UTSolutions

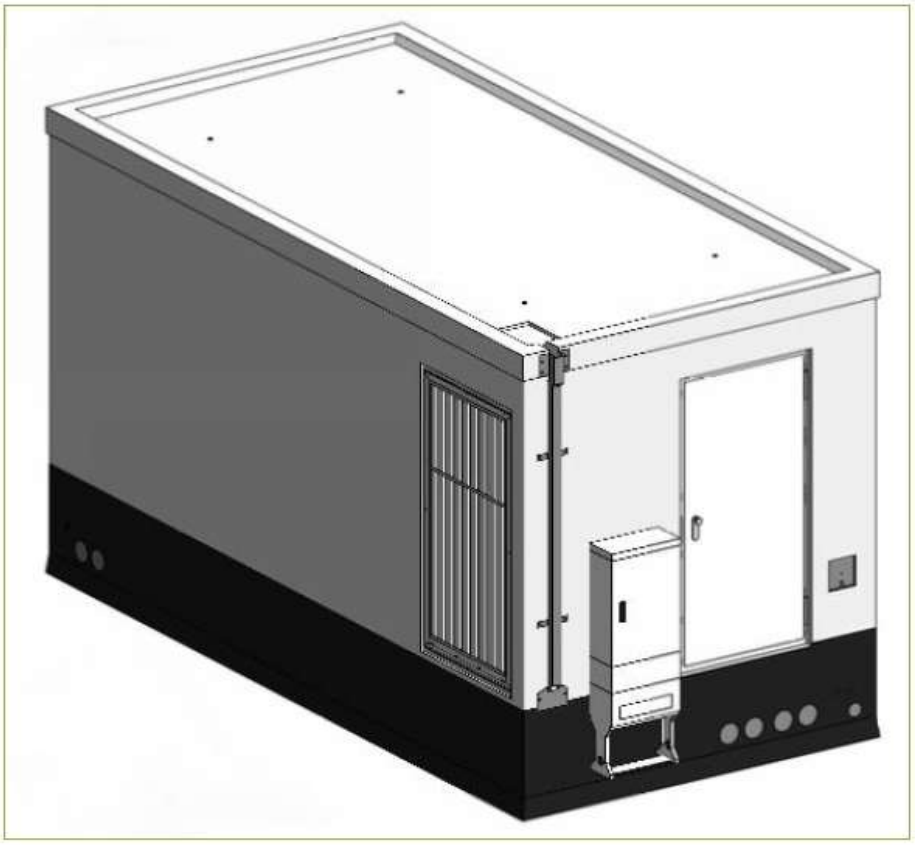
Annex UTSolutions

Technical Specification | PoP Unit L600

1 Building PoP Unit L600

The following subchapters describe the characteristics of an L600 PoP unit. Below are the key data for the selected building:

External dimensions (w/l/h): 3.00 x 6.00 x 3.51 m
Interior dimensions (w/l/h): 2.76 x 5.76 x 3.21 m
Height of intermediate floor: 0.6 m
Height of technical room above intermediate floor: 2.61 m
Weight: 29.6 t
Design variant: Concrete smoothed
Incl. 16 HSI 150 entries embedded in concrete in the raised floor



1.1 Concrete body | Roof | Drainage

Building made of reinforced concrete in monolithic construction
Concrete compressive strength class C50/60 according to DIN EN 1992 EC 2
Wall and floor thicknesses according to static requirements | at least 11/12 cm for walls and at least 12 cm for floor slab
Concrete roof with slope and circumferential concrete parapet
Interior painting walls and deck in white
External drainage by means of a downpipe made of V2A professionally installed
The building is equipped with earthing anchor points in the basement area during production
All grounding anchor points are connected to each other via probation

1.2 Security door

Double Wall Steel Sheet Door with Stainless Steel Strike Plate and Automatic Door Closer
Sound-insulating thanks to four-sided circumferential sealing profile | approx. 39 dB Rw, P
Round door handle on the outside | Doorknob for emergency exit function on the inside
An electronic door lock (Assa Abloy) including a built-in construction lock cylinder is used as standard
Prepared recess for card reader in the door leaf closed with protective cover
Dimensions (w/h): 1.00 x 2.14 m | Painting in RAL 7035

