

**R&Mfoxs**  
Building Entry Point  
Venus FLA2 SCM

Tender Text

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## 1. General conditions

- The optical house connection boxes are to be designed to serve as distribution systems and connection points for fiber optic connections in one- and multi-family houses as well as in office buildings.
- The box should be designed on the basis of a modular fiber management system which combines high fiber density with ease of use, fiber safety, and simplified maintenance.
- Features of the box should be UV resistance, long-term stability and suitability for outdoor use.
- Termination capacity should be achieved with a tray system facilitating not less than 24 fibers per single element (SE) tray, 6 fibers per single circuit (SC) tray or max. 2:32 splitting ratio per splitter tray.
- Splice and fiber management are guided through the fiber management unit of the splice tray. The tray system should also feature protection for the splices between the pigtailed and the incoming fibers.
- The tray system should have two integrated fiber conduits; one for outgoing cables and one for incoming fibers.
- A minimum bending radius of 40 mm for fibers is guaranteed within the entire tray system.
- The tray holders and trays should be suitable for several platforms, e.g. ODF, cross connection cabinets, splice closures, building entry points (BEP) etc.

## 2. Application areas of house connection boxes

These application areas are a must:

- House connection box for indoor use, protection class IP20
- House connection box for outdoor use, protection class IP54
- Cable-to-cable splicing box with up to 144 fibers
- Patchable connections up to 12 fibers and 24 with LC

## 3. Termination capacity

As to termination capacity, house connection boxes should be divided into three basic groups:

- Up to 12 subscriber trays (SC) with a capacity of at least 6 fibers and max. 12 fibers per tray
- Up to 6 cable-to-cable splicing boxes (SE) with a capacity of at least 24 fibers
- Up to 1 patch insert with a capacity of at least 12 fibers or 24 fibers LC

## Detailed specifications

### 1. Design and construction requirements

- The house connection box should be a lockable housing featuring a splicing unit and a retrofit patchable solution. The house connection box should feature bottom and top (breakout solution) cable entries allowing cable diameters of 4 x Ø 25 mm, 5 x Ø 13 mm or 8 x Ø 4 mm each side. The box should be suitable for different cable types and applications, i.e. loose tube cables, micro- and minicables and blown-in applications.
- Required protection class for the house connection boxes is IP54.
- For reasons of long-term stability and material flexibility the house connection boxes should be made of ASA.
- All components should be designed to ensure a minimum bending radius (min. 40 mm within the box) at all times.
- The house connection boxes should feature a subscriber management on the basis of the Single Circuit Management (SCM).
- All metal parts should be resistant to corrosion.

### 2. Construction of the house connection box

- The house connection box should feature an exchangeable, swing-up cover.
- Subscriber identification and design and organization of the splicing and patch part shall be transparent and clear to ensure easy and efficient installation and maintenance work on cables, cable pigtailed and patch cords.
- The box shall be suitable for loop installations.
- The box shall contain a sufficient length of not yet spliced, excess loose tubes.
- Leading the outgoing subscriber cables away has to be easy.
- The trays shall be fitted tool-free (snap-in) to the SCM holders so that they're securely fastened in their position.
- The labeling (subscriber identification) shall feature color coding, numbering and individual labeling which can be exchanged in case of later changes.
- The trays shall be dimensioned for fusion or mechanical splices or for one splitter of a 2:32 splitting ratio.
- The tray shall be able to accommodate a maximum of 24 individual fiber splices (fusion or mechanical) or min. one splitter. The minimum bending radius of a fiber should never be less than 40 mm.
- The design of the tray should allow the storing of excess fibers (minimum 1.5 meters) for re-splicing.
- The tray should also ensure that there is minimal increase in optical loss. The tray design should allow repeated cable entry and the re-arranging of fibers without any risk of fiber damage (this shall be described in detail in the installation instructions).
- The fused fiber optic splices should be mechanically protected with heat-shrink protections of max. 60 mm in length.
- The boxes should be mounted at fastening points on the outside.
- The boxes should feature locks with common locking systems.
- Maximum packing density of a splicing unit should amount to up to 144 fiber optic terminations.
- Maximum packing density of a patch solution should amount to up to 12 fiber and with LC up to 24 optic terminations.
- The patching unit shall be modular and able to accommodate several types of patch inserts with min. 12 FO adapters.
- The patching unit should be pre-numbered.

- The mounting of the patching unit shall be tool-free without screws or nuts, by snap-in or similar adequate mounting mechanism.
- Pre-assembled splitter inserts shall be easily installed in and removed from the patching unit.

Dimensions:

Height x width x depth  
369 mm x 333 mm x 150 mm

### 3. Technical requirements

Mechanical characteristics		
Characteristic	Description	Standard
Handling at operation temperature test	Assembly and termination at operation temperature: - 20°C / + 55°C	IEC 60721-3-4
Transport and storage temperature test	Opening and closing the box at transport and storage temperature: - 40°C / + 85°C	In-house test
Drop test	- Drop to wooden floor from 2 meters altitude - Drop to asphalt from 4 meters altitude	In-house test
Impact test	Impact on different parts of the box: - Impact of 6.8Nm (1.3 meter , 0.54 jg, Ø 50.8 mm)	UL 1863, No. 34
Vibration test	Vibration in x-, y-, z-axis: - 10 Hz up to 19 Hz, a=1g acceleration - 19 Hz up to 55 Hz, Y=0.75 mm amplitude - 55 Hz up to 150 Hz, a=1g acceleration	IEC 60068-2-6 VDE 0804 Bellcore TR-NWT 000975 VDE 0804

Environmental characteristics		
Characteristic	Description	Standard
Dust and water protection	IP54 (with cable entry plug) IP43 (with dropwire entry plug)	IEC 60529

Salt mist test	Temperature: + 35°C Salt concentration: 50g NaCl / liter at pH 6.5 Salt mist quantity: 1.8ml / h • 80cm <sup>2</sup> Duration: 96 hours	IEC 60068-2-11
Sulphur dioxide test	Temperature: + 22°C Gas concentration: 10ppm SO <sub>2</sub> Relative humidity: 75% Duration: 10 days	IEC 60068-2-42
Hydrogen sulphide test	Temperature: + 22°C Gas concentration: 1ppm H <sub>2</sub> S Relative humidity: 75% Duration: 4 days	IEC 60068-2-43
Dry heat	Temperature: + 85°C Duration: 14 weeks	IEC 60068-2-2
Damp heat, cyclic (12 + 12-hour cycle)	Temperature: + 25°C / + 55°C Relative humidity: 93% Duration: 14 weeks	IEC 60068-2-30