ±3% max (20-80% RH)
RH LONG TERM DRIFT:	< 0,25% per year
T ACCURACY LIMITS (RANGE):	± 0,3°C
T LONG TERM DRIFT:	< 0,02°C per year
PRE CALIBRATED:	Yes

YourPDU®
by Schleifenbauer

Configuration layout: Phase, Ampere, Fuse & Branches

PDU 1 phase 16 amperes / 3.6kw - Outlets are divided into 0 groups, 0 fuses required.
PDU 1 phase 32 amperes / 7.2kW - Outlets are distributed over 2 branches of 16 ampere, minimum 2 fuses required.
PDU 3 phase 16 amperes / 11kW - Outlets split over 3 phases 1 x L1, 1 x L2, 1 x L3, 0 fuses required.
PDU 3 phase 32 amperes / 22kw - Outlets are distributed over 6 branches of 16 ampere, 2 x L1, 2 x L2, 2 x L3, minimum 6 fuses required.

1 Phase 16A 3G2,5 cable   1 Phase 32A 3G6 cable   3 Phase 16A 5G2,5 cable   3 Phase 32A 5G6 cable
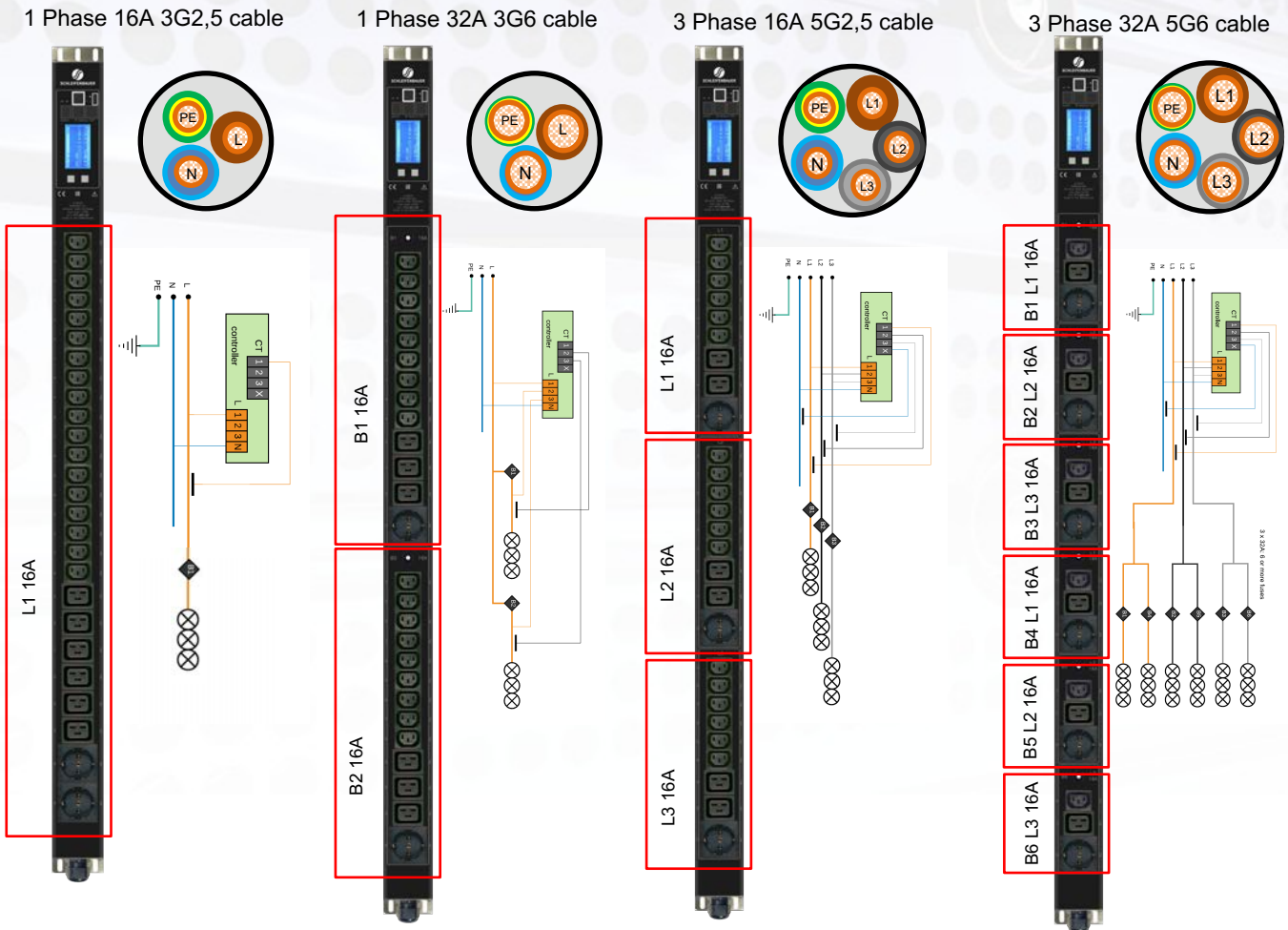
Thinking in terms of solutions

The configuration layout mentioned above is our standard option, and it can vary depending on whether the power supply originates from above or below the floor in the server room. However, you are not limited to this standard layout; you are free to specify your own layout requirements. You have the flexibility to determine the position of the display, the phase distribution at the outlet level (as shown in Figure 1), the distribution of branch groups, the number of fuses, and the sequence of outlets. In a standard PDU layout, a thermal fuse and a 3-meter cable are always included. When two PDUs are placed side by side in the server rack, you can align the left and right PDUs (as illustrated in Figure 2). For example, you can arrange angled plugs to exit between the outlets of the left PDU to ensure tidy cable management and prevent interference. It's also possible to incorporate passive outlets into a PDU that features switchable or measurable outlets. This can be useful, for instance, when supplying power to a laptop during server rack maintenance (as depicted in Figure 3). In situations where server racks have compartment divisions or a crossbar in the middle, finding a suitable PDU can be challenging. For 1-phase 32A PDUs, we can address this challenge by splitting the PDU into two parts. The top part of the PDU contains branch 1 and supplies power to branch 2, requiring only a single power supply (as shown in Figure 4). While Schleifenbauer PDUs are inherently grounded, some clients have specific requests for additional physical grounding cables on the outside of the PDU to establish a visible ground connection to the server rack (as illustrated in Figure 5). We can accommodate these requests at any desired position. If your specific requirement is not listed in this catalog, please don't hesitate to reach out to us. No customized solution is too complex for us to handle.

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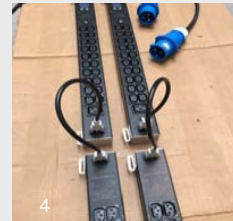
Lock cable

One of the main advantages of IEC lockable C13 - C14 and C19 - C20 cables is that they have a locking mechanism that ensures a secure and stable connection between the cable and the device. The locking mechanism is on the C14 or C20 connector that engages with a corresponding slot or hole on the C13 or C19 connector. Once the tab or latch is engaged, it prevents the cable from accidentally getting unplugged or disconnected from the device.

Item code	Description	MOQ
Lockcable0001	IEC Lock C13 - C14 H05VV-F3x1.0mm2 zwart 0,5 meter	100
Lockcable0002	IEC Lock C13 - C14 H05VV-F3x1.0mm2 zwart 1,0 meter	100
Lockcable0003	IEC Lock C13 - C14 H05VV-F3x1.0mm2 zwart 2,0 meter	100
Lockcable0017	IEC Lock C19 - C20 H05VV-F3x1.5mm2 zwart 1,0 meter	100
Lockcable0018	IEC Lock C19 - C20 H05VV-F3x1.5mm2 zwart 2,0 meter	100
Lockcable0007	IEC Lock C13 - C14 H05VV-F3x1.0mm2 blauw 0,5 meter	100
Lockcable0008	IEC Lock C13 - C14 H05VV-F3x1.0mm2 blauw 1,0 meter	100
Lockcable0009	IEC Lock C13 - C14 H05VV-F3x1.0mm2 blauw 2,0 meter	100
Lockcable0021	IEC Lock C19 - C20 H05VV-F3x1.5mm2 blauw 1,0 meter	100
Lockcable0022	IEC Lock C19 - C20 H05VV-F3x1.5mm2 blauw 2,0 meter	100
Lockcable0004	IEC Lock C13 - C14 H05VV-F3x1.0mm2 rood 0,5 meter	100
Lockcable0005	IEC Lock C13 - C14 H05VV-F3x1.0mm2 rood 1,0 meter	100
Lockcable0006	IEC Lock C13 - C14 H05VV-F3x1.0mm2 rood 2,0 meter	100
Lockcable0019	IEC Lock C19 - C20 H05VV-F3x1.5mm2 rood 1,0 meter	100
Lockcable0020	IEC Lock C19 - C20 H05VV-F3x1.5mm2 rood 2,0 meter	100

What does our item number mean?

Would you like to know how our article number is structured and what the combination of letters and numbers means? We are happy to explain it to you through an example.
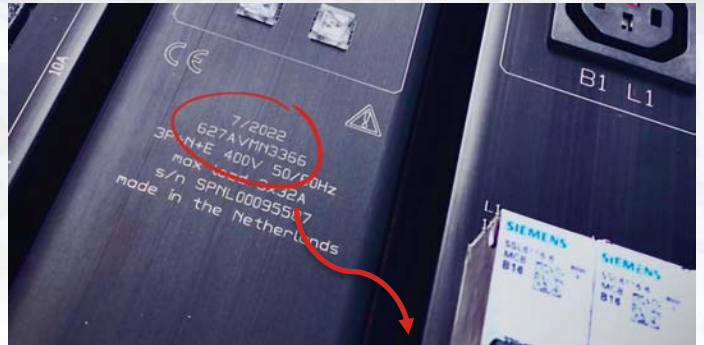
Product number [**627A VMN33 66**]

[**627A**]	[**VMN33**]	[**66**]

The left part of the product number is randomly selected by our system.

The middle part of the product number is called the SPIS code and it tells more about the performance of the PDU. The intelligence, phase and amperage. The 5 letters and numbers in the example part number VMN33 mean:

V: Vertical
M: Energy measurement total + per fuse
N: Passive outlets
3: 3 phase
3: 32A

The right part of the product number shows the number of fuses and measured branch groups.

In the overview below you will find all possible meanings of the SPIS code in our article numbers.

V = Vertical
H = Horizontal
D = Double-deep horizontal
W = Double-deep vertical

N = No measurement basic PDU
I = Total energy measurement
M = Energy measurement total + per fuse
P = Packet power with 3 channels
Q = Packet power with 8 channels
X = Definilink PDU
C = Definilink controller

N = Passive outlets
M = Metered outlets
S = Switched outlets
B = Switched and measured per outlet
P = Pass through inline meter

1 = 1 phase
3 = 3 phase

1 = 16A
3 = 32A

SCHLEIFENBAUER

CUSTOMER CASE - BIT

SCHLEIFENBAUER - LIVING FOR THE POWER TO DELIVER

About BIT

BIT is a business Internet service provider that specialises in colocation, Internet connections, managed hosting and outsourcing. BIT manages three data centres in Ede (province of Gelderland, The Netherlands), all three are fully owned.

In the area of colocation, BIT offers various options: from a single server, a quarter rack, a half rack or full rack to a 'private cage'. Reliability is the starting point of the service provision, so that customers can concentrate on their core activities without worries. BIT manages as much of its own infrastructure as possible to minimise its dependence on external suppliers or jointly used infrastructure. This enables it to give its clients firm guarantees about performance.

For over 10 years, Schleifenbauer has supplied rack PDUs and energy meters to BIT. The collaboration can be called special in a positive sense, whereby Schleifenbauer has also fulfilled the specific wishes and needs of BIT through product development over the years.

Collaboration between BIT and Schleifenbauer

Timo Gerritsen, data center manager at BIT: "About 10 years ago, our CTO Alex Bik asked Schleifenbauer whether it was possible to separate the measuring part and the part of the power distribution within the PDU. Based on his experience, there is a good chance that the measuring unit needs to be replaced sooner than the power distribution section. He was looking for a solution in which the measuring unit was 'hot swappable'. At that time, there was no suitable product available on the market for this. Schleifenbauer then worked out a concept, which resulted in the Definilink product. It is a product that we still use in our data centres to our complete satisfaction."

Jos Janssen, Head of Sales & Marketing at Schleifenbauer: "A good basis for our collaboration is the shared passion for technology. Both parties have it in their DNA that they would rather think about a suitable solution than come up with a standard answer. We have also put together a specific offer for BIT on this basis.

But in addition to the conscious choice for Schleifenbauer's technical solutions, there is also appreciation from BIT for the manner of cooperation, which is characterised by good communication and fast service. "The mutual communication is smooth and we know the data centre engineers well. They can come to us directly with questions or problems. And if necessary, we are on site with the customer within a day", says Janssen.

Definilink as a suitable solution

These days, Definilink is frequently used and applied by BIT in its data centres. Whereas an 'intelligent PDU' normally consists of one component in which everything is provided for, this is different with Definilink. Here, the solution consists of two physical parts, in which the electronics (measuring unit) are separated from the electromechanical components, namely:

1. Definilink controller: This is the part containing the measurement electronics, controller and data bus connection.
2. Basic PDU: In this type of PDU there is no so-called 'intelligence'. This part consists of the outlets and possible fuses.

The main advantage of this is that the controller can be connected or replaced without having to interrupt the power supply. This is also called 'hot swappable'.

For BIT, there are a number of specific reasons and arguments for choosing this solution:

- The data centre can, on its own initiative or on the initiative of a customer (in the case of co-location), decide at any time to measure its power consumption. In that case, energy measurement can be added via a Definilink controller without interrupting the power.

- In the event of a failure or malfunction, the controller can easily be replaced without interrupting the power.

This situation is plausible, since the technical lifetime of the controller is normally shorter than that of the basic PDU. For BIT, both items contribute significantly to maintaining maximum continuity and availability within the data centres, which in turn benefits its clients and users.

Visualisation Definilink:

This article has been realised in cooperation with:

CUSTOMER CASE
DC CONNECT

SCHLEIFENBAUER - LIVING FOR THE POWER TO DELIVER

About DC Connect

DC Connect specialises in the technical installation of 'white space' areas in data centres. It provides total solutions for clients for all of their data floor infrastructure needs, such as server racks, cabling, PDUs, connections, power and cooling. It is also experienced in the design of 'meet-me rooms', spaces inside data centres where different companies can link together their individual network connections. DC Connect is located in Hillegom (the Netherlands) and is active both domestically and abroad. Its focus is on commercial data centres (data centres that are involved in leasing server capacity to third parties) as well as organisations and institutions that have their own data centres, such as banks and insurance companies.

Launching a new data centre in Iceland

DC Connect was approached to equip the 'white space' for a new commercial data centre in Iceland, where it was responsible for realising a total solution for all of the data floor infrastructure requirements. A wonderful but nevertheless challenging task. On the one hand, there was a relatively short time frame availa- ble for completing the project, and on the other, there was the physical distance between the Netherlands and Iceland during preparations.

Exactly the right partners and suppliers were sought out for the project and a suitable solution was successfully achieved. A nice touch: The cable ducts for this project were specially designed in a variety of colours to help distinguish between the different rack cabling, routing and functions. The data centre was equipped with intelligent Schleifenbauer PDUs.

Collaboration between DC Connect and Schleifenbauer

DC Connect made a deliberate choice for Schleifenbauer, par-ticularly considering the power distribution and measurement aspects of this project. This meant that measurements were taken both inside and outside of the tap-off box, providing va-luable information and data to both the data centre as well as customers of the server rooms.

The PDUs were connected to A and B feeds, which was clearly indicated through the use of custom engraving on the PDU housing. And due to the modular structure of the Schleifenbauer PDU, a product could be assem-bled and delivered that satisfied all of the client's special requirements and requests.

Pieter van den Burg, Director at DC Connect: "We always select our partners, materials and components based on each specific project, under the motto, 'best for project, best for customer'. For example, we work together with several suppliers of PDUs and energy meters. For this specific project in Iceland, our client was already somewhat familiar with Schleifenbauer PDUs and energy meters, due to a reference project they had visited in the Netherlands. From DC Connect's perspective, we also had a strong preference for working with Schleifenbauer in this project for a variety of reasons.