1.3 Raised floor system

Raised floor system consisting of a stable supporting structure made of steel, as well as removable raised floor plates
Substructure electrically conductive by means of steel profiles according to VDE
Grid size of 60 x 60 cm with a panel thickness of 38 mm
Surface load of 18 kN/m2
Building material class B2 according to DIN 4102-2 and fire resistance class F30 according to DIN 4102
Raised floor slabs are antistatic and electrically dissipative | Top surface: R ≥ 10 9 Ω
Ventilation is provided through an opening under the racks
A bracket including plate lifter is mounted on the inner wall

1.4 Introductions

Hauff HEA IS M12/120 earthing bushing embedded in concrete incl. cross clamp
A further insert is provided for the power connection and closed with an annular seal

1.5 Electrical installation

Lighting controlled by presence detectors in accordance with the Workplace Ordinance. If no movement is perceived for 15 minutes, the lighting goes out
3x room lighting mounted on the ceiling and equipped with an emergency light function
Pictogram light for escape route marking above the door with integrated battery
The working sockets are installed next to the door
For the access and control system, the socket is fixed above the active rack
The cable is laid by means of a surface-mounted installation in plastic pipe or in the mesh gutter system suspended under the ceiling
Both the raised floor system and all conductive components are integrated into the equipotential bonding

1.6 Mesh gutter below ceiling

The PoP unit is equipped with a mesh gutter below the ceiling. This ensures that the power cables can be routed separately from the patch cables.

1.7 Mesh gutter below the raised floor

The PoP unit is equipped with a mesh gutter below the raised floor. This ensures that the power cables can be routed separately from the patch cables.

1.8 Mounting provided cabinet unit (ODF/AT-Rack/etc.)

Assemble the cabinet unit provided in the factory

1.9 Installation of the patch cable routing system provided

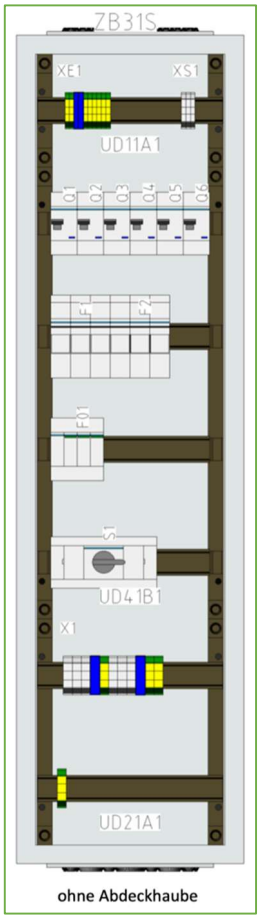
Factory installation of the patch cord management system provided

2 Equipment

2.1 Free cooling system | Soundproofing

System consists of two centrifugal fans, air intake duct incl. filter unit (filter class G4) and the air outlet duct
The room temperature is guaranteed in accordance with ETSI EN 300 019-1-3 (Class 3.1) V2.3.2 (2009-11) and is designed for a heat dissipation capacity of approx. 12 kW
In line with the ventilation concept, a sound-insulated ventilation grille, which is painted in the colour RAL 7035, will be installed in the outer wall
The control unit (LCD display) is equipped with a potential-free contact for fault signaling and remote reading via Ethernet interface
Alarm messages possible via the TCP-IP and SNMP communication protocols
Dual power supply allows operation with a UPS (AC) system in emergency situations
Various temperature sensors control the control valve and ensure optimal room temperature
Integrated heating element with 3 kW heating power (an existing basic heat output due to the active technology is required)

