

Infrastructure Interfaces

 **External**

 **Internal**

 **Tools**

What is an interface?

The interface is the boundary where two independent systems interact. Normally something needs to be exchanged.

In order to do this efficiently an agreement is necessary which is accepted on both sides. It comprises the position of the interface, the items to be exchanged and the requirements which have to be respected on either side.

The interface document is a precise and complete list of what was agreed. It needs a date, the responsible persons on both sides and the person who takes care of the installation of the agreed interface specification.

The interface has to be approved by the collaboration. Any later changes have to be recorded and approved.

Interfaces to the external world

Border (fence, safety)

Access road

Electricity

Data lines

Responsibility of P.O.

Internet

Water

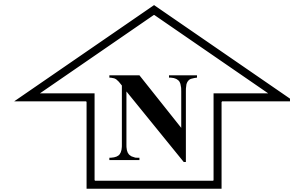
Sewerage

Waste (container(s), separation)

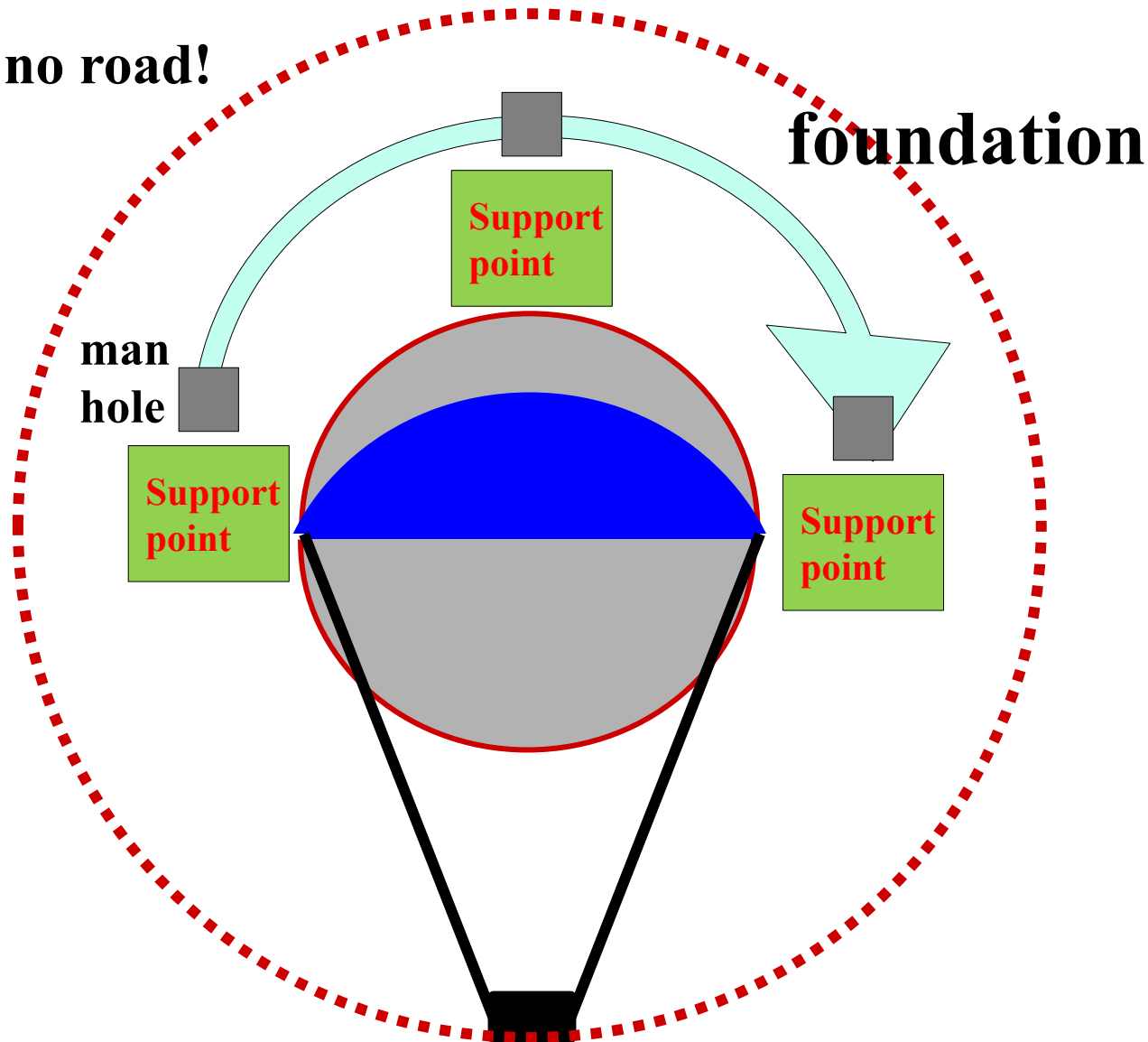
Infrastructure Interfaces

Internal

Around a telescope



Safety zone, no road!



Access to road

(road – foundation ring defined by camera)

Position of lorry delivering telescope parts

Space for cherry picker and/or crane

Foundation

mandatory

- **Position**
- **Weight**
- **Size**
Ring defined by the radius of the camera movement at zero elevation
- **Anchor points + specifications for anchors**
- **Manhole for the supply lines (position + dimensions)**
- **Position of interface box**
- **Equipment for surveying the telescope internally and with respect to the array (survey station)**

Foundation

facultative

- Camera park clams?
- Connection for a shelter?
- Foundation at 1R point (radius of mirror tiles)?
- Shadow for dual mirror telescopes?

**Supply point (box which contains all the media necessary)
sits next to manhole, not above!**



Rittal catalog

Input (3, bottom of the box)



Electricity