Firstly, this was because of the customised PDU configuration that was possible along with all of the benefits it offers the customer. Secondly, it had to do with how easy it was to monitor and configure multiple PDUs in one ring. On top of that, we also felt confident in the collaboration and proper execution of the project thanks to all of our positive experiences with Schleifenbauer, including its reliability in meeting the deadlines set".

Jos Janssen Head of sales & marketing at Schleifenbauer: "Of course, we are delighted to be involved in DC Connect's incredible projects as a partner and PDU supplier. For this particular project, I visited Iceland on behalf of Schleifenbauer to discuss the requirements and requests for the data centre in terms of power distribution and measurements. We were able to clearly demonstrate our role as a specialist in the field of PDUs and energy measurement and make an active contribution to achieving satisfactory re- sults. Ultimately, our solution was chosen, which we were then able to successfully implement within the set parameters and deadlines. We are not only proud of this project, but also of our collaboration with DC Connect.

Further information
For more information on DC Connect, please visit their website at: https://www.dcconnect.nl/

This article has been written in collaboration with:

SCHLEIFENBAUER

CUSTOMER CASE - ARCO

SCHLEIFENBAUER - LIVING FOR THE POWER TO DELIVER

From brilliant idea to true achievement:
Innovative power distribution in new Arco France leather goods factory.

"Is the idea of using data centre PDUs in our new factory feasible?" Jérôme Quintard, who played a key role in achieving Arco's new production facility, posed this question to Schleifenbauer."

About ARCO
Arco (Ateliers réunis du center-ouest), specialises in the production of high-quality leather goods for the world's largest conglomerate of luxury products like Louis Vuitton and Chanel. The French company is located in Châtellerault, in the Nouvelle-Aquitaine region. The company is experiencing strong growth, which has been facilitated by a variety of factors. There is a positive economic climate, growth in the luxury sector and French products are experiencing in- creased popularity abroad. Over the past three years, Arco has grown from 350 to 700 employees.

A new factory with special needs and requests
In 2019, investments were made in a completely new and state of the art factory, spanning an area of 12,500 m2, providing ample space for further growth and equipped with modernised workshops. The factory was already well known in the world of leather goods, and now it is fully prepared to take on the next 10 to 20 years. There were a number of important needs and requests for the design of the new factory and workshops.

Jérôme Quintard – ARCO

One specific requirement was for the flexible power and compressed air connections to the workstations, which would allow for only a limited changeover time to another product line. They also wanted to get rid of the "jungle of cables"; in the existing production facility, the individual workstations were all connected to one central point in the ceiling, which did not exactly contribute to an organised look.

Intensive collaboration with Schleifenbauer
After several visits to the factory in France, all of the necessary discussions and a variety of demo setups, the results were a success. A unique configuration was achieved for the workstations, including all the functionalities that Arco had hoped for.

The solution that was developed ensures that only one central power cable from the ceiling is required for each 'zone'. This pre- vents all of the workstations from having to be connected to a separate power supply via a traditional bus bar on the ceiling. This avoided a mass of tangled cables and results in a much clearer and tidier overall look inside the factory.

Another advantage of this PDU solution is that it offers clear insight into the total power consumption and is easy to measure and report, both for internal reviews and for regulators. In total, approximately 1000 custom PDUs have been delivered and installed in the new factory.

Proud of this successful project in an industrial setting At Schleifenbauer, we look back with pride on this project and collaboration, where we were able to deliver an incredible application in an industrial setting.

WHICH TYPE OF FUSE SHOULD BE USED IN A RACK PDU?

WHITEPAPER

WHICH TYPE OF FUSE TO USE IN A RACK PDU?

There are many different theories concerning the need to protect a rack PDU (Power Distribution Unit). A fuse is, by definition, a single point of failure and is, therefore, not something you want to have in a data centre. However, there are situations in which a fuse is necessary and in some cases, even compulsory.

WHY DO YOU WANT TO USE A FUSE?

SAFETY is the most important reason: a fuse is used to prevent a fire caused by an overload or a short circuit. An output on a rack PDU must be protected by a protective device which has a rating equal to the output's maximum nominal value. This means that a rack PDU which is connected to a 32 A feed and which has outputs which can be subjected to a maximum load of 16 A (for example, CEE 7/4 (Schuko) or IEC 320 C19) must be protected with a fuse with a maximum rating of 16 A. IEC 320 C13 is an exception to this, because IEC 320 C13 can be subjec- ted to a maximum load of 10 A. Since they are usually used in groups, it is permitted to protect them with a 16 A fuse. A 32 A, 3-phase rack PDU with, for example, IEC 320 C13 and IEC 320 C19 outputs, therefore, requires at least six fuses.

ISOLATING FAULTS to a certain segment is another reason for using fuses. An unprotected rack PDU is fully shut down in the event of a fault. A protected rack PDU can isolate the fault to a certain segment of the rack PDU and, as a result, guarantee the continuity of the other devices. Fuses are installed at various levels in the installation network (see the diagram below).
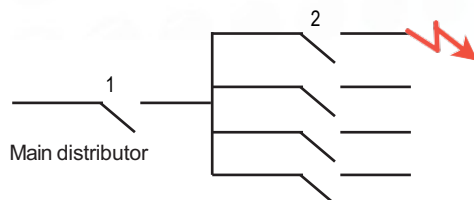
Diagram installation network   Subdistributor

You can look at a rack PDU in the same way. It is often con-nected to a current circuit and has its own protection (so-metimes shared between a number of rack PDUs). If a fault occurs after 2, you only want protective device 2 to be acti-vated and not protective device 1, to prevent the rest of the rack PDU from being shut down. This is called selectivity. It is one of the most important parameters that must be well understood when making a decision regarding the use of fuses.

Selectivity occurs if a fuse reacts before the preceding (main) fuse. If, in the above example, 2 always reacts before 1, there is 100% selectivity of 2 with regard to 1. However, in practice, 2 is only selective with regard to 1 up to a certain short circuit rating and not above.

WHAT DO YOU WANT TO PROTECT THE SYSTEM AGAINST?

It is a good idea to first ask yourself what you want to protect the system against: do you want to prevent overloading or short-circuiting, or maybe both? To help you decide, we will explain both risks below.

OVERLOADING occurs if more power is consumed than is permitted for the components concerned over an extended period of time. The speed at which the protective device is activated depends on the type of protective device and its spe-cifications. If you only want protection against overloading, we recommend a thermal protective device that uses a bimetallic strip. If the protective device is activated, the user can reset it himself by pressing the jump switch.

A SHORT CIRCUIT is caused by direct contact between the phase and neutral conductor (or earth), which creates a current equal to the maximum short circuit value at that point. It is important to know this value so that you can choose the right protective device. The short-circuit current is closest to the source (transformer or UPS) and reduces as a result of the attenuation and losses in the wiring and the contact resistances at all the intermediate switches and fuses. Safety switches provide protection up to a certain maximum short-circuit current. If the short-circuit current aft er a protective device (fuse) is greater than the protective device's rating, there is a risk of electric arcing in the protective device. This can result in a fire and the current to the fault not being interrupted, which is ex- tremely undesirable.

WHAT DO YOU HAVE TO KNOW?

In order to be able to make the correct decision concerning fuses in your rack PDU, you must understand a couple of things. An overview of the terms involved in this decision making process, and a short explanation of each term, are given below.

SELECTIVITY is one of the most important properties of a fuse. A factor is used to calculate whether the selectivity between two consecutive fuses is guaranteed.

The legal selectivity value between glass fuses is 1.6. This means that a 16 A glass fuse is selective with regard to a 32 A glass fuse, but not with regard to a 25 A glass fuse (1.6 x 16 equals 25.6). The selectivity between Miniature Circuit Breakers (MCBs) or in a mixed environment is more difficult to determine. To determine this, you must place the time-switch graphs of both fuses over each other to show which fuse is activated first at which short-circuit current.

32A MCB & 16A MCB

32A MCB & 10A MCB

Rule of thumb = ok
Characteristics = not ok

Rule of thumb = ok
Characteristics = not ok

32A MCB & 16A Glass Fuse

Diagram:
Time-switch graphs
of both fuses

Rule of thumb = ok
Characteristics = ok

The selectivity class is usually stated on the MCBs, but that value does not say much. You must calculate the short-circuit current for every location in the data centre. Only if you also know the technical details of the preceding fuses, are you able to determi- ne whether a fuse is selective with regard to the preceding fuse in the chain. Experience has shown that not everyone knows this, even though it is important to know what the consequences are in the event of a short circuit. Example: a 3-phase 32 A rack PDU

must have at least six 16 A segments, with each segment having a separate protective device. If these protective devices are not selective with regard to the preceding fuse, a short circuit in one output results in the entire rack PDU shutting down. Is this a de- sirable situation?

"We recommend you have a specialist draw up a detailed diagram that contains all the short-circuit currents."

SHORT-CIRCUIT CURRENT is the maximum current that can be generated at a certain point in an electrical installation. Once upon a time, a short-circuit current close to a transformer or UPS was many times greater than the current generated in a ser- ver rack. This was because of attenuation by the power cables and all the contact resistances in the installation. Increasing in- tegration of the distribution via busbar has resulted in an incre- ase in short-circuit currents in a server rack. Nowadays, busbars with a nominal value of 200 A to 1,000 A are found less than a metre from the server box. There is hardly any attenuation and short-circuit currents of up to 100 kA (kilo-amperes) are not uncommon.

Although there are programs that can calculate short-circuit currents, we recommend you have a detailed working diagram drawn up by a specialist, containing all the short-circuit cur- rents. This document allows you to make a well-founded deci- sion concerning which fuses to use in a rack PDU.

POWER CONSUMPTION A fuse consumes power. Since a fuse always reacts thermally (sometimes also magnetically), it is logical that a certain part of the electrical energy is used to produce heat. If too much heat is produced (the current is too high), the fuse trips. The power consumption is often indicated by the voltage drop across the fuse. This voltage drop multi- plied by the current (I) is the power consumption. A fuse that is subjected to a heavy load (> 80% of I nominal) consumes three to five watts of power. An MCB uses slightly less energy than a glass fuse. If a number of fuses are used in a rack PDU (often with thermal breakers), the number of fuses more or

less compensates for the lower current strength per fuse: ten 1.5 A breakers consume approximately just as much power as one 15 A breaker.

AMBIENT TEMPERATURE The ambient temperature has an influence on a fuse's properties. The higher the temperature, the faster a fuse reacts to overloading. This must be taken into consideration if the rack PDU is located in the jet of warm ventilation air coming off IT equipment.

MAXIMUM THROUGHPUT ENERGY A fuse allows a certain amount of energy to pass before the current is interrupted. This energy is called the throughput energy and is calculated using the following formula: $I2 * t$ (the short-circuit current squared multiplied by the time). This energy must be small enough to ensure that the equipment and wiring are not damaged or burnt. Usually, a glass fuse has a much lower throughput ener- gy than an MCB, because the melting process in a glass fuse is faster than the thermal-mechanical process in an MCB.

PROSPECTIVE SHORT-CIRCUIT CURRENT This term indicates the maximum short-circuit current a protective device can handle. A normal MCB usually has a prospective short-circuit current of 6,000 A (6 kA). This means that the device can inter- rupt currents up to 6,000 A. If there is a short-circuit current at that point of more than 6 kA, there is a risk of serious damage to the MCB, of a fire or of a persistent electric arc, which allows the current to jump to the following wiring, resulting almost certainly in a fire. It is, therefore, important to know what the short-circuit current is at the location where you want to use a fuse. Thermal fuses usually have a higher prospective short- circuit current; when the wire has melted, there is a large gap between the phase and the following wiring. In a sand-filled fuse, the melting silver wire reacts with the silicone in the fuse to produce a kind of glass wire with an infinite resistance.

FLEXIBILITY An integrated MCB or thermal fuse cannot be replaced without dismantling the entire rack PDU. If the fuse is broken or worn, the entire rack PDU must be dismantled. A glass fuse can always be replaced without having to dismantle the rack PDU. A risk in this is that the fuse may accidentally be replaced with a fuse of the wrong rating. With a permanent fuse, you do not run that risk.

RELIABILITY MCBs and thermal fuses work based on a mecha- nical principle. A glass fuse works based on a physical and a chemical reaction (melting and reacting). Both principles have advantages and disadvantages. An MCB has more than one hundred components, which makes it more vulnerable than a single silver wire (or a wire of any alloy). When operating under normal conditions, the MCB has proven itself to be a reliable

instrument. On the other hand, if an MCB has experienced a number of short-circuit situations (3-5) with high short-circuit currents, it must be replaced.

Furthermore, an MCB can fail in two different ways. If it is not used for a long time, it is possible that it does not interrupt the current when required, and secondly, it is possible that it cannot be reset after activation. A glass fuse appears to be straightforward: it either works, or it does not. However, a glass fuse can be weakened by short current surges, which create small melted points in the metal wire, which may change the properties of the fuse.

"The higher the temperature, the faster a fuse reacts to overloading. This must be taken into consideration if the rack PDU is located in the jet of warm ventilation air coming off IT equipment."

EASE OF USE An MCB is undeniably easier to use. A fault is visually displayed (also if the switch has a locking pin) and the MCB can immediately be reactivated after a fault.

An MCB must be replaced after three to five short-circuit situations. There must, therefore, be some form of administration system to register which MCB has already experienced a fault. A glass fuse must be replaced after each fault. The user must know where to find a replacement fuse. As a result, a logistic system must be put in place. There is always the risk that the fuse is replaced with a fuse of an incorrect rating, resulting in a dangerous or undesirable situation. A faulty fuse can easily be replaced and the holder hardly ever breaks. On the other hand, an MCB can become faulty as a result of its complexity or get stuck so that it does not get activated when necessary. In the event of a fault in the MCB, the entire PDU must be shut down and repaired.

Images
1. Glass fuse
2. Thermal fuse
3. MCB

THE CHOICE

The choice of which protective device to use is ultimately the client's responsibility. The objective of this document is to provide you with information so that you can make a well-informed decision. You have to decide which type of fuse to use and how many you need. If you only need overload protection, a thermal circuit breaker is a good and inexpensive solution. With that solution, you meet all the legal requirements concerning the protection of outputs. If you want protection against both overloading and short circuiting, the decision is slightly more complicated. You must then decide whether to use a glass fuse or an MCB (circuit breaker).

The disadvantage of a glass holder, namely the logistic process you have to put in place to ensure the availability of replacement fuses, is also an advantage: the fuse's characteristics can be altered to meet the situation. A gG cartridge is provided as standard. It has a nice balance between a delayed reaction in the event of overloading (a start-up current can trip a fuse if it reacts too quickly) and speed in the event of a short circuit. A gR cartridge is even quicker, but can sometimes cause problems with start-up currents. The ideal solution is, as is often the case, the most expensive solution: the gRL fuse. It is a special fuse which is slow to react in the overload area (up to 3x In) and extremely fast in the event of a short circuit.

We often find that people do not understand what the characteristic of an MCB means. The characteristic says something about the tipping point: whether a circuit breaker reacts thermally or magnetically. For a type B characteristic, the tipping point is 3*In. For a type C characteristic, it is 5*In and for a type D characteristic, it is 10*In. Therefore, a 16 A circuit breaker with a type B characteristic, experiences a 50 A current as a short circuit and shuts down within a couple of milliseconds. For the same circuit breaker with a type C characteristic, a 50 A current is still in the thermal zone and it may take a couple of seconds before it trips (see the graph). This could be, for example, a start-up current which has a brief peak of 50 A and then falls to 10 A. A device with a type B characteristic trips in that situation, while a device with a type C characteristic does not. The characteristic of the circuit breaker only says something about the breaker's overload phase (thermal) and not about the breaker's short-circuit phase (magnetic). In the short-circuit phase, they are as fast as each other.

"An MCB consists of more than one hundred mechanical parts. That makes it more vulnerable than a glass fuse."

However, a glass fuse has the disadvantage that it ages over time and depending on the load it is subjected to, it must be replaced every so many years. In short, the ideal protective device does not (yet) exist. Although there have been developments in the field of electronic safety switches, they are not yet available and will probably be much more expensive than the current so- lutions. In order to make the right decision, you must know your infrastructure (short-circuit currents, selectivity, etc.) and know what the consequences of your choice are. The number of fuses you have to use depends on a number of factors.