2.2 Sub-distribution



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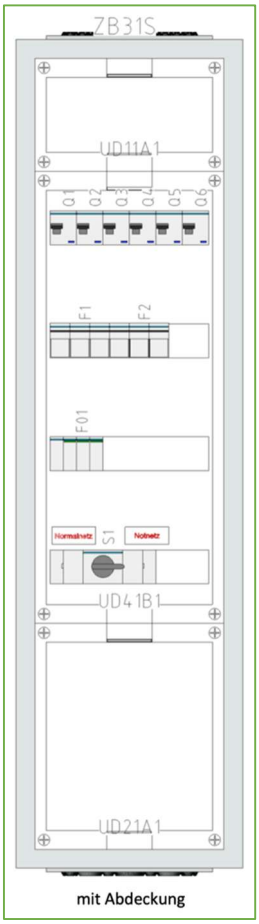


mit Abdeckung

Electrical distribution completely pre-wired and mounted in the PoP unit. An emergency power supply including manual switching (normal mains – 0 – emergency power) via a 5-pin 63 A CEE socket is installed

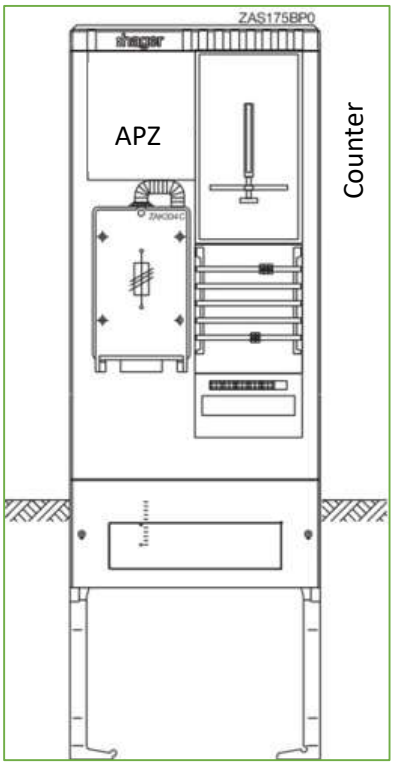
below the wall cabinet.

Wall cabinet with dimensions (w/h): 300 x 1100 mm, depth of 205 mm, protection class IP 44 with standard closure and the following equipment:

Meter cabinet 1100 x 300 x 205 mm, protection class II, 84 space units, incl. cable entry
Surge Arrester 4 Pole 40kA Type 2 TNS System with Defect Indicator + Contact
Switch Disconnector with Fuses D02 63A AC400 V 3-pin DIN Rail
Switch Disconnector with Fuses D02 63A AC400 V 3-pin DIN Rail
Residual Current Miniature Circuit Breaker 1P+N 6kA B Characteristic 16A 30mA
Residual Current Miniature Circuit Breaker 1P+N 6kA B Characteristic 16A 30mA
Residual Current Miniature Circuit Breaker 1P+N 6kA B Characteristic 16A 30mA
Residual Current Miniature Circuit Breaker 1P+N 6kA C-Characteristic 16A 30mA
Residual Current Miniature Circuit Breaker 1P+N 6kA C-Characteristic 16A 30mA
Residual Current Miniature Circuit Breaker 1P+N 6kA C-Characteristic 16A 30mA
Diverter switch 4-pole 63A with safety disconnection and 3 switch positions I-0-II
Flat bag, clear, DIN A4, self-adhesive

