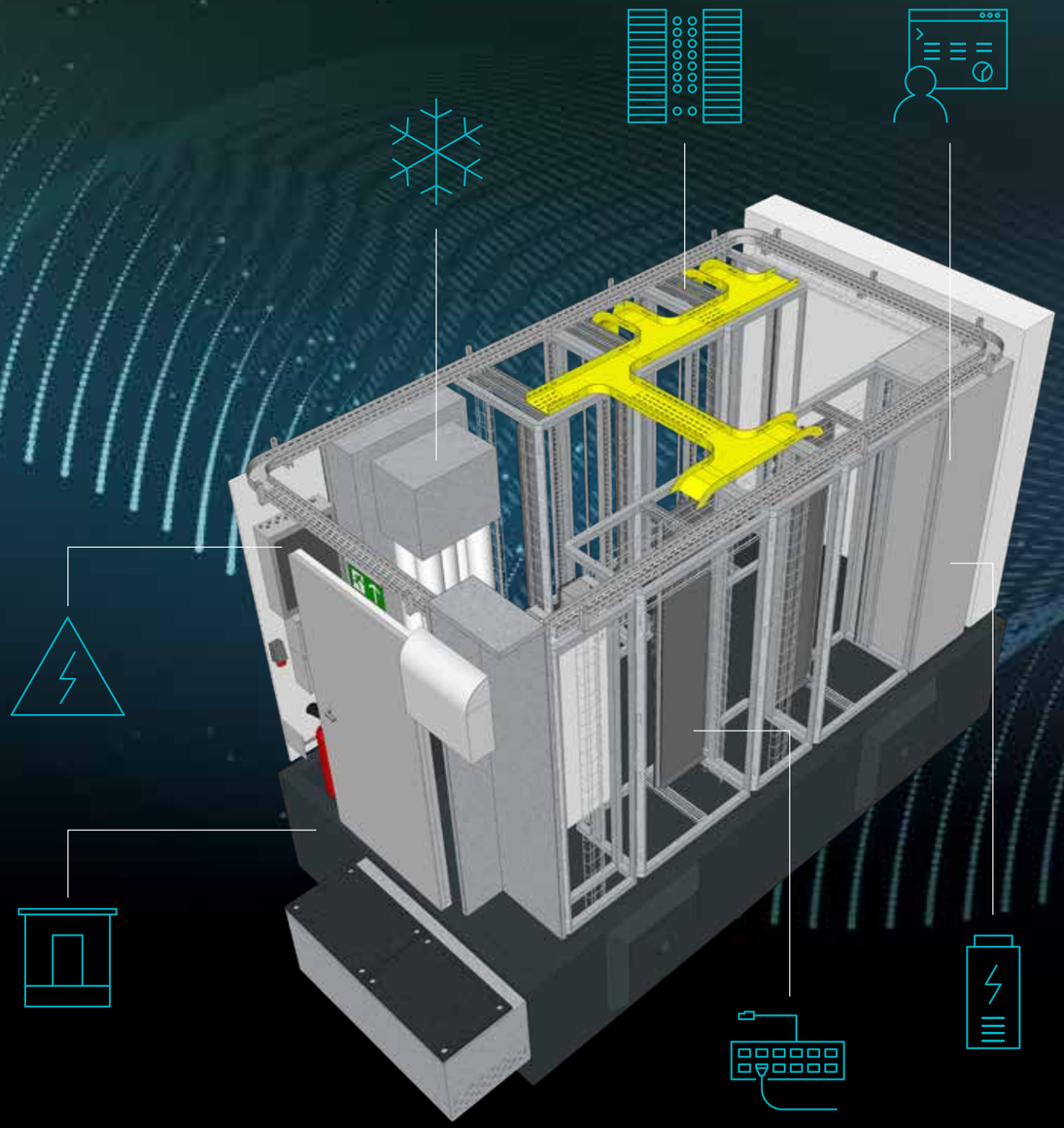
General specification

Introduction

This document describes the general characteristics to which the Microfocus Point of Presence 11,5 m² conforms. The Point of Presence 11,5 m² – is applied as a distribution and management station for fiber optic networks. This station is assembled as prefab.