If there is a 32 A feed present, you have to use at least two 16 A fuses, otherwise you are only able to use 16 A of the available 32 A. However, you can also decide to use more than two fu- ses to restrict the faults in the system to the smallest possible area. If you also want to do this for short-circuit protection, you must pay close attention to the selectivity of the chosen fuses. A thermal breaker, for example, is not selective with regard to short circuiting. A glass fuse or MCB need a lot of space.

"Overloading can, for the most part, be prevented by using ammeters, while a short circuit cannot be predicted."
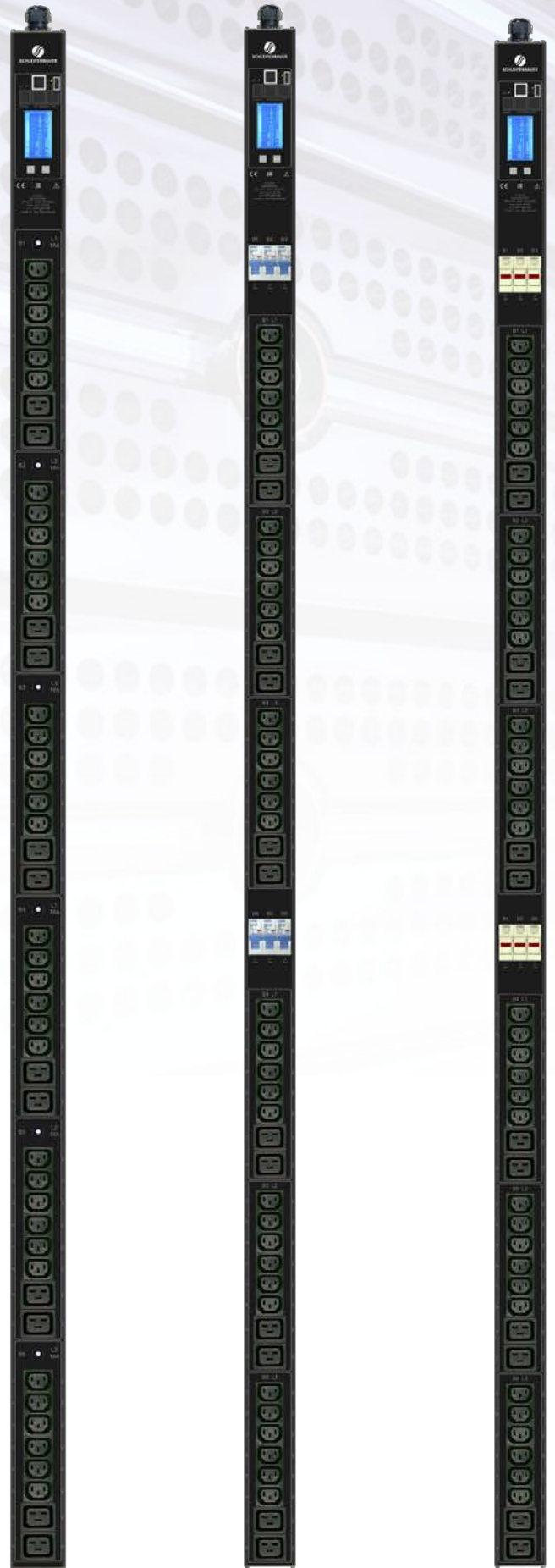
CONCLUSION

If you want protection against overloading and/or short-circuiting, you must analyse the risk of it happening and the cost incurred if it does happen. Overloading can usually be prevented by using ammeters, but a short circuit cannot be predicted. If the risks are too great for you, you must install fuses to limit any faults. You can only make the right decision concerning the type of fuse to use if you have thorough knowledge of the electrical installation in your data centre. Schleifenbauer then produces the rack PDU with the fuses that are most suitable for your situation.

SCHLEIFENBAUER

SURGE PROTECTION IN YOUR DATA CENTRE

WHITEPAPER

Are you prepared for lightning strikes in your data centre?

Heavy thunderstorms and intense lightning have become more frequent in recent years. This is associated with climate change and the increase in extremely hot and sometimes tropical days. The chance that your data centre is struck by lightning is therefore increasing. The consequences of lightning strikes in your data centre can be enormous, both in terms of the risk of material damage, economic damage and the danger to people. Based on the principle that 'prevention is better than cure' it is advisable to think about the protection of your data centre against the risk of lightning strikes. By applying surge protection at various levels (up to the rack PDU) you are in any case well prepared!

Greater chance of lightning strikes due to climate change The climate has been changing rapidly over the past few decades. As a result of this climate change, the number of summery and tropical days in Western Europe is increasing, which means that heavy thunderstorms are occurring more frequently, often accompanied by lightning discharges. The chance of damage caused by lightning is therefore growing, which is also recognised by insurers. According to the Dutch Association of Insurers, the number of lightning discharges increases by 10 to 15 per cent for every degree of global warming.

Urgency of security in data centres
Like other buildings, data centres are increasingly exposed to the dangers and risks of lightning strikes. However, in the case of a data centre there is a lot of - often sensitive and expensive - electronics that play a crucial role in the availability and processing of data.

In data centres, the potential consequences are large
The potential damage and consequences in data centres are considerable. First of all, there is the risk of material damage, but this is also the case in all other environments. But perhaps even more important, given the important role of data centres in information provision and data processing, is the risk of loss of availability. This is often related to public service and economic value. But also consider the functioning of vital business units in both profit and non-profit organisations (such as government buildings and healthcare institutions). Moreover, it forms a possible risk to the TIER classification of the data centre, and thus indirectly to its reputation.

A direct or indirect lightning strike can cause a great deal of damage and have serious consequences as a result of overvoltage near the electronics within the data centre due to strikes or switching actions. It is therefore important that data centres are equipped with the correct lightning and surge protection.
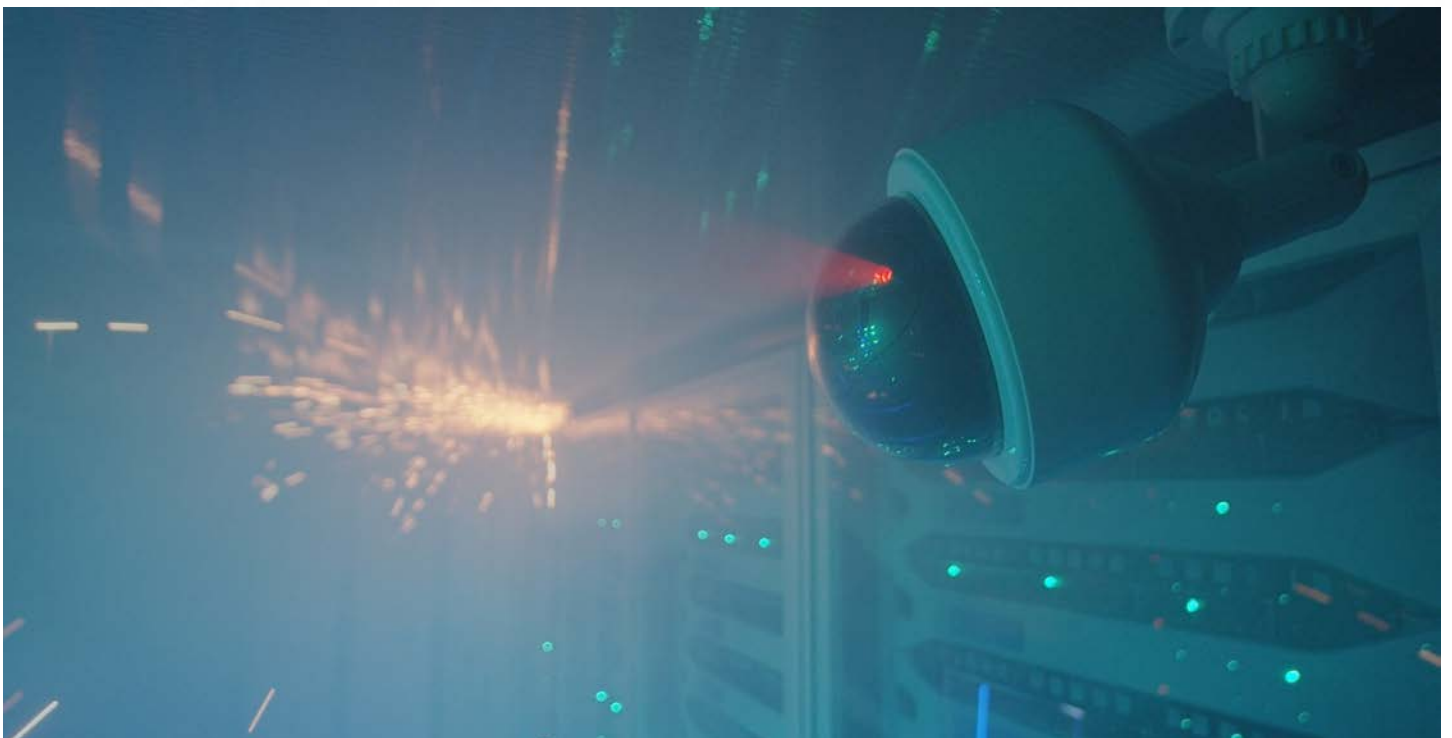
Surge protection in your data centre

Do you want to protect your equipment against overvoltage and thereby reduce the risk of damage or downtime within your data centre? Then choose the right type of surge protection. Schleifenbauer offers surge protection (type 3) that is integrated in our rack PDUs to protect the IT equipment in your data centre against overvoltage caused by lightning or switching processes. For this we work closely with DEHN, the world market leader in lightning and surge protection. An additional advantage of the SPD (Surge Protection Device) module used by us is that it can be replaced during operation (hot swappable) so that the uptime of your equipment remains high.

Lightning protection of buildings and infrastructure
As already explained, protecting buildings and associated infrastructure against lightning is a high priority. This is primarily driven by legislation and regulations (employers and owners of buildings are obliged to provide a safe environment for their employees and visitors). But in its entirety, it is about preventing damage and/or loss of: people, public services and economic value.

European standards for data centres
In the European standards for data centres, EN 50600, requirements have been drawn up with which data centres must comply. It prescribes that a data centre must be equipped with external lightning protection and internal surge protection for both the power and data lines. SPDs must be selected and installed in accordance with the IEC62305 standard (part 4).

Various overvoltage categories
There are a total of 3 types of surge protection:
Type 1: surge protection on the main distributor
Type 2: surge protection on the distribution frame
Type 3: surge protection in/near the critical end device

When does which overvoltage category apply?
Type 1 surge protection becomes mandatory if external lightning protection is present on the premises. In that case, a type 1 SPD (or surge protector) is installed in the main distributor. This device first conducts a lightning partial current to earth, but also allows part of the lightning energy to pass through (in the form of an overvoltage pulse with a specified impact voltage).

With type 1 surge protection, an effective protection zone of up to 10 metres is used.

If the distance is greater than 10 metres, the impact voltage becomes so great (factor 2 to 3) that the equipment in the data centre can still be damaged.

Application of type 2 and type 3 surge protection
If the distance is more than 10 metres, an additional surge protector (type 2 or type 3) must be applied. This is almost always the case in data centres. In this case, a type 2 protector is installed in the distribution box or a type 3 protector is installed as close as possible to the critical end device.
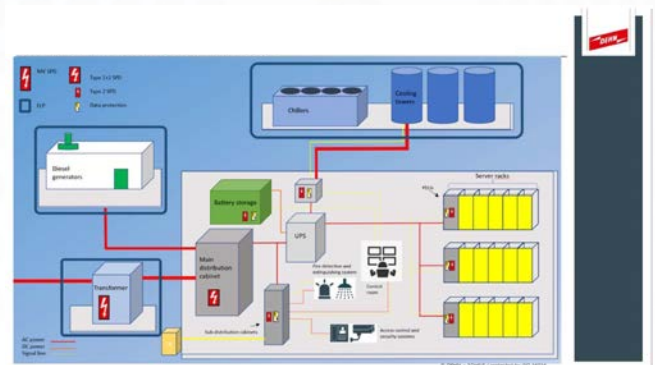
Picture: Typical data centre building structure (Source: DEHN)

Consequences of suddenly switching off local power
In addition to the previously mentioned reason - namely increased surge voltage after a distance of 10 metres - there is another reason to install a type 3 surge protector as close to the equipment as possible. Namely, the consequence of sudden switching of local power, which can lead to high switching peaks and overvoltages (up to 2 kV impact voltage).

Common situations in this area include the breaking of fuses or the sudden switching on or off of remote groups. The resulting shock voltage can damage sensitive electronics, which is anything but desirable in a data centre.

SCHLEIFENBAUER

Surge protection integrated into Schleifenbauer PDUs
Schleifenbauer uses the highest quality level of surge protection (type 3) by integrating the SPD module into the housing of the rack PDU. In short, as close as possible to the connected critical end devices for the highest quality level of protection.

The SPD modules used can be replaced 'hot swappable', so that the power supply does not have to be interrupted and the uptime of your equipment in the data centre remains high, as desired.
These SPD modules also allow very little energy and residual voltage through, which protects the sensitive electronics and extends their lifespan.

Our years of experience ensure availability, certainty and long-term quality in your data centre
Schleifenbauer has gained years of experience with the application of surge protection in combination with PDUs, which offers you the certainty of long-term quality in your power supply and critical equipment. The close collaboration with the advisors at DEHN has contributed greatly to this.

Schleifenbauer PDU factory

Cooperation with global market leader DEHN
Schleifenbauer stands for high quality rack PDUs. This means that the components we integrate into our products must also meet these quality requirements. In the case of surge protection we work exclusively with products from DEHN, with whom we have a long-standing cooperation.

DEHN is the global market leader in the field of lightning and surge protection, based on more than 111 years of experience and expertise. In particular, the combination of both lightning protection and surge protection gives DEHN a virtually unique position in terms of knowledge and know-how. DEHN offers proven and excellent protection, on a higher quality level than universal power distribution systems with integrated varistor technology.

From its own factory in Germany, DEHN always ensures very high quality SPD modules, which have been extensively tested in its own lightning current test laboratory and are approved according to IEC61643.11 (unlike some other suppliers).

More information
Would you like more information about surge protection in your data centre, combined with the use of rack PDUs?

Then contact us without obligation. We would be happy to help you find the best situation for your data centre. Please contact us by mail: info@schleifenbauer.eu or by phone: +31 (0)73 523 02 56. Or visit our website for more information!

Picture: SPD module in PDU housing

This article was produced in cooperation with:

SCHLEIFENBAUER

NEAR-ZERO-VOLTAGE SWITCHING IN DATACENTERS

WHITEPAPER

INTRODUCTION

The amount of data and electronics is constantly increasing, resulting in an ever-increasing need for power sources and for professional power distribution. The latter can be achieved by using PDUs (*Power Distribution Units*). The power distribution, for example in a data centre, can be provided with extra functionalities by applying switchable outputs in the PDUs. This makes it possible, among other things, to remotely define the start-up sequence of connected equipment, intervene in the event of a peak load or enable the reboot of IT equipment.

This *White paper* describes the adverse effects of switching users and how to combat these effects by using *Near-Zero-Voltage Switching technology*.

ADVERSE EFFECTS OF SWITCHING USERS

SWITCH-ON BEHAVIOUR

In general, electromechanical bi-stable relays are used by PDUs to switch between users. The advantage of using electromecha- nical relays is that the contact resistance is lower than the con- ductive resistance of a relay that uses a semiconductor to do the switching, thus it minimises switching losses. The advantage of a bi-stable relay is that energy is only used while switching, while a conventional relay consumes energy continuously. An electro- mechanical bi-stable relay is therefore the most energy-efficient choice.

Virtually all equipment that is switched has an electronic switch-mode power supply. These switch-mode power supplies feature large buffer capacitors and filters that consist, among other things, of coils and capacitors. The filters need to ensu- re *Electro Magnetic Compatibility* (EMC) between devices. EMC means that devices need to be able to tolerate each other. In other words, a device is allowed to cause limited disruption, but must also be immune to a certain level of disruption from outsi- de. When switching on a device, the buffer capacitors and filters may generate undesirable behaviour at start-up.

SPECIFICATIONS OF INRUSH CURRENT

Capacitors can generate high switch-on surges, otherwise known as inrush currents. These capacitors are charged when switching on equipment. Although the charging is only very short, it still generates a current.