Art. Item No.: GL609

2.3 Meter connection column

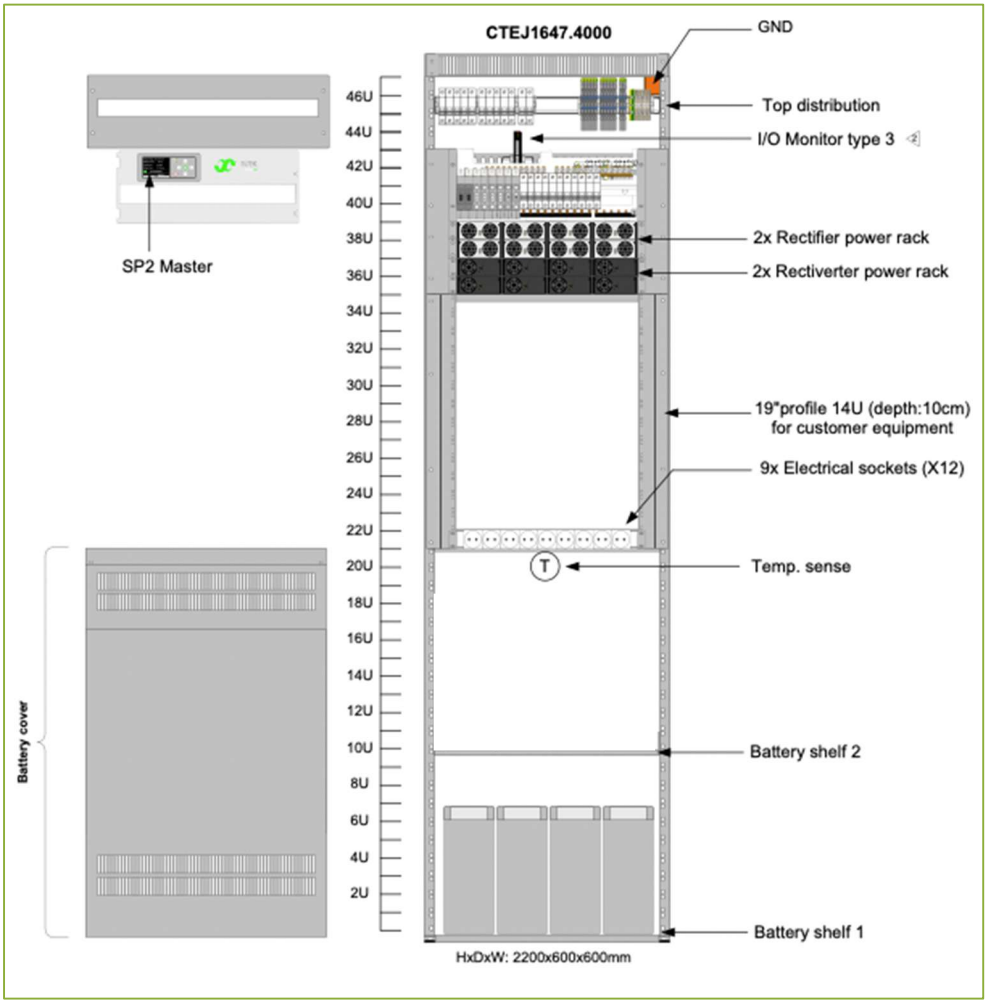


Equipped meter connection column according to DIN EN 61439, protection class IP 44, with burial base, made of glass fibre reinforced polyester FS 833.5 according to DIN EN 14598 consisting of:

1 meter slot ≤ 63 A
3-point mount for SG/TRE
4-Pole Selective Main Circuit Breaker 50 A
Empty space for retrofitting
HAK
Dimensions (w/h/d): 583 x 1710 x 277 mm

The meter connection column is equipped according to the current technical connection conditions of the respective energy supplier and covers the respective TAB requirements. Profiled housing in rib design. Door with opening angle 180 degrees for free standing and 90 degrees for lined housings. Right door can be unhooked. Closure with swivel lever and three-point receiver lock with 1 or 2 profile half cylinders. Built-in bottom cylinder with keyed alike series. A second locking cylinder (e.g. from the VNB locking system) can be installed at the top after removing the square lock. If a second profile half cylinder is not installed, the second upper opening must be equipped with a blind closure. Ventilation is provided via labyrinthine ventilation ducts and is puncture-proof due to the penetration of foreign objects. Meter connection stations are built in accordance with technical guidelines Outdoor connection cabinets/connection of stationary control and control cabinets and meter connection columns to the DSO's low-voltage network. The installation consists of insulated, DIN 43870 meter panels (functional surfaces) for meters and tariff switchgear (TSG). Meter slots or TSG slots are prepared with an IP54 cover. Depending on the design, empty spaces are provided as retrofit fields. The burial base and meter connection column form a single unit. A floor grate is recommended. To avoid condensation, the plinth must be filled with a plinth filler up to the height of the cable fastening rail.