Construction Components

The PoP is characterized by its modular structure, consisting of seven different construction components. All construction components can be assembled according to the customer's wishes to form a complete solution.



Content

Housing

The Point of Presence consists of mono block structures made of reinforced concrete. The concrete housing consists of elements that form a single whole:

- The tube containing the foundation plate and the walls is manufactured as a single piece, making it form-retaining and watertight. The tube comprises a number of lead-throughs for the entry and exit of cables and conduits.
- The intermediate floor separates the cellar compartment from the functional space. This is fitted as standard with a closable manhole.
- The roof is made of reinforced concrete with drainage of 2% to both sides. This roof is treated with an impregnation product and a top layer to guarantee a watertight shield.

Every element also contains a ground connection so that the concrete housing can be perfectly grounded.

Specifications of the prefab space	Dimensions (in mm, l x w x h)
External dimensions (including roof)	4840 x 2640 x 3680
External dimensions above ground	4640 x 2440 x 2720
Internal dimensions	4500 x 2300 x 2500
Height cellar	800
Height functional space	2500
Total weight when empty	19,527 kilos
Permissible loads on the floor slab	750 kg/m²
Permissible loads on roof element	500 kg/m²

Base plate suitable for pile foundation

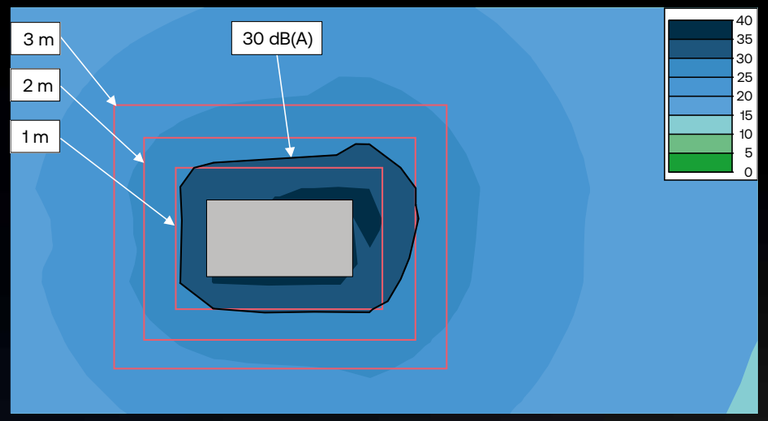


Figure: Noise contours around PoP 11.5 for a transmission level in the PoP of 85 dB(A) and a ventilation regime of 50%.

Acoustic

To enable placement in urban environments and meet the night-time requirement of 30 dB(A), this PoP has been completely modified to a compliant maximum noise output.

In the measurements, performed by an independent institute, the PoPs were tested against this requirement at 1 meter and at 3 meters distance from the enclosure of the PoP.

Measurements were made with a transmission level in the PoP of 80 dB(A) (practical scenario), and at 85 dB(A) (theoretical maximum scenario). The requirement of 30 dB(A) at the front of the PoP and a transmission level of 80 dB(A) is met at 1,5 m at the inlet side of the PoP. At the rear and sides of the PoP, the distance is <1 meter from the noise contour of 30 dB(A).

Insulation

For heat development and sound absorption, the PoP is equipped with the following insulation (100 mm):

- Full roof insulation
- Insulated pre-wall on rear wall with a cavity of 200 mm
- Insulation of the air ducts

Fire standards

The Point of Presence has the following fire rating:

- The concrete structure has an RF rating of 30 minutes
- The roof has a T1 value against fire penetration and spread

Internal and external finishing

Exterior and interior surfaces are finished as follows:

- Walls and ceiling: anti-condensation paint white-washable
- Roof edge: top coat of paint RAL 7035
- Roof surface: impregnation + waterproof final coat white
- Cab exterior surface: RAL 7035
- Intermediate floor: dark gray coating - non-conductive
- Inner surface of cable cellar: washable inner coating