Power supply and adapter manufacturers generally indicate the inrush current of their product. This is specified as the *Maximum Inrush Current*. In the case of the adapter in the example below, this is specified as 70 A at 264 V, which applies with a so-called cold start. As mentioned, high inrush currents are caused by capacitors. Sometimes attempts are made to limit the inrush current with the help of resistance with a negative temperature coefficient, known as an NTC thermistor. When this NTC ther- mistor is cold, it has a relatively high resistance (usually around 5 O) and uses this to limit the inrush current. Because current travels through the NTC during operation, it heats up and the resistance decrease. In other words, if the power supply is hot when it is switched on and an NTC thermistor is used, the inrush current will be higher than when the power supply is cold. The manufacturer specifications refer to the current that starts to flow before charging the buffer capacitor. Charging of the buffer capacitor takes place in the first half of the mains voltage cycle. This specification is important in order to determine the number of users that can be connected to one group, which in turn is im- portant for determining the value and characteristics of the fuse to be installed. What many people tend to forget, however, is that an extra EMC - also with capacitors inside - is placed in front of the NTC thermistor. These capacitors are connected directly to the mains power without a current-limiting element.

Even though these capacitors are relatively small in terms of capacity compared to the buffer capacitors, it is often these capacitors that are the root cause of the high current spikes, as measured in the example further on. And although the current pulse only lasts around 0.5 – 1 ms, it is precisely this current pulse that is responsible for sparks in the relay and for mains distortion, as shown further on in this paper. With such a short pulse duration, there is no need to take this into account when deciding which fuses and wiring to use.

As the voltage increases during start-up, so does the charging current. It can therefore be assumed that the mains voltage is a sinusoidal alternating voltage. When the mains voltage is switched on at the top of the sine wave, the voltage will be at its highest and the current will therefore also be high. The length of the current pulse does get shorter, however. The high inrush currents can eventually have disastrous consequences for the switch relay in the PDU, but they also cause distortion on the mains power. This negatively influences the *Power Quality* and can disrupt other devices. With *Power Quality* we generally mean the total quality of the mains voltage. This is directly related to the EMC behaviour. Improving the switch-on behaviour therefore leads to better *Power Quality* and an improvement in EMC behaviour.

SWITCH-ON EFFECTS
As mentioned, capacitors are often the cause of high inrush currents. When the power is switched on at the top of the sine wave, the voltage - and therefore also the inrush current - is the highest. The inrush current is lowest when switched on in the ze- ro-crossing of the sine wave. In switch-mode power supplies, ca- pacitors are generally the primary cause of high inrush currents.

SWITCH-OFF EFFECTS
Even switching off a user can have undesired consequences. Switching a user off can result in voltage peaks on the grid. This is caused by the coils inside the filters. When voltage runs through a coil, energy is stored in that coil. If the current is suddenly inter- rupted, the energy stored in the coil needs to be discharged. The voltage across the coil will then continue to rise until a current can be generated. This is done by forming sparks and continues until all energy has been discharged from the coil. The resulting voltage spikes can be extremely high. As the switch-off effect in the examples mentioned are far less dominant than the inrush effect, we will limit our explanation to the above.
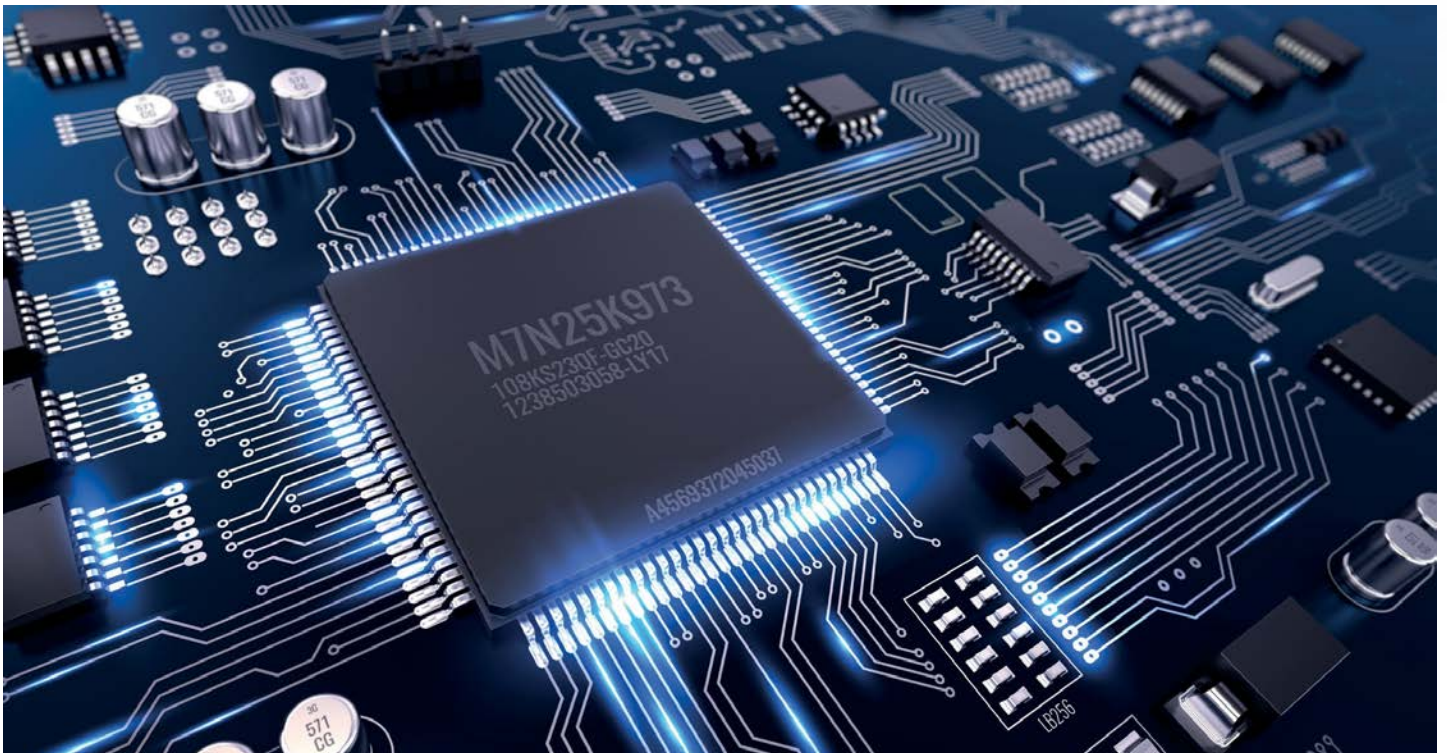
TESTING OF INRUSH CURRENTS

To get an idea of the inrush currents in relation to the normal current usage of a device, tests were conducted on a laptop adapter with 65 W and a kettle with a power output of 2,200 W. Needless to say that the normal current usage of the kettle is many times higher than that of the adapter. After all, the power of the kettle is much higher. The current usage is calculated according to the formula: $I = \frac{P}{U}$ where I is the current in *Ampere*, P is the power in *Watt* and U is the voltage in *Volt*. The current calculated from this formula is called the *RMS* current. also referred to as the effective current. To clarify: with a sinusoidal current of 1 A RMS, the maximum value is *Itop=Irms ∗ √2.*

With a 1 A RMS current, the maximum value is 1.41 A. The yield of the adapter is approximately 85 %. This means that more power needs to be added in order to reach the required 65 W. At a yield of 85 %, the input power is approximately 77 W.

Based on the formula, the usage current for the adapter is

$I = \frac{P}{U} = \frac{77}{230} = 0,334\ A$

The peak current is then *Itop=Irms x √2 = 0,334 x √2 = 0,472 A*

For the kettle the current is: $I = \frac{P}{U} = \frac{2200}{230} = 9,56\ A$
The peak current is then *Itop=Irms x √2 = 9,56 x √2 = 13,52 A*

For convenience' sake, these values are summarised in the table below.

	Laptop adapter	Kettle
Power (W)	77*	2200
Mains Voltage (V)	230	230
Current (A)	0,33	9,56
Calculated peak current (A)	0,47	13,52

*See explanation on the yield.

The power of the kettle is about 28 x higher than the power of the laptop adapter. We see that same factor in the relationship bet- ween the peak currents. The kettle has a large heating element and has no coils or capacitors. As a result, when we measure the inrush currents, the heating elements do not suffer from the effects. The following tests shed more light on the effect of com- ponents such as coils and capacitors.

INRUSH CURRENT TESTS OF LAPTOP ADAPTER
The size of the inrush currents are illustrated in the figures below. The images are made with an oscilloscope, which enables you to measure the voltage at the precise moment the equipment is switched on. It also allows you to measure the current that starts flowing at that moment. On the vertical axes of the images you can see voltages and currents. The horizontal axis shows the time in milliseconds per division (ms/div) or microseconds per division (μs/div). A division represents one square on the oscilloscope. Each division is divided into 10 smaller divisions. The yellow signal shows the voltage. Here, the scale is 500 V/div. The blue signal indicates the current. In this case, the scale is 50 A/div.

The following figures are measurements taken on the laptop adapter at 19 V, 65 W, which is switched on at the top of the sine wave with 230 V mains voltage. *See Figure 1*. The yellow line is approximately 3/5 of one division at the moment of switching on. A division is 500 V, i.e. the voltage at that moment is approxi- mately 300 V. With 230 V on the mains, the maximum value is theoretically 325 V. The moment of switching on therefore fairly accurately approximates the top of the sine wave.

We can also see a spike in the blue line when the voltage is turned on. This spike measures 3 divisions, which indicates a current peak in this test of 150 A.
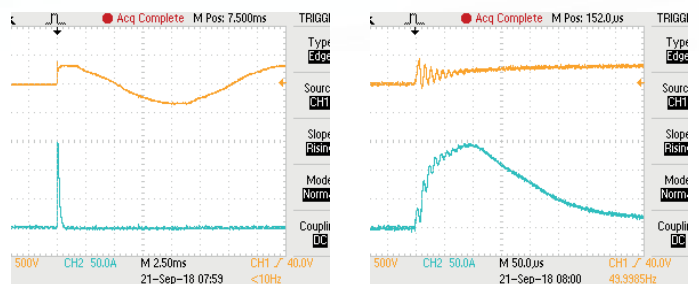
Figure 1   Figure 2

On *figure 1* the time basis is 2.5 ms/div. *Figure 2* is enlarged, the time basis here is 50 μs/div. Here it is clear that the increase of both the current and voltage is not a flowing motion, but mo- ves in very erratic, fluctuating movements. We call this pheno- menon *oscillation*, or *ringing*. Oscillation can cause mains dis- tortion and undesirable faults in the power supply.

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INRUSH CURRENT TESTS ON KETTLE

A somewhat surprising outcome is such a high inrush current on the adapter that was tested, as 65 W isn't much. The effective current of the adapter = 0.33 A. If the current would be sinusoi- dal, the peak current in normal operation would be 0.47 A (see the table on the previous page). So, to measure an inrush cur- rent of 150 A is quite unexpected; more than 450 x higher than the effective steady-state current. To put this into perspective, tests were also performed on an electric kettle. Not that a ket- tle is something you would normally find in a data centre, but it's the idea that counts. The kettle that was tested has a power output of 2,200 W, almost 29 times greater that the (measured) power of the adapter. The following will prove that the inrush current of such a relatively powerful appliance is actually many times lower than that of an adapter. The same tests as on the adapter were also conducted on the 2.2 kW kettle.
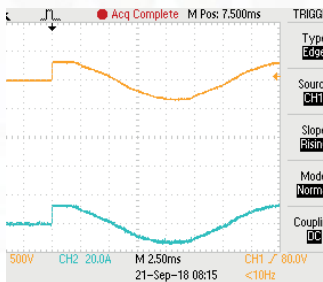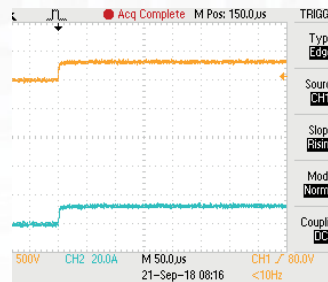
Figure 3   *Figure 4*

Figure 3 en *Figure 4* show the currents of the kettle. The blue line on *Figure 3* indicates the current: this is just 13 A. *Figure 4* shows the same information, but enlarged. No oscillation or mains dis- tortion can be seen here, which you do see on the adapter tests. In both cases, the device was switched on at the top of the sine wave. This clearly shows that the inrush current of the much more powerful kettle is many times lower than the low-power adapter of just 65 W.

CONSEQUENCES OF HIGH SWITCHING CURRENTS
_____

We mentioned earlier that spikes in switching can have adverse effects. The tests of the laptop adapter show that mains distor- tion can occur due to oscillations. But also high current peaks can cause voltage drops on the mains. After all, because of the short-lived but high current peaks, the mains voltage can also drop for a short period as the mains also power has a certain impedance. A voltage dip, in turn, can then cause other effects such as oscillation. Mains distortion should therefore not be an underestimated consequence.

Another point is the component overload. A user, i.e. device, has several components that the total input current travels though. Think of components like cables, connectors, inlets, fuses, mains filters, coils and sometimes also rectifier diodes. Extra stress is put on all these components at those moments when they have to carry high inrush currents. This accelerates the wear on the components, reducing their service life.

The third point that shouldn't be underestimated is the impact on the relay contacts that are used to switch the user. No matter how short the switch pulse is, practical tests have proven that the high switching currents can be extremely detrimental to the relay. Contacts can 'burn in' and thus become welded to- gether, as it were. Tests have revealed that in a few cases, the relay contacts were stuck together after just 10 x switching a 65 W adapter. The possible consequences of high switching cur- rents are summarised below.

Possible consequences of high switching currents:

• *Deteriorated EMC behaviour*
• *Component overload and therefore accelerated ageing of the users*
• *Risk of switch relay burning in*

NEAR-ZERO-VOLTAGE SWITCHING (n-ZVS)

It should be clear that preventing high switching currents offers major advantages. Preventing high switching currents leads to reduced mains distortion and therefore improved EMC behaviour and better Power Quality. It also ensures there is less chance of accelerated ageing of the user and, last but not least, leads to less wear on the switch relay with ultimately a much more reliable PDU as a result.

As explained earlier, with these types of electronic power supplies like the adapter, the inrush current is at its highest when the voltage is highest. An obvious thought would be to switch on at the moment when the voltage is at its lowest. This is the case in the zero-crossing of the alternating current. The zero-crossing can be detected by continuously measuring the mains voltage. By using smart hardware and intelligent software, which elimi- nates occurrences such as switch-on delays in the electrome- chanical relay, it is possible to perform reproducible switching in the zero-crossing with an accuracy of 1 ms. This technique is called: *Near-Zero-Voltage Switching* (n-ZVS). The name is deri- ved from a similar technique used in switching power supplies.

The effect of switching near the zero-crossing by means of *Near-Zero-Voltage Switching* is illustrated below. The test is con- ducted on the same 65 W laptop adapter. This time, however, the adapter is switched on around the zero-crossing, as seen in the figures below. *Figure 5* shows the switch-on effect when switching on at the zero-crossing.
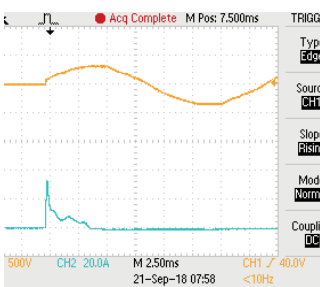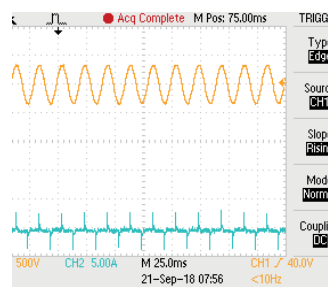
We can see on *Figure 5* that switching on takes place a fraction later than the moment of the zero-crossing. The current is now approximately 35 A, which is a huge difference when compared to the earlier measurement of 150 A. ***Also note that the divisions here have been adapted in relation to the previous tests: 20 A/ div on the left and 5 A/div on the right.*** *Figure 6* shows the cur- rent and the voltage during continuous operation of the adapter at full power of 65 W. The peak currents at normal, full-capacity operation are around 3 A. The RMS value of the current in *Figure 8* is consistent with the calculated value of 0.33 A from the table on page 4. Based on these tests, the advantage of *Near-Zero-Vol- tage-Switching* is self-evident. The inrush current of 150 A that was measured earlier has now been reduced to 35 A.