2.4 Uninterruptible power supply (UPS system) Eltek



The UPS system is a complete cabinet unit in which the power modules, batteries, battery, input and output fuses, as well as all other components of the system are housed. It is mounted free-standing next to the active rack.

The UPS system is designed as a hybrid system with output voltages of 230V AC and 48V DC and has the

following parameters:

Modular power system up to max. 24 kW / 12 kVA
Basic equipment: 2x 3000 W Rectifier / 2x 1500 VA Rectiverter
8 Rectifier slots, 8 Rectiverter slots
UPS cabinet dimensions: (W/L/H): 0.6 x 0.6 x 2.20 m
Input voltage: 3-phase 400 V AC
Output voltages: 48 V DC and 230 V AC
Standby time: 70 minutes (at 3000 W and 1500 VA load)
Deep discharge protection of the batteries
Batteries: 4 x Wing ESL 180-12FTHT
Battery fuses: 2x 100 A pre-installed
N+1 redundancy (at 3000 W and 1500 VA load)

The entire system is installed and pre-wired in the factory. Battery cables must be connected to the UPS system on site for possible damage during transport.

2.5 Power Distribution Unit (PDU)

Active Rack 1 (EQF 801):

2 x double sockets fused via the UPS (A-supply) 230 V AC
2 x double sockets fused via the UPS (B-supply) 230 V AC
4 x 20 A (A-supply) 48 V DC
4 x 20 A (B supply) 48 V DC

Active Rack 2 (EQF 802):

2 x double sockets fused via the UPS (A-supply) 230 V AC
2 x 32 A (A-supply) 48 V DC
2 x 32 A (B supply) 48 V DC

Active Rack 3 (EQF 803):

2 x double sockets fused via the UPS (A-supply) 230 V AC
2 x 32 A (A-supply) 48 V DC
2 x 32 A (B supply) 48 V DC

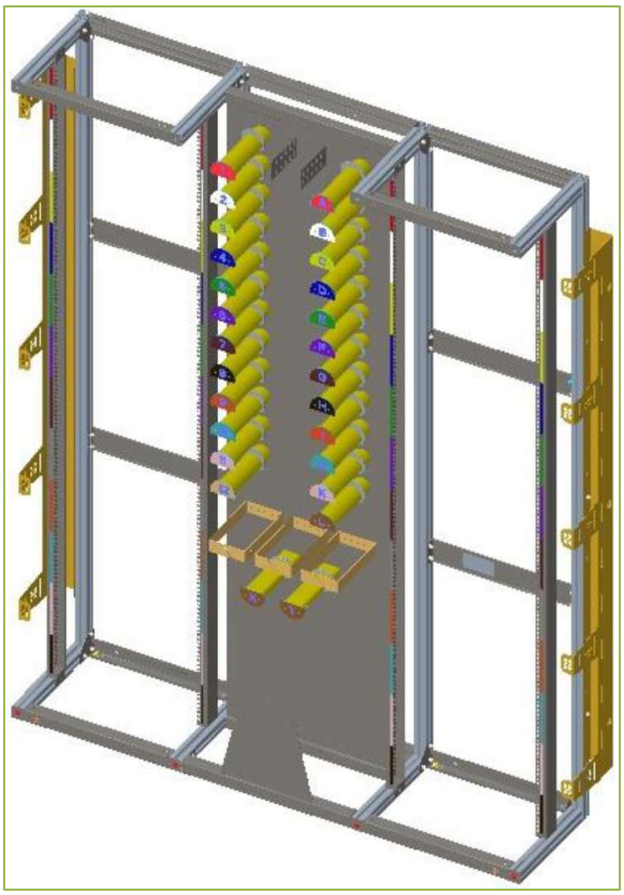
Active Rack 4 (EQF 804):

2 x double sockets fused via the UPS (A-supply) 230 V AC
3 x 20 A (A supply) 48 V DC
3 x 20 A (B supply) 48 V DC

Active Rack 5 (EQF 805):