Cut-outs and provisions

In cellar walls:

- lead-through “electricity cable (utility)” – useful lead-through diameter 90 mm, with a watertight finish and a drawn PVC bend. The electrical connection must be shrunk in the field with a shrink sleeve.
- 2x 2 lead-throughs “fiber-glass ring” 90 mm on the long side; the outer diameter of the input tubes is 14 mm – watertight finish with a HRD 6x14 mm closure of the lead-throughs for the tubes in relation to the cellar wall. 12 tubes (14 mm) are fed in on both sides. The tubes are sealed on the inside with a black end-cap. The tubes are sealed on the outside with a Microfocus end-stop.
- 2 HSI150 entries, for fiber optic tubes. The entries are completed with a HRD150 24x14 mm. The tubes are sealed on the inside with a black end-cap. The tubes are sealed on the outside with a Microfocus end-stop.

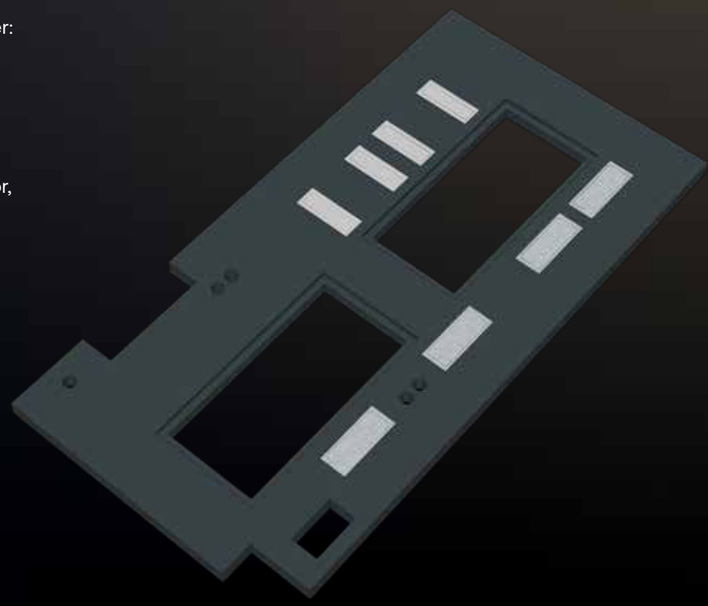
Ring entry with 2 HRDS90 6 x 14 mm

In the walls:

- 1 cylindrical cable lead-through, diameter: 160 mm with lockable strike plate for cable passage
- 2 recessed grilles for outflow and inflow
  - Front 300 x 450 mm
  - Rear 200 x 750 mm
- 1 aluminium non-thermally insulated door, free passage 920 x 2045 mm
  - Noise-reducing – 42 dB
  - Finishing: RAL 7035
  - Dorma TS83 door closer
  - Anti-panic bar
  - 3 hinges fitted with electric Abloy lock (BKS cylinder SKG***)
  - The door is not self-closing

In the intermediate floor:

- 2 manholes with lids (manhole dimensions: L x W: 700 x 1400 mm)
- 8 lead-throughs for possible future ground cooling – these are closed with a blanking plate
  - Right: 4 lead-throughs 440 x 160 mm
  - Left: 4 lead-throughs 100 x 400 mm
- 2 rectangular lead-throughs, for cooling unit
  - Right (short side) of the door 465 x 250 mm
  - Left (long side) of the door 800 x 250 mm
- 4 cylindrical lead-throughs diameter 90 mm + transit under HDSS, for fiber optic cables
- 1 cylindrical lead-through diameter 90 mm, for electricity connection



Floor entries

ODF-rack configuration

The internal space is suitable for the installation of the following configuration:

- 4 Racks 19", 47 HE and 600 mm depth
  - 1 rack UPS NON-Telco rack 401
  - 3 racks 202 + 101 + 201 (+ Patch Management Frame)
- 1 Racks 19", 47 HE and 800 mm depth
  - 2 racks 103 (+ Patch Management Frame)
- 2 ETSI racks, 47 HE and 800 mm depth
  - 2 rack 301 + 302
- 1 Rack 200 mm depth – splice bay
- 1 rack 501

Gutters have been placed over the cabinets to connect the fiber optic cables between the cabinets to each other.