For the sake of completeness, *Figure 7* shows the voltage and current when the kettle is switched on in the zero-crossing. We can see that no switch-on spike appears in *Figure 7*. The current increases proportionately with the voltage, which was to be ex- pected. *Figure 8* shows the situation of the 2,200 W kettle in con- tinuous operation.
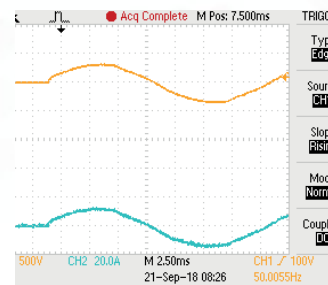
Figure 7
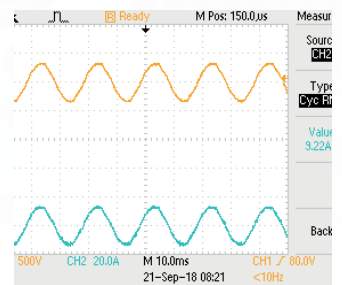
Figure 8

The measured RMS current in continuous operation is 9.22 A *(Figure 8).* This results in 2,120 W at 230 V, which approximately corresponds to the what it says on the nameplate

Figure 5

Figure 6

CONCLUSION

The switch-on behaviour of electronic power supplies often brings with it unexpected and undesirable effects. Inrush cur- rents, although short in duration, are often much higher than one might think, and are also often much higher than the ma- nufacturers' information suggests. By switching more intelligently, these high inrush currents can be significantly limited. Switching in the zero-crossing, for example, offers many ad- vantages. It reduces the risk of failure in the relay or connected equipment that is switching, and can also lead to less mains distortion, improved EMC behaviour and the associated better Power Quality. *N-ZVS: Near Zero Voltage Switching* is the technology best suited to accomplish this.

This white paper was written by Wiel Drissen in collaboration between Schleifenbauer Products and Drisco

Rack unit calculator

The "Rack Unit" is a standard measurement for server height; one rack unit (U) is 1.75 inches.

| Rack Units	Height (in)	Height (ft)	Height (cm)
1U	1.75″	0.15′	4.4 cm
2U	3.5″	0.29′	8.9 cm
3U	5.25″	0.44′	13.3 cm
4U	7″	0.58′	17.8 cm
5U	8.75″	0.73′	22.2 cm
6U	10.5″	0.88′	26.7 cm
7U	12.25″	1.02′	31.1 cm
8U	14″	1.17′	35.6 cm
9U	15.75″	1.31′	40 cm
10U	17.5″	1.46′	44.5 cm
11U	19.25″	1.6′	48.9 cm
12U	21″	1.75′	53.3 cm
13U	22.75″	1.9′	57.8 cm
14U	24.5″	2.04′	62.2 cm
15U	26.25″	2.19′	66.7 cm
16U	28″	2.33′	71.1 cm
17U	29.75″	2.48′	75.6 cm
18U	31.5″	2.63′	80 cm
19U	33.25″	2.77′	84.5 cm
20U	35″	2.92′	88.9 cm
21U	36.75″	3.06′	93.3 cm
22U	38.5″	3.21′	97.8 cm
23U	40.25″	3.35′	102.2 cm
24U	42″	3.5′	106.7 cm
25U	43.75″	3.65′	111.1 cm
26U	45.5″	3.79′	115.6 cm
27U	47.25″	3.94′	120 cm
28U	49″	4.08′	124.5 cm
29U	50.75″	4.23′	128.9 cm
30U	52.5″	4.38′	133.4 cm
31U	54.25″	4.52′	137.8 cm
32U	56″	4.67′	142.2 cm
33U	57.75″	4.81′	146.7 cm
34U	59.5″	4.96′	151.1 cm
35U	61.25″	5.1′	155.6 cm
36U	63″	5.25′	160 cm
37U	64.75″	5.4′	164.5 cm
38U	66.5″	5.54′	168.9 cm
39U	68.25″	5.69′	173.4 cm
40U	70″	5.83′	177.8 cm
41U	71.75″	5.98′	182.2 cm
42U	73.5″	6.13′	186.7 cm
43U	75.25″	6.27′	191.1 cm
44U	77″	6.42′	195.6 cm
45U	78.75″	6.56′	200 cm
46U	80.5″	6.71′	204.5 cm
47U	82.25″	6.85′	208.9 cm
48U	84″	7′	213.4 cm
Rack Units	Height (in)	Height (ft)	Height (cm)

Custom PDU bracket

Bracket type for toolless mount

Description:
Toolless mount bracket straight for 1 PDU
Item code: 123870

Description:
Toolless mount bracket straight for 2 PDU's
Item code: 123827
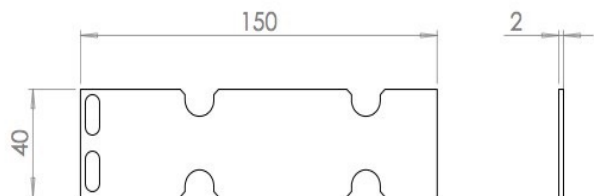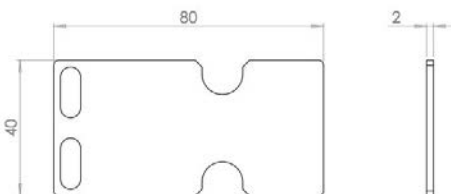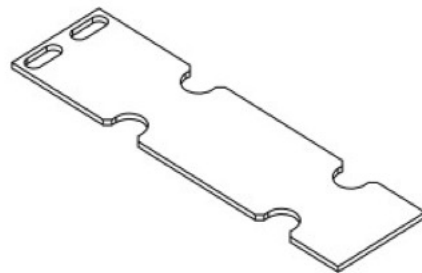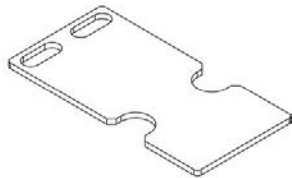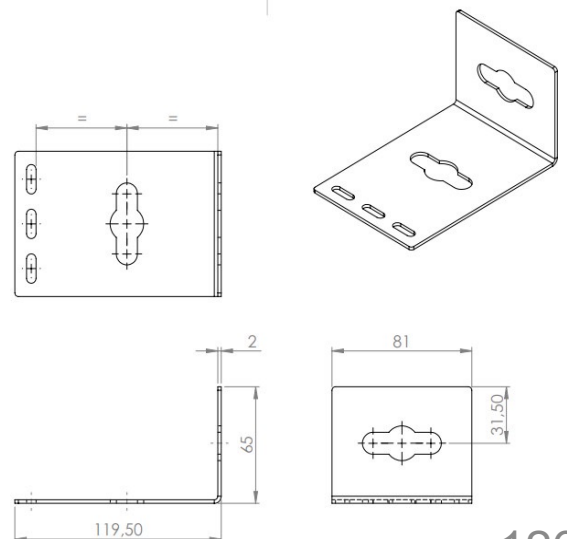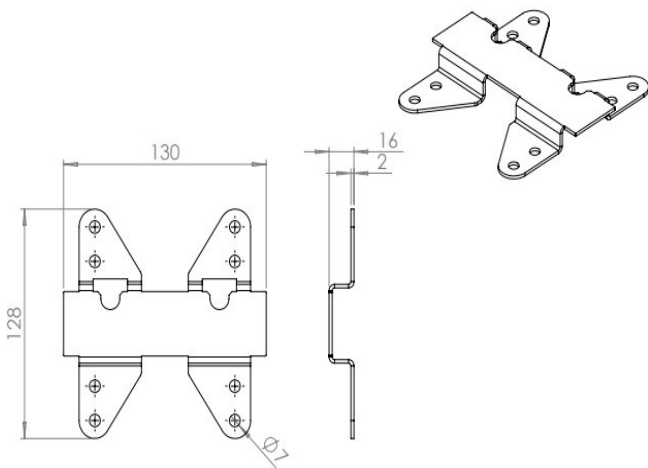
Custom PDU bracket

Bracket type for toolless mount

Description:
Toolless Mount bracket Nexpand/VX IT (2xPDU)
Item code: 124302

Description:
Toolless Mount bracket Nexpand/VX IT (1xPDU)
Item code: 124582
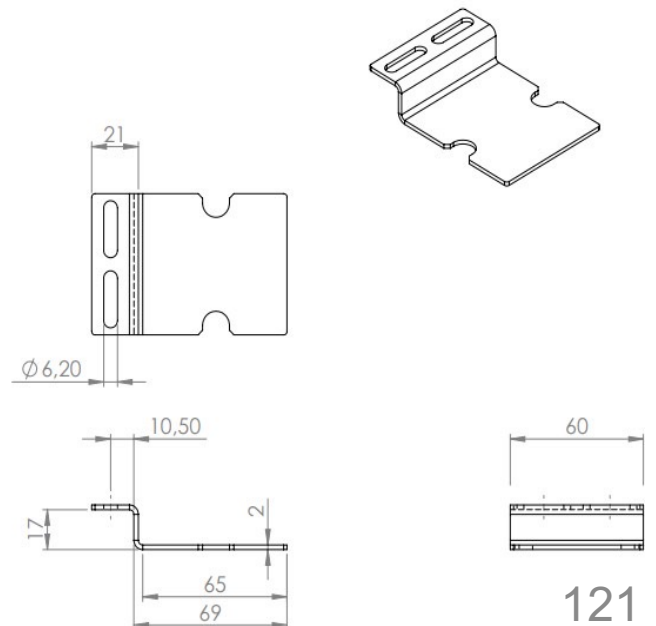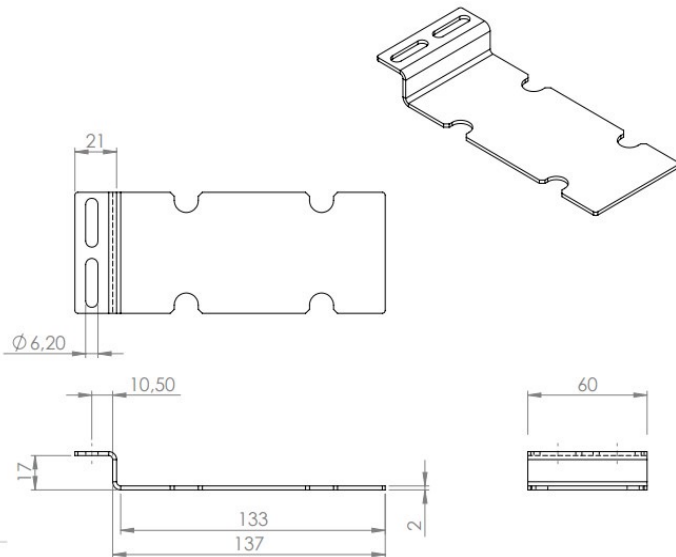
Custom PDU bracket

Bracket type for toolless mount

Description:
Bracket toollessmount deepened 2 PDU's (Rittal TS8)
Item code: 124538

Description:
Bracket toolless mount dubble 90º extend (2 PDU's)
Item code: 124527
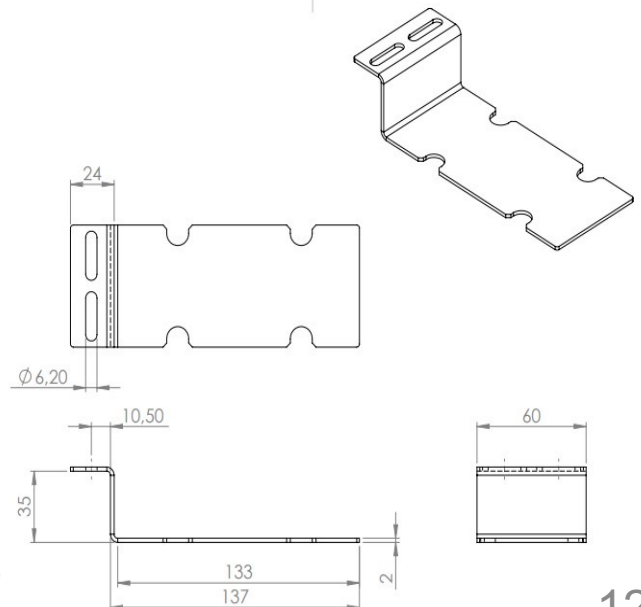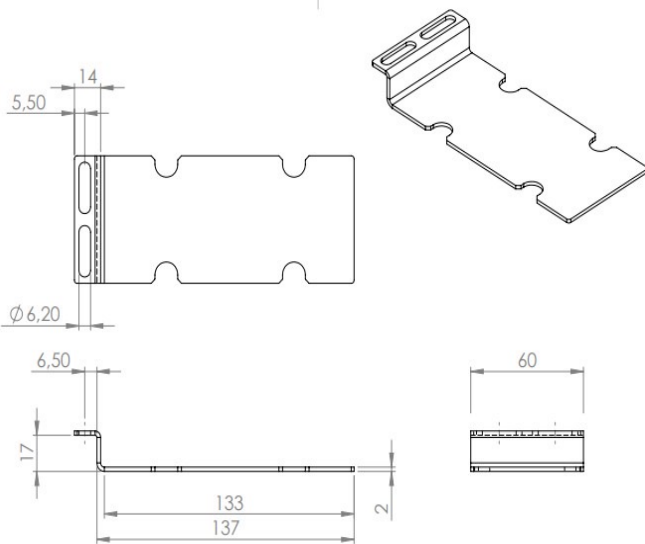
Custom PDU bracket

Bracket type for toolless mount
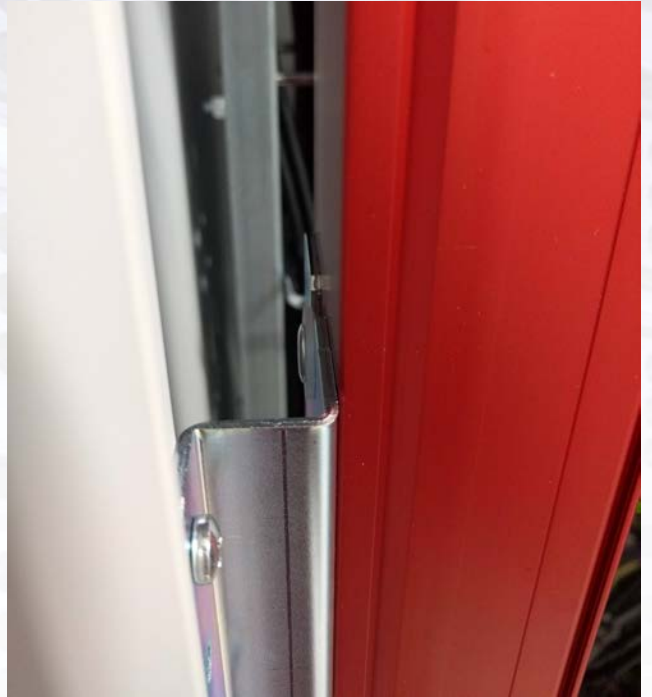
Description:
Bracket toolless mount double 90° 4 PDU's
Item code: 124575