2 x double sockets fused via the UPS (A-supply) 230 V AC
2 x double sockets fused via the UPS (B-supply) 230 V AC
4 x 20 A (A-supply) 48 V DC
2 x 10 A (A supply) 48 V DC
4 x 20 A (B supply) 48 V DC
2 x 10 A (B supply) 48 V DC

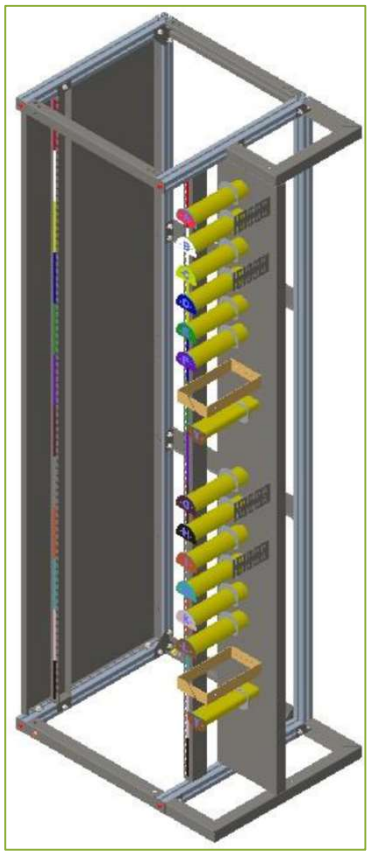
2.6 Expansion Passive | according to the construction plan



For the installation of the splice/patch modules, two rack combinations of ODF/PMF/ODF are installed.

Dimensions (w/h/d): 1800 x 2200 x 400 mm
Patch cord management (PMF) between the racks
Use of multi-fiber cables (breakout cables) possible
Uniform patch cord length (4.5 meters)
Easy handling thanks to colour coding on HE and castors
47 U (19")

2.7 Expansion Active | according to the construction plan



For the installation of the active equipment, five rack combinations of EQF/PMF are installed.

Dimensions (w/h/d): 1600 x 2200 x 600 mm
Patch cord management (PMF) between the racks
Easy handling thanks to colour coding on HE and castors
Use of multi-fiber cables (breakout cables) possible
47 U (21" ETSI) incl. adaptor rails to 19"

2.8 Expansion Plan Passive & Active | according to the construction plan

2.9 Patch cable routing system removal | according to the construction plan

The PoP unit is equipped with a patch cable management system. This ensures that the patch cables can be routed separately from the power lines. Above the active racks, corresponding outlets with arches or funnels are installed for standard-compliant installation.