The labelling on the HEs is according to the cage nut principle (3 holes per HE)

Standard rack configuaration

Stainless steel input with 2x25 mm entries

Input bin fiber optic cables

The input bin is fitted with standard entries (swivels 2 x 25 mm) for lead-throughs for tubes on the ends. The lids of the stainless steel bin are fitted with rubber patio tiles. The lids are closed using a switch connected to the monitoring system (red UTP cable).

Input bin specifications (dimensions in mm, length x width x height.):

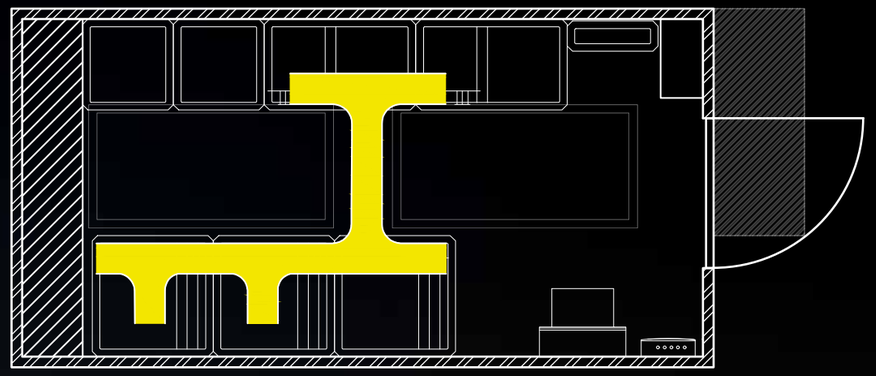
- External dimensions: 1500 x 600 x 600
- Internal dimensions: 1494 x 594 x 580

The top of the stainless steel input bin is between 12 and 15 cm below the sill of the door. A number of holes are drilled in the bottom of the stainless steel input bin to enable water to drain away.

The top of the rubber tile is the reference point for the ground level (0-pass).

Cable troughs

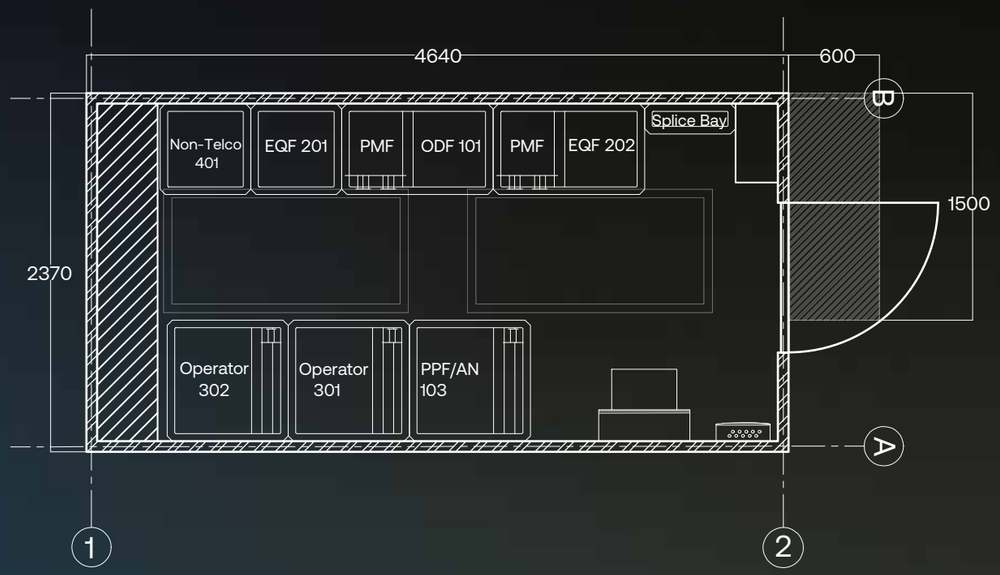
Various wire troughs (150 mm) are installed for tying up the cables according to the following configuration:



Layout cable troughs

Rack configuration

The racks (electrolytically galvanised) are delivered prefabricated according to the following rack layout:



Rack layout - 11,5 m² PoP

Power system

In its entirety according to the specifications and adapted to the equipment configured in the PoP room in accordance with the AREI. The PoP is also equipped with 2 LED lights 600x600 mm for optimal visibility and 1 emergency light.