Description:
Toolless Mount bracket Panduit FlexFusion(1xPDU)
Item code: 124608
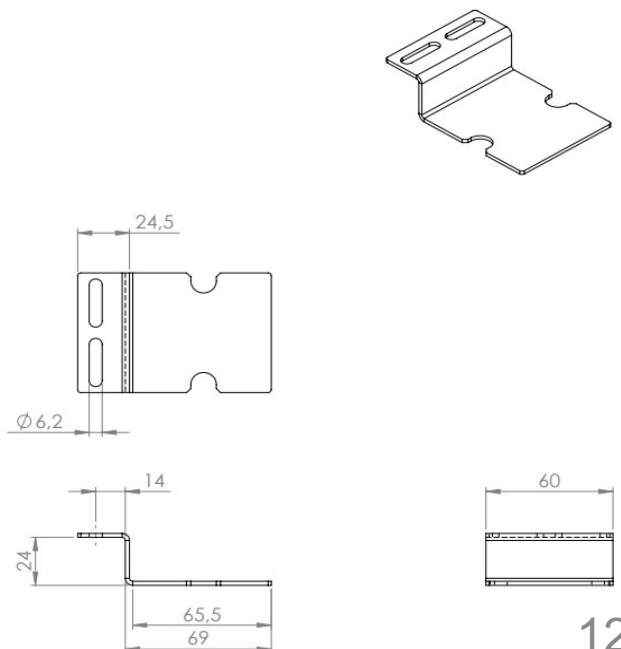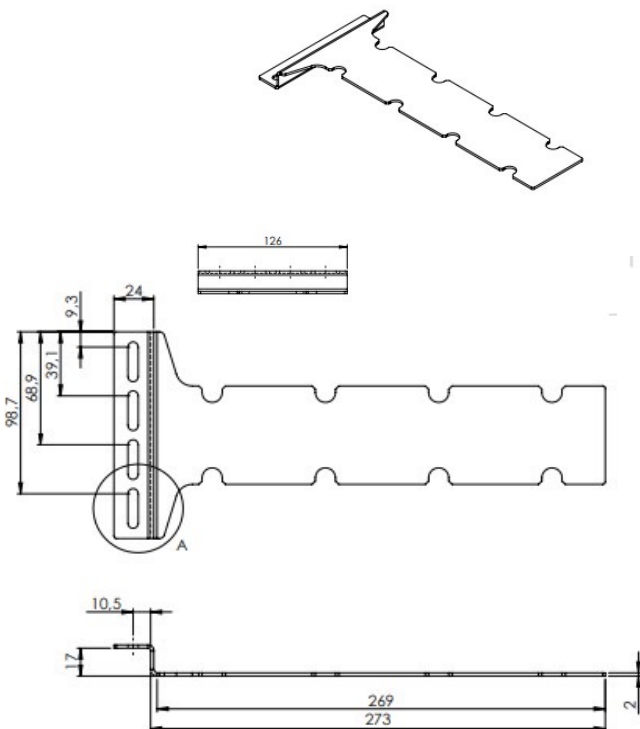
Custom PDU bracket

Bracket type for toolless mount

Description:
Toolless mount bracket angled 141 mm
Item code: 124454
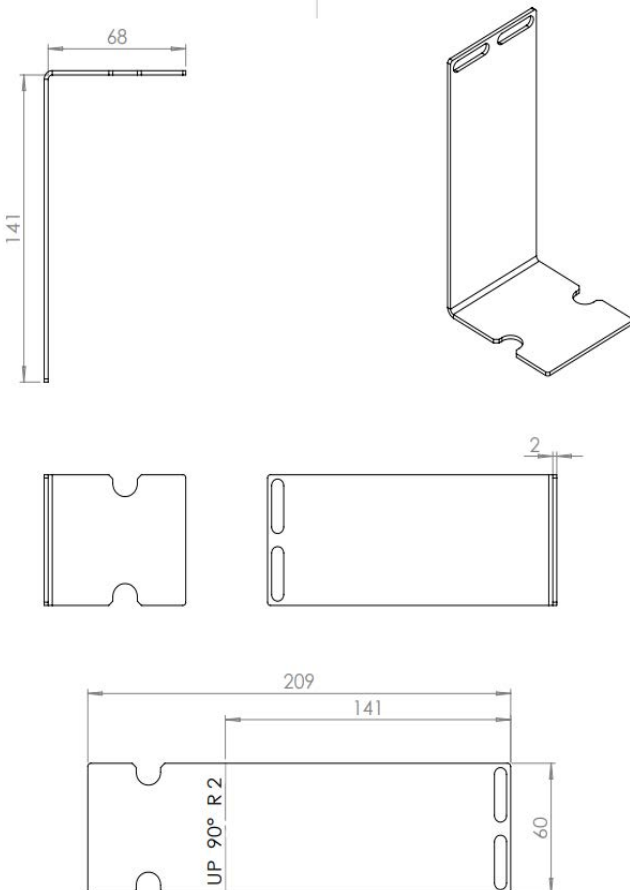
Description:
Toolless mount bracket angled 53 mm
Item code: 124476
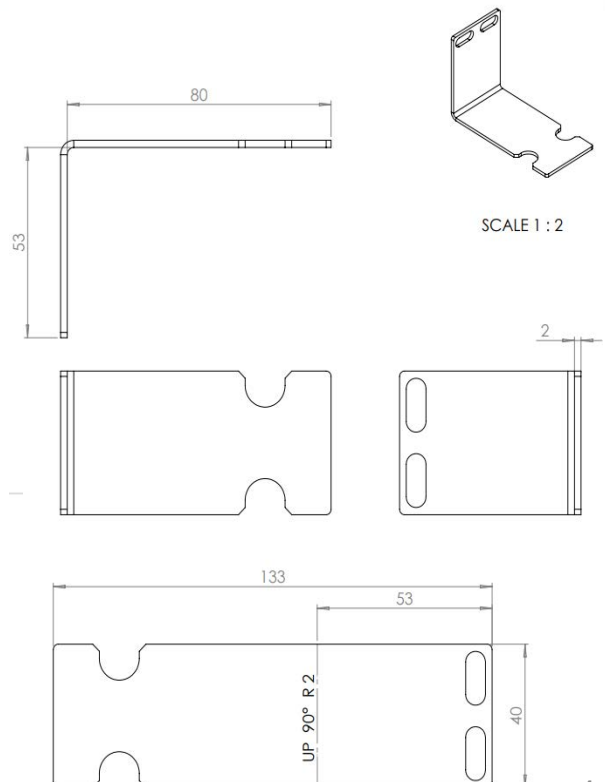
Custom PDU bracket

Bracket type for toolless mount

Description:
Toolles mount bracket angled 2 PDUs
Item code: 124497

Description:
Toolless mount bracket angled 1 PDU
Item code: 124584

135
20
2

30   70
5
40
Ø 6

150,90
17,95
40
UP 90° R 2

65
20
2

30
5
40
40
6
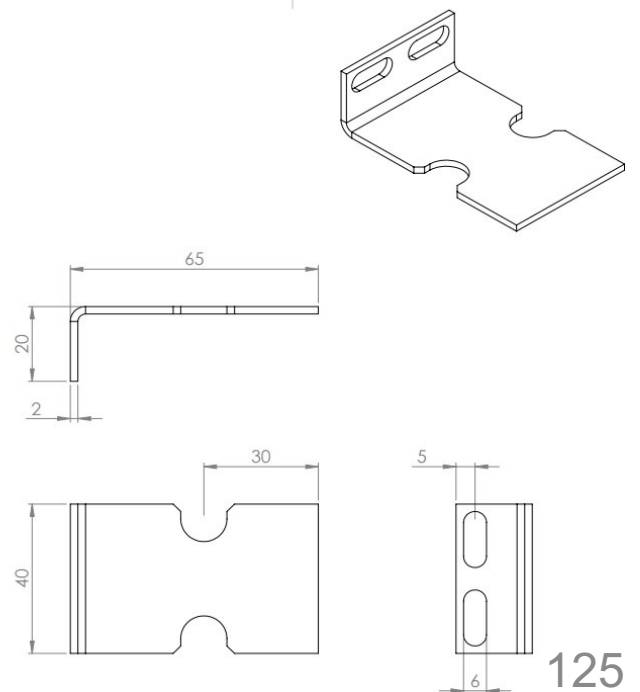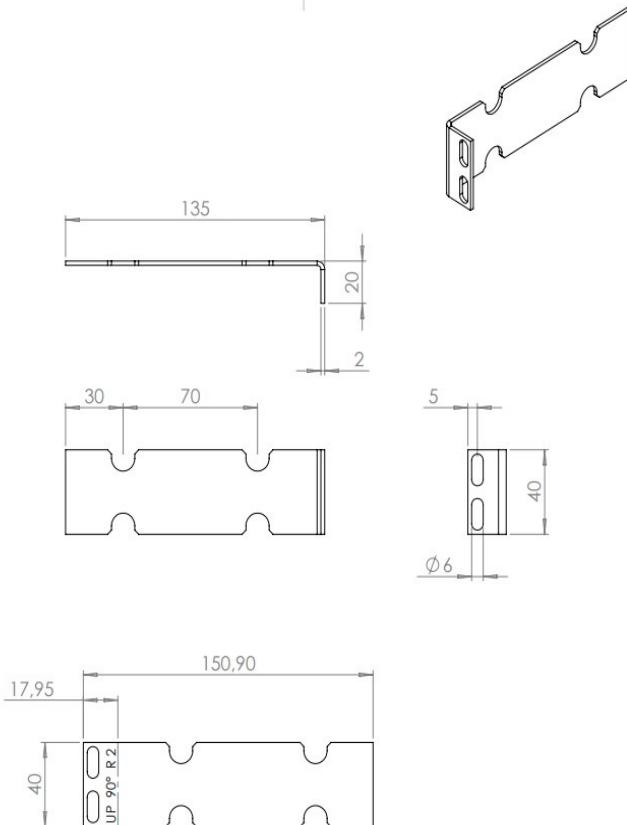
Custom PDU bracket

Bracket type for toolless mount
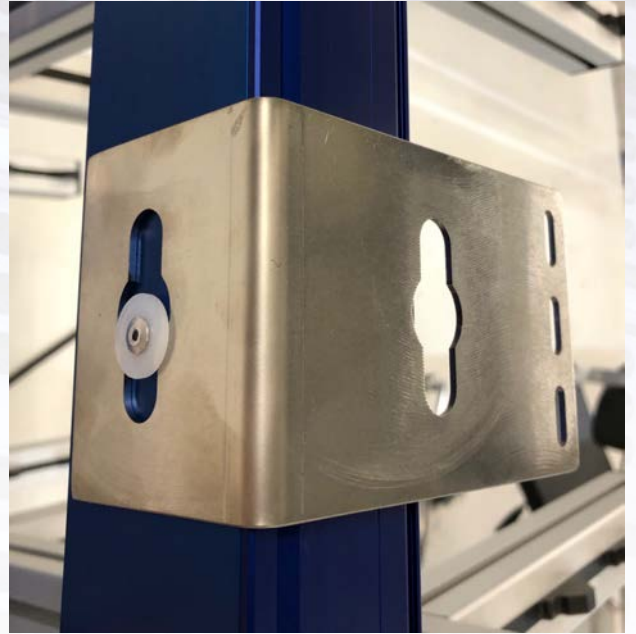
Description:
Toolless mount APC rack (2 PDU's)
Item code: 124485

Description:
Toolless mount bracket elongated hole
Item code: 124511

130
16
2
128
Ø7

=   =

2   81
65   31,50
119,50

Custom PDU bracket

Description:
Rittal TS8 bracket left top + right bottom
Item code: 124330

Description:
Rittal TS8 bracket right top + left bottom
Item code: 124330
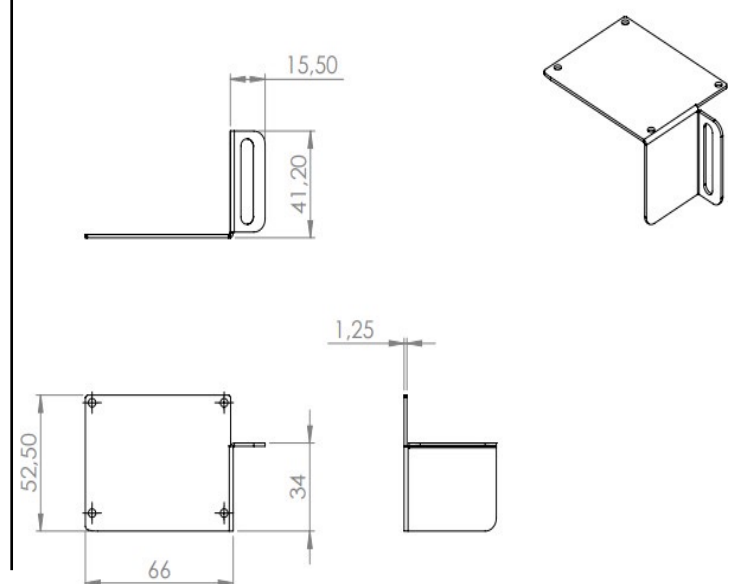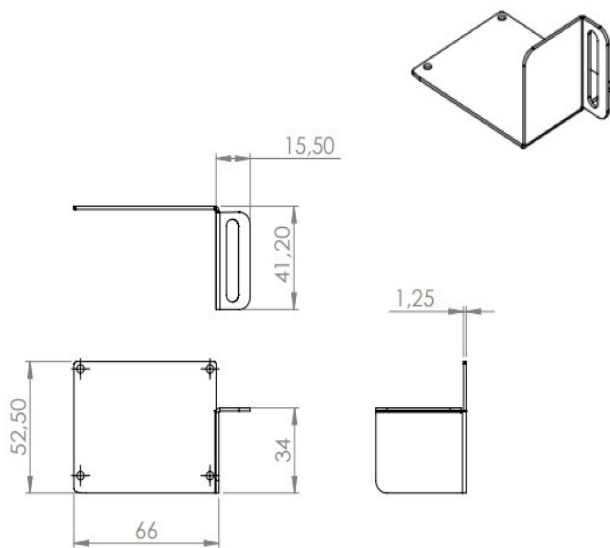
Custom PDU bracket

Description:
Rittal TS8 bracket left top + right bottom extended
Item code: 124444

Description:
Rittal TS8 bracketright top + left bottom extended
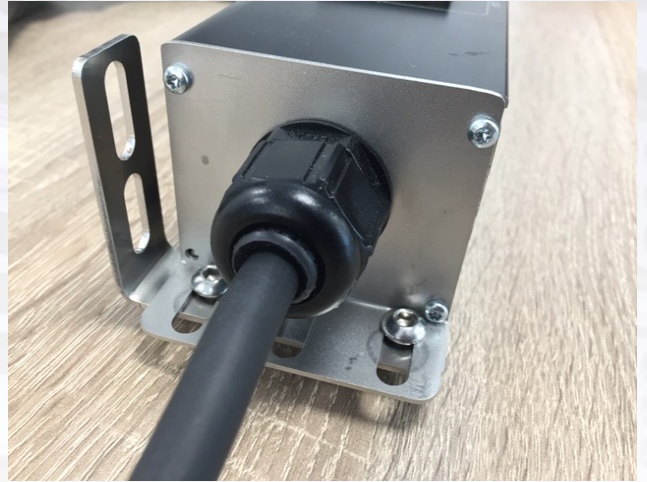Item code: 124445
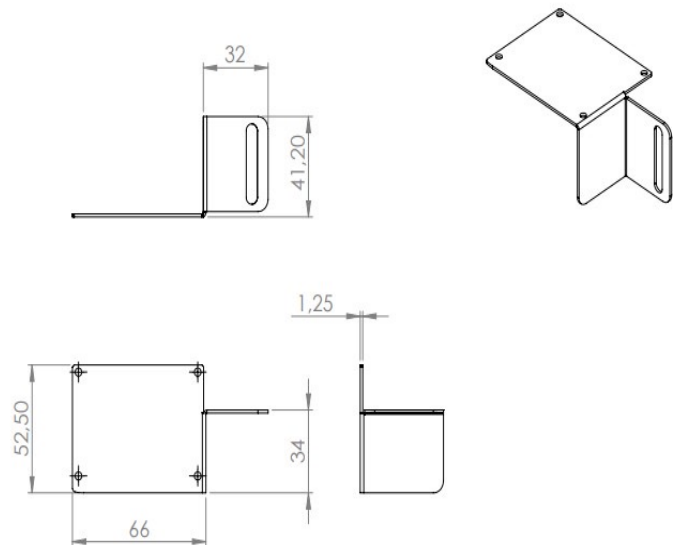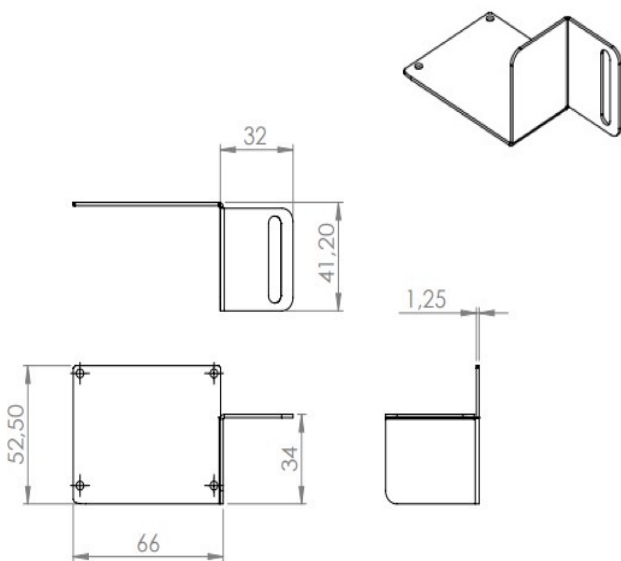
Custom PDU bracket
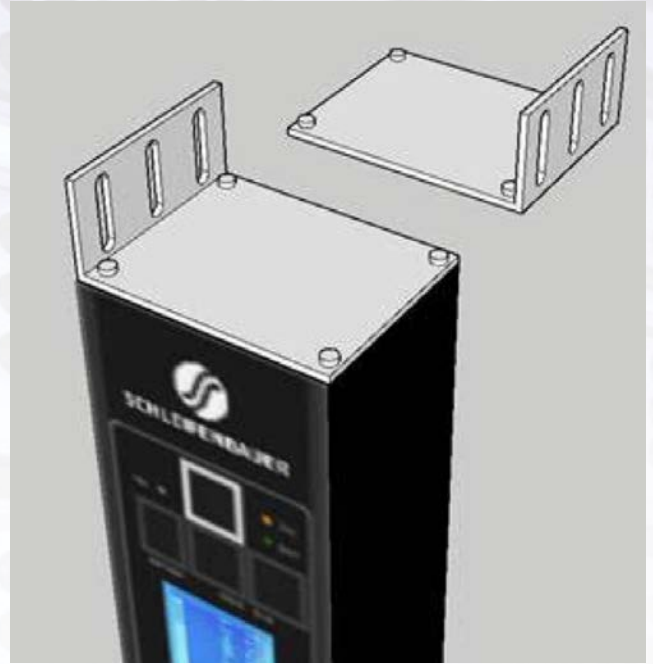
Description:
Eindschot table mount 90º top left + bottom right
Item code: 124544