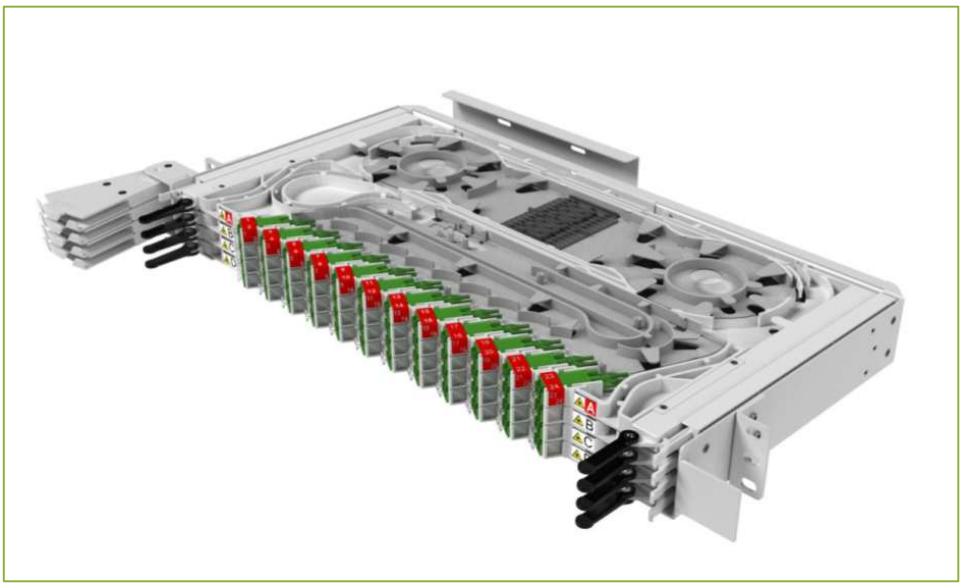
2.10 Apollo access and control system

The entire facility is monitored by an access and control system. In addition to monitoring against unauthorized intrusion and vandalism, the system also protects against fire, moisture, extreme temperatures, power outages or other possible network disruptions. This is done on site by means of a decentralised control unit ("hardware"), the so-called ASM Controller, as well as the corresponding sensors, which are installed in the PoP. The hardware can consist of the following components:

ASM controller (48 V DC or 230 V AC) 19" 1U 220mm deep
Card reader incl. vandalism protection
Motion Detectors | Smoke Detectors | Water Detector | Temperature and humidity detectors
potential-free contact UPS (UPS interference and UPS battery operation)
Potential-free contact ventilation (malfunction in general)

The scope of services only extends to the hardware and its installation in the PoP unit. The appropriate software (iprotect) and the annual costs for maintenance, updates and helpdesk are not part of our offer. We will be happy to put you in touch here.

2.11 Splice / Patch Module Standard 1 U 96 Splice Patch 19" LC/APC V1.0 LH



This 1U 96-way splice and patch tray (left outlet) with high fiber density features 4x 1/4 U cassettes. Each compartment is equipped with 24 LC/APC pigtails adapters. This compartment can accommodate up to 4 splice patch cassettes with a total capacity of 96 LC/APC fibers. Two-tone "Easy Strip" pigtails are stripped, stored and installed in the compartments. The ring mark is used for positions 13-24.

Four patch trays are installed in a 1U steel housing. The compartments slide independently into side rails, a locking stop at 40mm is used for patch management. Outstanding patch cords are managed using individual detachable cable management brackets to carry up to 24 patch cords per tray.

Advantages at a glance

Incoming fiber optic cable from the back
OEM logo and color coding for each adapter
Possibility of left and right outputs for patch cords
Supplied fully loaded with adapters and stripped pigtail, supplied under only one item number
The compartments are suitable for the use of tubes with 12 or 24 fibers
Universal splice and patch drawers 96x 1U for 2x 48 or 1x 96x fiber optic cable or 2x 96x 1U drawer for 192x cable
Optionally available: End cover and 2 HU 19" brackets for 192-pin cable

2.12 Graffiti protection

An anti-graffiti protective coating will be applied to the outer walls over the entire area.

2.13 Floor coating

The concrete floor is sealed with a 2K floor coating.

2.14 Additional HSI 150 single sealing pack incl. blind lid

Delivery and installation

2.15 Additional bushing of the HSI 150 bolt on afterwards

An additional penetration is made by means of a core hole and provided with a suitable sealing insert.

2.16 Delivery of annular seal incl. adapter ring and blind plug

Deliver annular seal incl. adapter ring and blind plug

2.17 HRD150 incl. blind plug of your choice included in station

2.18 HRD150 15x14 incl. blind plug included in station

2.19 HRD150 21x14 incl. blanking plug included in station

2.20 HRD150 14x16 incl. blanking plug enclosed in station

2.21 HRD150 12x20 incl. blind plug included in station

2.22 HRD150 4x50 incl. blind plug included in station

2.23 Green roof

Extensive green roofs using Sedum Plants supply and lay in the factory.

6-8 different Sedum plants
Natural thermal insulation in winter
Natural sun protection in summer
The underside of the sedum cassettes provides rainwater drainage
To protect the concrete roof, a root protection film is laid out, on which the Sedum cassettes are laid out over the entire area

Note: Please note that the maintenance and watering of the green roof becomes the responsibility of the customer from the time of PoP delivery.