The following components are supplied and installed in the system, depending on the mains power supplied by the network operator:

- Meter cupboard and distribution board with all of its circuit breakers, including
- Inverter 63A 3P+N (Net-0-Emergency)
- Network monitor including 3-phase circuit-breaker C6 A 3x 230V
- Overvoltage protection
- Circuit breakers as on diagram
- Junction box for emergency generator connection – 63A 3x 230V compliant (blue socket)
- 3 completely separate splash-proof wall sockets
- 1 splash-proof light switch or, where necessary, a detector, including 2 LED lights 600 x 600, 3640 lm
- Emergency exit sign and lighting; emergency lighting switches on in case of a mains power failure
- Power sockets with PEN grounding
- In the Operator racks, a 19" Power Distribution Box (PDU) is fitted at the top of the rack with:
- 2 Power sockets 230V (powered from the HVK) (mounted on top of cable trough)
  - 2x Power sockets 230V (powered from the UPS) (mounted on top of cable trough)
  - 2 63A circuit breakers with connection terminals (A) for 48VDC
  - 2 63A circuit breakers with connection terminals (B) for 48VDC
- Separate cable ducts for:
  - Electrical power cables and monitoring
  - Gutters for fiber optic PoP ring
  - Yellow gutters for fiber optic between the different racks

PDU's

The PoP is fitted with PDUs. These are mounted in the top of racks 301 and 302.

Each PDU is equipped with 4 circuit breakers with 4x 63A or 32A fuses and 4 terminal blocks for 48V connection.

PDU numbering UPS and meter cupboard in Rack 301:

- F1 48V connection PDU rack 301 (1x 16 mm² red/ 1x 16 mm² black) Power supply UPS
- F2 48V connection PDU rack 301 (1x 16 mm² red/ 1x 16 mm² black) Power supply UPS
- 2x Power sockets F24 230V PDU rack 301 on cable trough (3x 2,5 mm²) Power supply UPS
- 2x Power sockets H 230V PDU rack 301 on cable trough (3x 2,5 mm²) Mains supply

PDU numbering UPS and meter cupboard in Rack 302:

- F3 48V connection PDU rack 302 (1x 16 mm² red/ 1x 16 mm² black) Power supply UPS
- F4 48V connection PDU rack 302 (1x 16 mm² rood/ 1x 16 mm² black) Power supply UPS
- 2x Power sockets F23 230V PDU rack 302 on cable trough (3x 2,5 mm²) Power supply UPS
- 2x Power sockets G 230V PDU rack 302 on cable trough (3x 2,5 mm²) Mains supply

Cooling

The cooling is fitted with:

- Electrolytically galvanised fan housing, not painted
- Sound insulation
- EC fan with external rotor motor
- 5 pipe clamps adjustable Ø180 mm.
- 5 F6-180-1500 filter bags
- 1 outside temperature sensor
- T-outside of +5 or -5 degrees Celsius

A DeltaMaster 8 230V + DeltaManager (or equivalent) is placed in the PoP. The DeltaMaster is positioned flush with the fans on the recesses in the air duct. The DeltaMaster is powered from the UPS with 48V or 230V. The cooling has an alarm contact and an SNMP module that can be connected to the monitoring system.

A Deltamaster 8 or Equivalent is placed

Monitoring

The monitoring system is built into the 19" frame - NON-Telco cabinet. The frame is fitted with a 9-way PDU with pin grounding. There is a hole in the back left of the frame (Ø70 mm) for the monitoring distribution cable to the patch drawer. The distribution cable is attached to eyelets on the inside of the frame and to a wire trough on the outside of the frame.