Description:
Side cover table mount 90º left bottom + right top
Item code: 124546

52,5

6,25

4,25

20 20

25

6,5

66,2
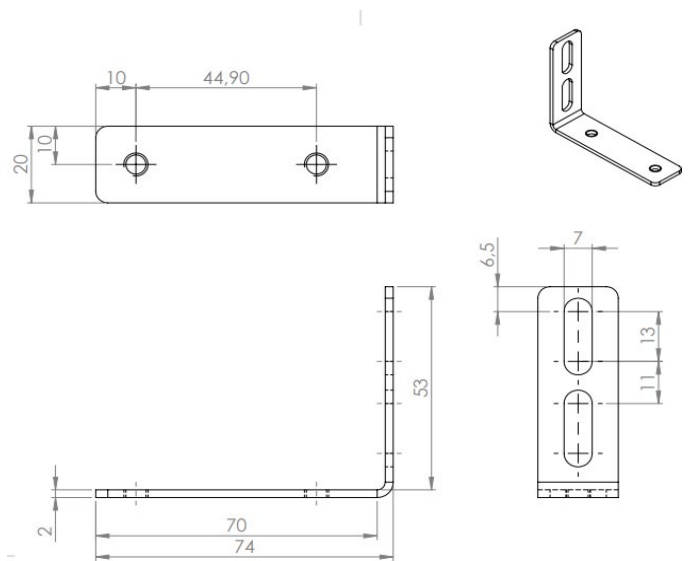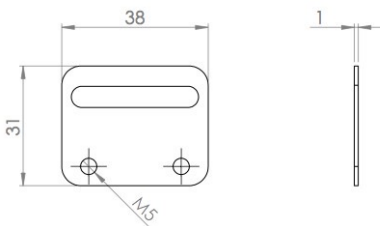
1,25

52,5

6,25

4,25

20 20

25

6,5

66,2

1,25
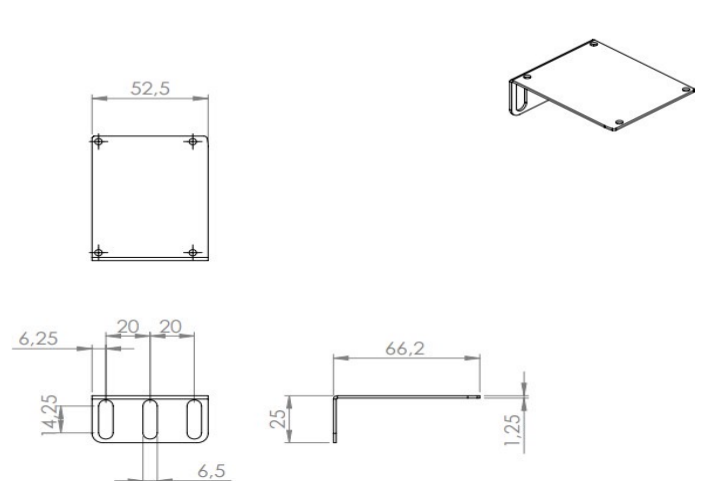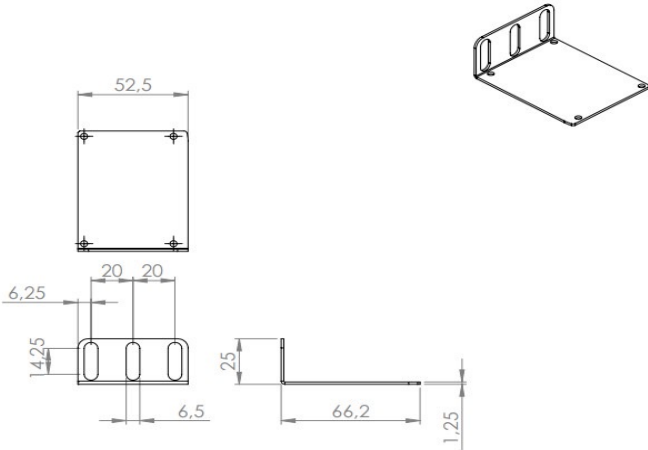
Custom PDU bracket

Bracket that can be bolted onto a PDU with tablemount brackets, which then rotates the PDU 90º

Description:
Spacer bracket
Item code: 123782

Description:
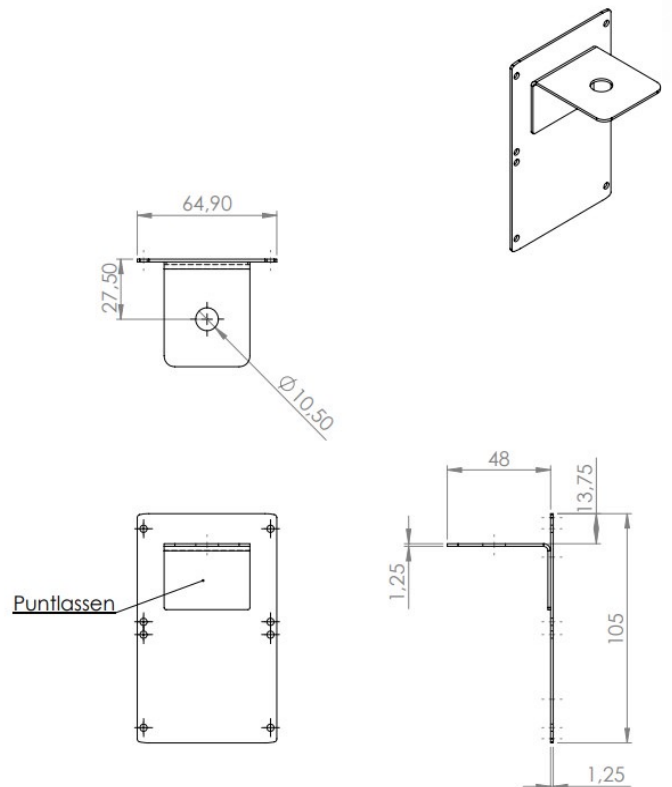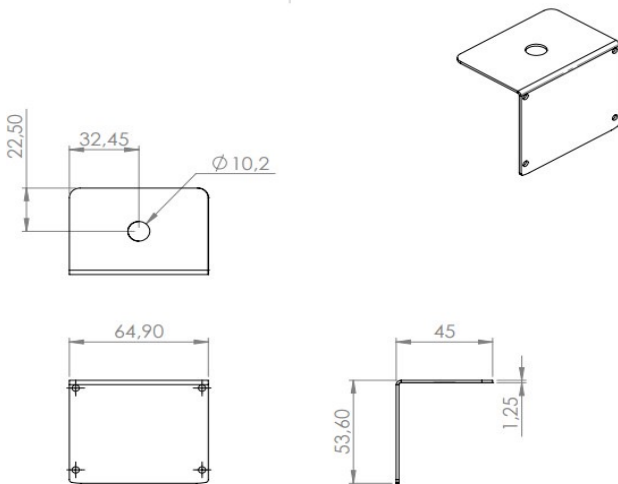Bracket for table mount 90° orientation
Item code: 124524

Custom PDU bracket

Description:
Side cover installation frame (single)
Item code: 124552

Description:
Side cover installation frame(dubbel)
Item code: 124553

22,50
32,45
Ø 10,2
64,90
45
53,60
1,25

64,90
27,50
Ø10,50
Puntlassen
48
13,75
1,25
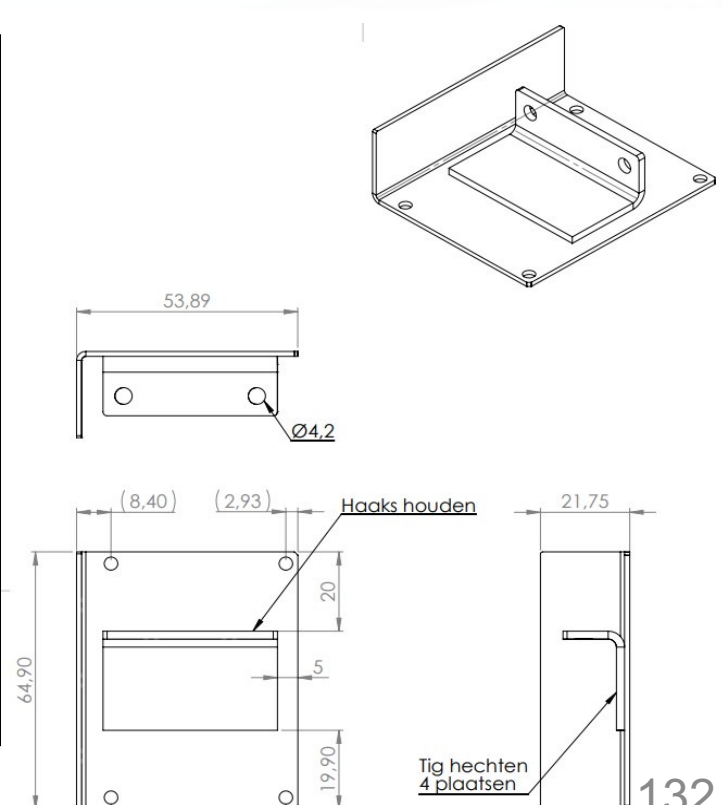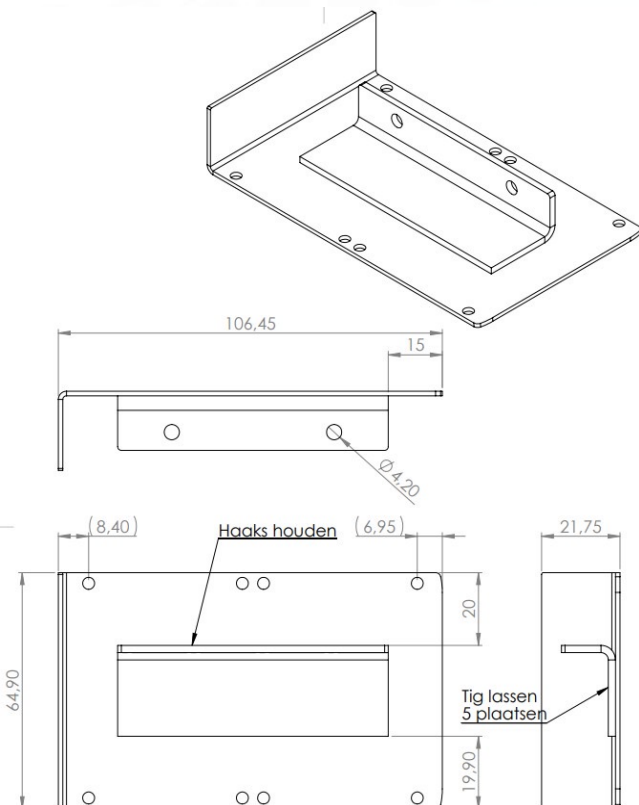105
1,25

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Custom PDU bracket

Description:
Half 19 inch torque bracket left (dubble profile)
Item code: 124557

Description:
Half 19 inch torque bracket left (single profile)
Item code: 124559

106,45
15
Ø4,20
(8,40)   Haaks houden   (6,95)   21,75
20
64,90
Tig lassen
5 plaatsen
19,90

53,89
Ø4,2
(8,40)   (2,93)   Haaks houden   21,75
20
64,90
5
19,90
Tig hechten
4 plaatsen

Custom PDU bracket

Description:
SS mounting brackets for vertical mounting
Item code: 123839

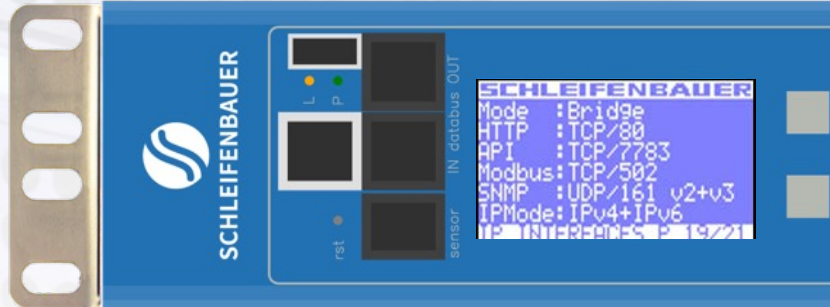| Description: |
|---|
| Flat stainless steel washer for mounting bracket |
| Item code: 123645 |
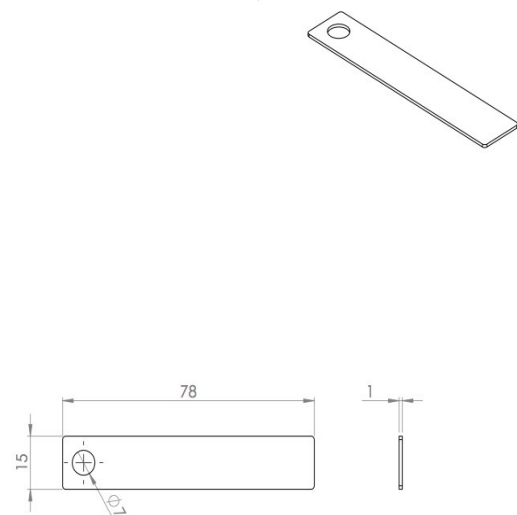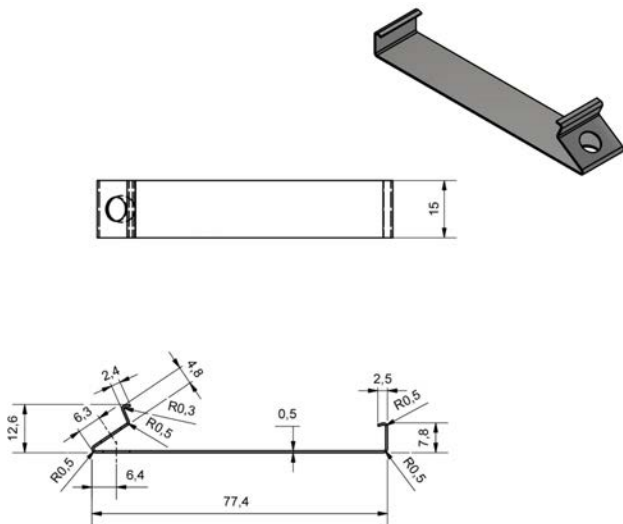
Hybrid & Ethernet mode

INTERFACES
There are several interfaces integrated in the PDU:
- (embedded) web interface
- Modbus/TCP
- SNMP (Simple Network Management Protocol)
- (SP)API (Schleifenbauer Products Application Programming Interface)

```
Mode    :Bridge
HTTP    :TCP/80
API     :TCP/7783
Modbus:TCP/502
SNMP    :UDP/161 v2+v3
IPMode:IPv4+IPv6
IP INTERFACES P 19/21
```

In the "IP Interfaces" display you can find information about the device mode in which the PDU is working: ●Mode = hybrid, databus , bridge or colocation.