2.24 Fire extinguisher

Supply and install 5 kg CO-2 fire extinguisher incl. wall bracket in the following specification:

Portable fire extinguisher with pressure lever valve as carrying and operating fitting
Valve body made of brass incl. Safety rupture disc device
Dimensionally stable hose with fabric reinforcement and snow nozzle with handle
High-quality steel container with outer coating in red RAL 3000

2.25 Cordless manual emergency light

Supply and install a cordless handheld emergency light with 3 watt power LED

2.26 HRD insert with 24 14/10mm HDPE tubes

The HRD inserts with 24x 14/10mm HDPE tubes are included loose in the PoP

2.27 HRD150 incl. blind plug of your choice

The HRD150 incl. blind plug of your choice loosely included in the PoP

Kernbohrung/Futterrohr Ø 150 mm				
	24	2x 12/10	10	HRD150 24x10 b60 A2/EPDM55*
	15	3x 5/14	14	HRD150 15x14 b60 A2/EPDM55*
	21	3x 7/14	14	HRD150 21x14 b60 A2/EPDM55*
	14	2x 7/16	16	HRD150 14x16 b60 A2/EPDM55*
	12	3x 4/20	20	HRD150 12x20 b60 A2/EPDM55*
	4	4x 1/50	50	HRD150 4x50 b60 A2/EPDM55*

2.28 Earthing and lightning protection system

The lightning protection system is installed in accordance with DIN EN 62305-3 lightning protection class III
Arresting device on the roof with drainage on the wall and on the rainwater downpipe with connection to the earthing rod
Any civil engineering work to be done on site

2.29 Ventilation grille for on-site air conditioning

In the PoP, two ventilation grilles for hot and cold air are prepared for an on-site air conditioning system

2.30 Delivery and installation of key safe Kruse light

2.31 Delivery and installation of Kruse key depot K3

3 On-site service

3.1 Transport service management

Transport of the PoP unit from the factory to *the installation* site.

3.2 Crane service 130 t mobile crane

The crane service includes the following points:

Lifting and relocating the PoP unit with a 130 t mobile crane into the excavation pit prepared on site
Calculated radius is max. 9 m for the furthest distance (centre of the crane <-> centre of the excavation pit or centre of the truck <-> centre of the excavation pit)
Installation is carried out according to the customer's site plan and staking out (must be provided by the customer at least 8 weeks before delivery)

3.3 Civil engineering without gravel| Grounding for PoP Unit

Excavating the excavation pit incl. creating a fine grade
Dispose of excavated earth (soil class 3), as well as backfill the working area after assembly
Excavation depth up to 0.8 m from OK site incl. working area 0.5 m
Grounding is carried out by means of a depth earthing rod (max. 10 running metres) and connected to one of the outer earthing fixed points
Grounding measurement and protocol according to VDE
Professional sealing of the lifting and transport anchors

The exact excavation depth must be adapted to the conditions and coordinated with the construction management. Foundation work is not part of our offer.

3.4 Civil engineering with ballast| Grounding for POP Unit

Excavating the excavation pit incl. creating a fine grade
Gravel base course
Dispose of excavated earth (soil class 3), as well as backfill the working area after assembly
Excavation depth up to 0.8 m from OK site incl. working area 0.5 m
Grounding is carried out by means of a depth earthing rod (max. 10 running metres) and connected to one of the outer earthing fixed points
Grounding measurement and protocol according to VDE
Professional sealing of the lifting and transport anchors

The exact excavation depth must be adapted to the conditions and coordinated with the construction management. Foundation work is not part of our offer.

3.5 L600 Signage on site

For traffic safety, no-stopping zones with corresponding street signs will be set up

3.6 Electrical commissioning of the PoP unit

On-site commissioning includes the following services:

Coordination with the local supplier
Application preparation for electricity meters
Installation of electricity meters
El. Measurements according to BGV A3
Testing and commissioning of UPS
Testing and commissioning of the free cooling system

3.7 Earthing and lightning protection system

The lightning protection system is installed in accordance with DIN EN 62305-3 lightning protection class III
Arresting device on the roof with drainage on the wall and on the rainwater downpipe with connection to the earthing rod
Any civil engineering work to be done on site