Access control card reader

The following sensors will be installed:

- LC-Switch stainless steel bin Access control stainless steel Hand Hole (UTP cable red)
- Electric lock AssaAbloy / Door sensor (UTP cable green)
- Access control card reader (UTP cable green)
- Water sensor (UTP cable blue)
- OSB Sensor Group Cabinet (UTP cable dark-blue)
- Smoke / Fire sensor (UTP cable red)
- Siren (UTP cable purple)
- Temperature sensor (UTP cable yellow)
- 2 DeltaMaster sensors (UTP cable blue)
- PIR Motion sensor (UTP cable red)
- UPS (UTP cable blue)

The monitoring system is build in the NON-telco rack

UPS

In the Point of Presence, the UPS is delivered as standard with four batteries. This can be expanded to twelve batteries. The UPS complies with the delivery of 9kW 48VDC, 3kVA 230VAC, 10kW for 2 hours of autonomy.

UPS system

The UPS is available in the following configuration:

- 3x 3000W rectifier
- 2x 1500VA 230VAC
- 4x 100A battery fuse
- 2A and 2B 80A DC breakers
- 3A and 3B 63A DC breakers
- 6A and 6B 16A AC breakers
- 4x Wing ESL 180-12 FTHT
- I/O monitor
- Temp sensor
- Web/SNMP

The UPS is connected to the power cable (5x 6 mm^2) from the distribution board. The following installations are connected after the UPS.

- DeltaMaster – 48V (3x 2,5 mm^2) or equivalent – 230V (3x 2,5 mm^2)
- F1 48V connection PDU rack 301 (1x 16 mm^2 red/ 1x 16 mm^2 black)
- F2 48V connection PDU rack 301 (1x 16 mm^2 red/ 1x 16 mm^2 black)
- F3 48V connection PDU rack 302 (1x 16 mm^2 red/ 1x 16 mm^2 black)
- F4 48V connection PDU rack 302 (1x 16 mm^2 red/ 1x 16 mm^2 black)
- Power socket F21 230V on cable trough rack 202 (3x 2,5 mm^2)
- Power socket F22 230V on cable trough rack 201 (3x 2,5 mm^2)
- Power socket F23 230V on cable trough rack 302 (3x 2,5 mm^2)
- Power socket F24 230V on cable trough rack 301 (3x 2,5 mm^2)
- Power socket F25 230V on cable trough rack 103 (3x 2,5 mm^2)
- Power socket F26 230V 9-way socket (3x 2,5 mm^2)
- F27 230V Ventilation (3x 2,5 mm^2)

Fiber configuration

The Microfocus PoPs are fitted with ODF panels and welding cartridges that are pre-installed and fully labelled. All the street cables will be assembled at one central point in the HDSS frame. On the other side, the cables coming from the ODFs will be ready in the splice trays.

The fiber optic package includes:

- 20x Drawer ODF 96V type LC/APC 8°, patch cord output left + corresponding welding cartridges in HDSS frame
- 20x Drawer ODF 96V type LC/APC 8°, patch cord output right + corresponding welding cartridges in HDSS frame
- 4x drawer OPP including cable assemblies, including cleaning and mounting the connectors in the chassis – from 101 to 103.
  - Cupboard 103: Of which 2 outputs left 96V type LC/APC 8°
  - Cupboard 101: Of which 1 output right 96V type LC/APC 8° + 1 output left 96V type LC/APC 8°
- 2 backbone drawers 96V type left LC/APC 8° (Splice/Patch)
- Operator-customer splitter drawers and loose patchcords can optionally be supplied separately.
- Patch drawer for monitoring + coupling cable:
  - 1 patch drawer for monitoring in 401. 12V type LC/APC 8°
  - 1 patch drawer for monitoring in 103. 12V type LC/APC 8°

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Get in touch

Our team of experts looks forward to helping you find the right solution for your project. Feel free to get in touch to discuss your project's requirements.

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