Power 400V, ?kVA (dirty, no UPS)

Independent power 400V (clean, stabilized by central UPS)



Data lines (fibers)

12 pairs of glass fiber

n telescope data

n monitor and status data

n spares



Data lines (copper)?



Water?



Compressed air?

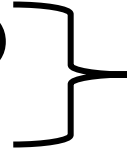
Output (5 or 6, side next to telescope)



Electricity

Clean power 400V (camera)

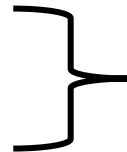
Dirty power 400V (drive)



Feed through, watertight

2x Dirty power 400V (tools)

3x Dirty power 240V (tools)



Plugs at a fixed wall

All switched next to the plug

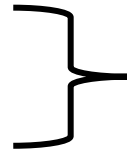


Data lines

Telescope data

Monitor and status data

n spares



Feed through, watertight

Feed through, sealed



Water?

Water tap



Compressed air?

Valve

Outside the box

- **On top of the box (4): 1 switch for the entire power**
- **On one side wall (opposite to power lines):
plug for a cable and switch for the entire power
(emergency switch to be carried elsewhere,
next to parking of camera?)**
- **Switch for the drive power only
(can only be switched locally)**

All these switches can only be reset locally

Inside the box

➤ **Power distribution + switch between sources**

➤ **Switch management**

➤ **Interlock management**

➤ **Signal management**

➤ **Wifi?**

➤ **Telephone?**

➤ **?Functionalities desired by the telescope group?**

Drive control

GPS, synchronization

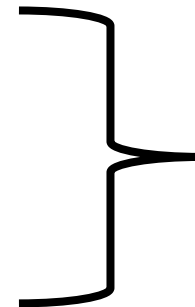
End switches

Mirror adjustment

Parking

Interlocks

Others



Network switch

PLC with own UPS?

Tools

- **Storage for arriving parts of telescopes (short term)**
- **Storage for spare parts of telescopes (long term)**
- **Fork lift**
- **Cranes + Hooks**
- **Lifting gear (Traverse)**
- **Lifting platform (cherry picker)**
- **Work shop container with basic tools**
- **Mirror attachment tools**
- **Alignment of telescope axes (reference marks, total station, level)**

Thank you for your attention