HYBRID

CLOSE RING FOR REDUNDANCY

- Redundant access per PDU
- Individual and fast acces per PDU possible
- Easy deployment
- Connectivity via webinterface, SNMPv3, Modbus and API

ETHERNET

- One IP-adress per PDU
- High speed communication
- Easy configuration via Service Tool
- Connectivity via webinterface, SNMPv3, Modbus and API

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PDU Firmware, software and user manuals can be found at the download section on the support page on our website https://www.schleifenbauer.eu/en/support/.

Bridged & Colocation mode

It's possible to connect numerous Schleifenbauer PDUs to the PDU which is in BRIDGE mode. The sequence of devices does not affect the performance of the databus-ring. But, the more devices you place in the databus-ring, the slower data transmission will be. Databus communication takes 0,2 seconds per query (e.g. input measures block). Therefore we advise to create rings with a maximum of 50 devices which means that querying each device once will take approximately ten seconds.
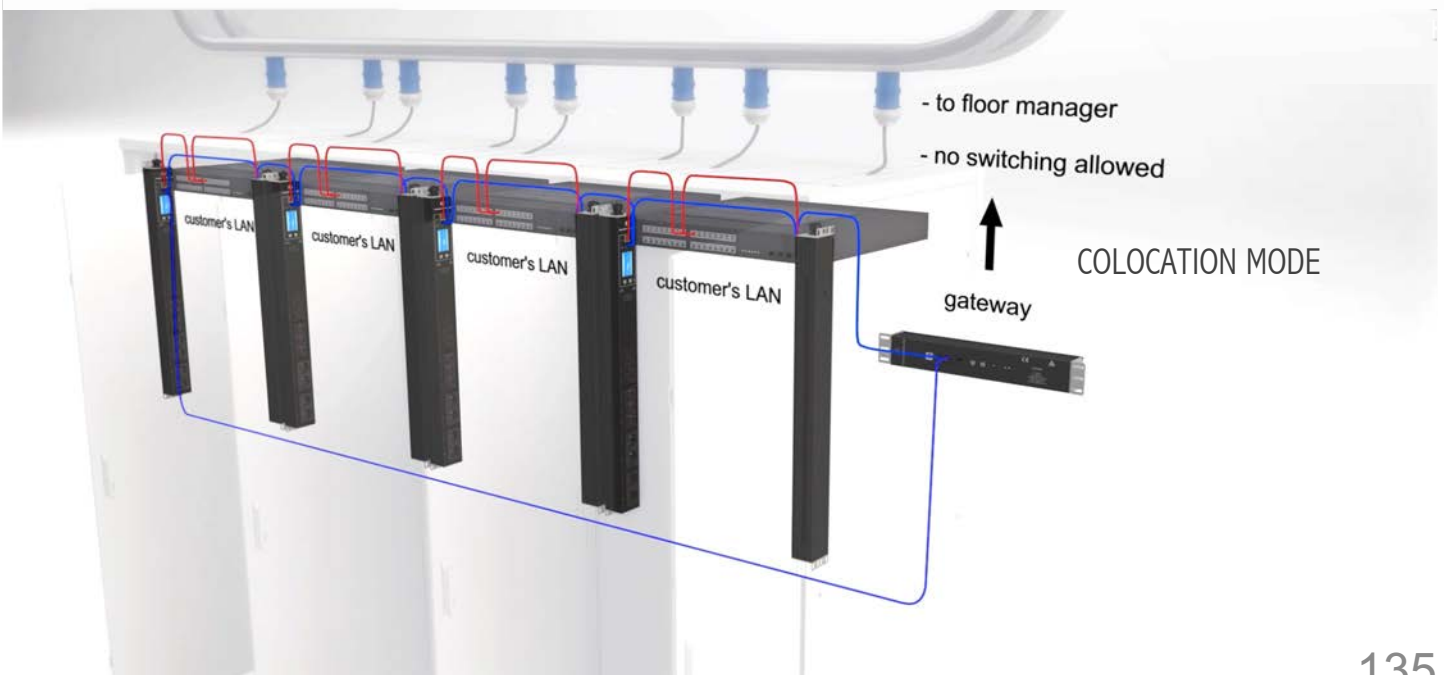

The display shows the status, and which protocol & port number is used for:
●HTTP ●API ●Modbus ●SNMP ●IPMode (IPv4, IPv6 or both)

BRIDGED

- Control multiple PDUs via single IP-adress
- Ring redundancy
- Easy deployment
- Connectivity via webinterface, SNMPv3, Modbus and API

- to floor manager
- no switching allowed

COLOCATION MODE

PDU Firmware, software and user manuals can be found at the download section on the support page on our website https://www.schleifenbauer.eu/en/support/.

SCHLEIFENBAUER

Customer onboarding form

To welcome you as a customer, we need the following company information from you.

Invoice address

Company name	
Street	
Number	
Zip code	
City	
Telephone number	
Email	
VAT number	

Shipping address

Company name	
Street	
Number	
Zip code	
City	
Telephone number	

Contact person

Name	
Telephone number	
Email address	

SCHLEIFENBAUER

PDU request form

When you answer the questions below regarding your desired PDU configuration and submit them to us, we can quickly process your PDU request. You may provide a part number of one of the sample PDUs from this catalog and the components you would like to see changed, if any, and we will send you a proposal of the desired PDU configuration including datasheet.

You can send your request to **sales@schleifenbauer.eu** and we will process it the same business day.

Infra

PDU orentation (vertical 0U of horizontal 19" or 21")	
Phase (1 Phase or 3 Phase)	
Ampere (16A of 32A)	

Intelligence

Basic (passive outlet)	Yes / No
Input energy metering total PDU (per phase)	Yes / No
Metering on branch groups	Yes / No
Metering per individual outlet	Yes / No
Remote switching per individual outlet	Yes / No

Components

Fuse type (thermal, MCB, glass fuse, no fuse)	
Outlet quantity	
Outlet type	
Lenght cable in cm (standard 3 meter)	
Connector plug (standard CEE 60309)	
Cable entry (top, bottom, front, base, rear)	
Housing colour (black, red, blue, yellow, orange, green)	
PDU Lenght (standard or desired length)	
Overvoltage protector (optional)	
Residual current sensor (optional on intelligent PDU)	
Mounting (toolless mount, table mount, special bracket)	
Separate temprature humidity sensor	

Commens:	

Sales Team

Tycho Matheusen / Account Manager / Sales Benelux

Amanda Wagenaar / Account Manager / Sales Benelux

Peter Döring / Account Manager / Sales DACH

Anneke van Aken / Account Manager / Sales DACH

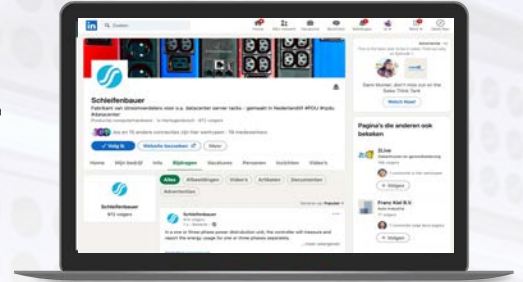Jos Janssen / Head of Sales & Marketing / International sales

Dami Munter / Team Lead Sales & Marketing / International sales

Connect with us on LinkedIn

linkedin.com/company/schleifenbauer/

Scan the QR code for the sales person's direct contact information. You can then save the contact information directly to your smartphone with the download button.

Office
Schleifenbauer Products BV

Het Sterrenbeeld 52
5215 ML 's-Hertogenbosch
The Netherlands

Phone +31 73 52 30256
sales@schleifenbauer.eu
www.schleifenbauer.eu

Chamber of Commerce: 17225345
VAT: NL819371014B01
IBAN: NL19 RABO 0110 1606 73
BIC: RABONL2U

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TECHNICAL SPECIFICATIONS & GLOSSARY OF TERMS

• **PDU:** PDU stands for power distribution unit. A PDU is a device with multiple outlets designed to distribute electrical power to racks of computers and network equipment in a data centre.

• **Basic PDU:** A basic PDU provides simple but highly reliable power distribution to multiple devices in a networked application. A PDU of this type is important for providing enough outlets for the many devices typically installed in a server rack from a conditioned power source such as a UPS or a generator/centralised UPS power distribution scheme. A basic PDU does not contain intelligence on energy metering. Covers all PDUs with spis code VNN11, VNN13, VNN31, VNN33, HNN11, HNN13, HNN31, HNN33, DNN11, DNN13, DNN31 and DNN33 in the part number.

• **Meterd PDU:** A metered PDU offers the same benefits as a Basic PDU (multiple outlets, long input cord), plus the ability to monitor the total amount of current in amperes flowing through the PDU. A metered PDU gives network administrators, who are responsible for increasingly large installations, the ability to know when the current demand from connected equipment is approaching or exceeding the total capacity of the PDU itself, or the UPS power source it is connected to, and make the necessary upgrades before power failures occur. Covers all PDUs with spis code VIN11, VIN13, VIN31, VIN33, HIN11, HIN13,HIN31, HIN33, DIN11, DIN13, DIN31 and DIN33 in the part number.

• **Branch Meterd PDU:** A branch metered PDU offers the same advantages as a Meterd PDU (multiple outlets, long input cord, metered power consumption), plus the ability to monitor the total amount of current in amperes coming through the outlets placed after a fuse. Incoming measurement combined with measurement on the fuse. A group of outputs linked behind a fuse or phase is called a branch phase branch. Covers all PDUs with spis code VMN13, VMN33, HMN11, HMN13, HMN33, DMN13, DMN33, VMM13, VMS13, VMS33, VMB13 and VMB33 in the part number.

• **Monitored PDU:** A monitored PDU offers the same advantages as a Meterd PDU (multiple outlets, long input cord, metered power consumption), plus the ability to measure the amount of current in amperes coming through the outlets individually. Incoming measurement combined with measurement per outlet (measurement at outlet level). Covers all PDUs with spis code VIM11, VIM13, VIM31,VIM33, HIM11, HIM13, HIM31, HIM33, DIM11, DIM13, DIM31, DIM33, DMM13, VMM13 and VMM33 in part number.

• **Switched PDU:** A switched PDU offers the same advantages as a Metered PDU (multiple outlets, long input cord, metered power consumption), plus the ability to remotely turn each outlet off and back on via an Ethernet network connection. The main advantage of this setup is that equipment in a secure data centre, server room or locked cabinet can be switched on and off remotely. This eliminates the need for network administrators to travel to each location to manually switch on equipment. Less critical equipment (such as monitors) can also be manually switched off during an extended power outage, allowing the most critical servers and network equipment to run on backup batteries for as long as possible. Covers all PDUs with spis code VIS11, VIS13, VIS31, VIS33, DIS11, DIS13, DIS31, DIS33, DMS13, DIM33, VMS13 and VMS33 in the part number.

• **Managed PDU:** A managed PDU offers the same advantages as a Switched PDU (multiple outlets, long input cord, metered power consumption, switchable outlets), plus the ability to measure the amount of current in amperes coming through the outlets individually. Incoming metering and individual outlet metering combined with remotely switchable outlets (managed). Managed PDU is a PDU with all possible intelligence options. Covers all PDUs with spis code VIB11, VIB13, VIB31, VIB33, DIB11, DIB13, DIB31, DIB33, DMB13, DMB33, VMB13 and VMB33 in the part number.

• **Inline meter:** An inline meter, also known as a pass trough or Current Transformer (CT) meter, is a type of power monitoring device that is used to measure the electrical current of a basic power distribution unit (PDU). It works by using a current transformer (CT) to sense the current flowing through the inline meter as it is placed before a PDU with no intelligence to turn it in to an energy metering PDU. The controller inside the Inline meter is the same as used in our Schleifenbauer PDUs an is converting the current into an electrical signal that can be measured and analyzed. Covers all Inline meters with spis code VIP11, VIP13, VIP31, VIP33, DIP11, DIP13, DIP31 and DIP33 in the part number.

• **Databus:** The intelligence of Schleifenbauer PDUs makes it possible to read and manage devices remotely over IP. It's possible to access the databus on the PDU controller (2 x RJ45 databus connectors RS-485) via the web interface, Modbus and SNMP. The databus provides a wide range of options: it has adequate support for custom configurations that are desired by the user. Databus and power distribution are separated in the PDU. All operations on the databus do NOT interfere with the distribution of power to the connected equipment in the racks.

• **Ethernet:** RJ 45 screened connector TCP/IP 10/100 Mb, DHCP with fall-back static IP, SNMP, Modbus, API.

• **Sensor port:** Compatible with Schleifenbauer digital temperature/relative humidity sensor and/or dry contact based on binary input for potential-free contact.

• **Interfaces:** There are several interfaces intergrated in a Schleifenbauer PDU: Embedded web interface, Modbus/TCP, SNMP (Simple Network Management Protocol), (SP)API (Schleifenbauer Products Application Programming Interface).

• **SPST:** Schleifenbauer Products Service Tool, free software available download on our website https://docs.schleifenbauer.eu/. SPST gives you insight and analysis of your Schleifenbauer PDUs. Instantly available and accessible online including handy dashboard with all important data.

• **Hybrid mode:** Setup way of connected to the LAN. Redundant acces per PDU. Individual and fast acces per PDU possible. Easy deployment. Connectivity via webinterface, SNMPv3, Modbus and API.

• **Ethernet mode:** Setup way of connected to the LAN. One IP-adress per PDU. High speed communication. Easy configuration via service tool. Connectivity via webinterface, SNMPv3, Modbus and API.

• **Bridge mode:** Setup way of connected to the LAN. Control multiple PDUs (more than 50) via single IP-adress. Ring redundancy. Easy deployment. Connectivity via webinterface, SNMPv3, Modbus and API.

• **Remote measurement:** Energy total (kWh) no-resettable, sub-total (kWh) can be reset by user. True RMS current (A) with peak registration. Peak duration can be defined. Voltage(V) with dip registration or apparent power(VA), real power(W), power factor(%) Accuracy <1% (IEC 50470:3 Class C).

• **Local measurement:** True RMS power (A) LCD display (3 digits).

• **Energy consumption:** Electronic components: < 3W.

• **Environment:** Ambient temperature: 0°C - 60°C.

• **Display:** LCD Backlight, 360-degree reading, Tiltable.

• **PDU Profile dimensions:** BxD 65 mm x 52.5 mm, adaptable length, anodised aluminium with stainless steel side plates.

• **Profile colours:** Black, green, orange, blue, red, yellow.

• **Power input:** 230/400 VAC single phase or three phase 16A/32A.

• **Mains lead:** Low Smoke Zero Halogen (LSZH). Single phase 16A: 3G2.5 / three phase 16A: 5G2.5 / single phase 32A: 3G6 / three phase 32A: 5G6.

• **Plug:** CEE 7/4 (Schuko) / CEE 7/5 (UTE) / IEC320 C14 / IEC320 C20 / IEC60309 1 phase (IP44/IP67) / IEC60309 3 phase (IP44/IP67) / BS 1363 / GST 3/18 / T13 / T23.

• **Outputs:** IEC320 C13 / IEC320 C13 IEC lock / IEC320 C19 / IEC320 C19 IEC lock / CEE 7/3 (Schuko) / CEE 7/5 (UTE) / IEC60309 1 phase (IP44/IP67) / IEC60309 3 phase (IP44/IP67) / BS 1363 / GST 18/3 / T13 / T23.

• **Fuses:** Miniature circuit breaker (MCB) / thermal fuse / glass cartridge fuse holder / PASCO cartridge holder / Hydroulic magnetic fuse.

• **Surge protection:** Manufacturer: Dehn. Exchangeable module (Hot Swap).

• **Certificates:** ISO 90001 / CE / ROHS2 / EN-60950 / EN-61000.

SCHLEIFENBAUER

Contact

Schleifenbauer Products BV
Het Sterrenbeeld 52
5215 ML 's-Hertogenbosch
The Netherlands

Phone +31 73 52 30256
info@schleifenbauer.eu
www.schleifenbauer.eu