



FTTA SOLUTION

4G: THE AGE OF VERY HIGH SPEEDS

With the development of smartphones and their growing bandwidth needs, the deployment of very high-speed mobile networks is a major challenge for the 21st-century. In order to provide their clients with adequate service quality, mobile operators are having to increase both the density and power of their networks using FTTA technologies.

The coaxial cables that were originally used to connect antennas have been replaced by optical fibre solutions to ensure faster connection speeds. With its dedicated range of FTTA products, FOLAN can help you deploy your radio networks.



4G The Principle

4G is the fourth generation of mobile technology and is based on the LTE (Long Term Evolution) standard. Thanks to a new radio interface based on IP technology, it provides better data transportation and very high speeds of up to 150 Mbit/s, which is 5 times faster than 3G.

First introduced in 2011, 4G technology is used by more than 100,000 antennas in France which cover more than 90% of the population and 80% of the country.

5G: THE ULTRA-CONNECTED SOCIETY

The arrival of 5G will revolutionise our day-to-day lives. 5G will not only provide faster speeds, increase the number of connected devices and reduce latency, it will also considerably broaden the spectrum of uses and the diversity of users.

Indeed, with latency time reduced to 1 millisecond, 5G promises a responsive and much more comfortable browsing experience and uses in areas such as connected vehicles, autonomous driving, industry 4.0, telemedicine, etc. It will then become possible to use a wireless virtual reality headset of the future, which will send a 4K image, providing a fluid and pleasant experience.

THE CITY OF FUTURE WITH 5G

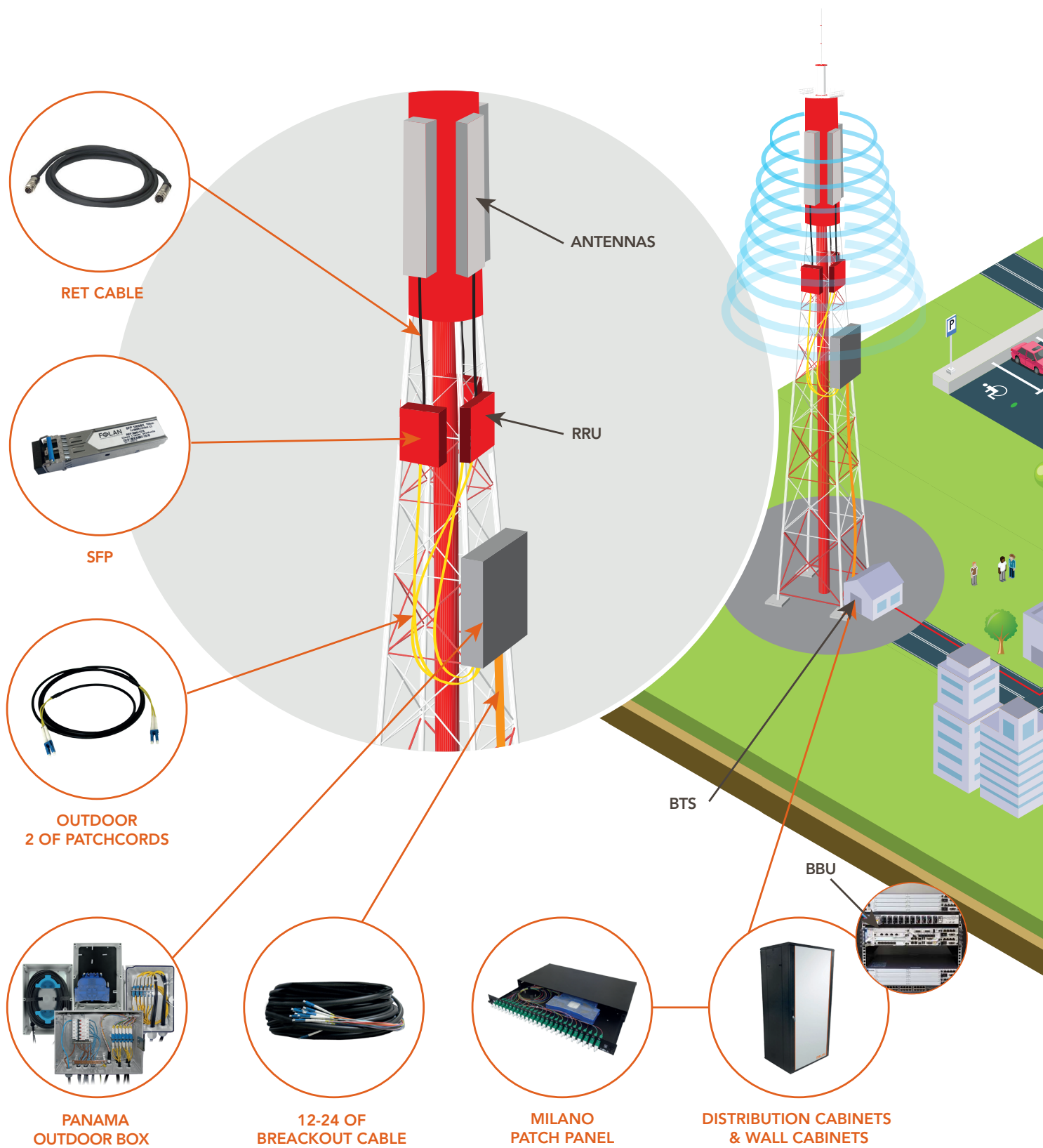


5G

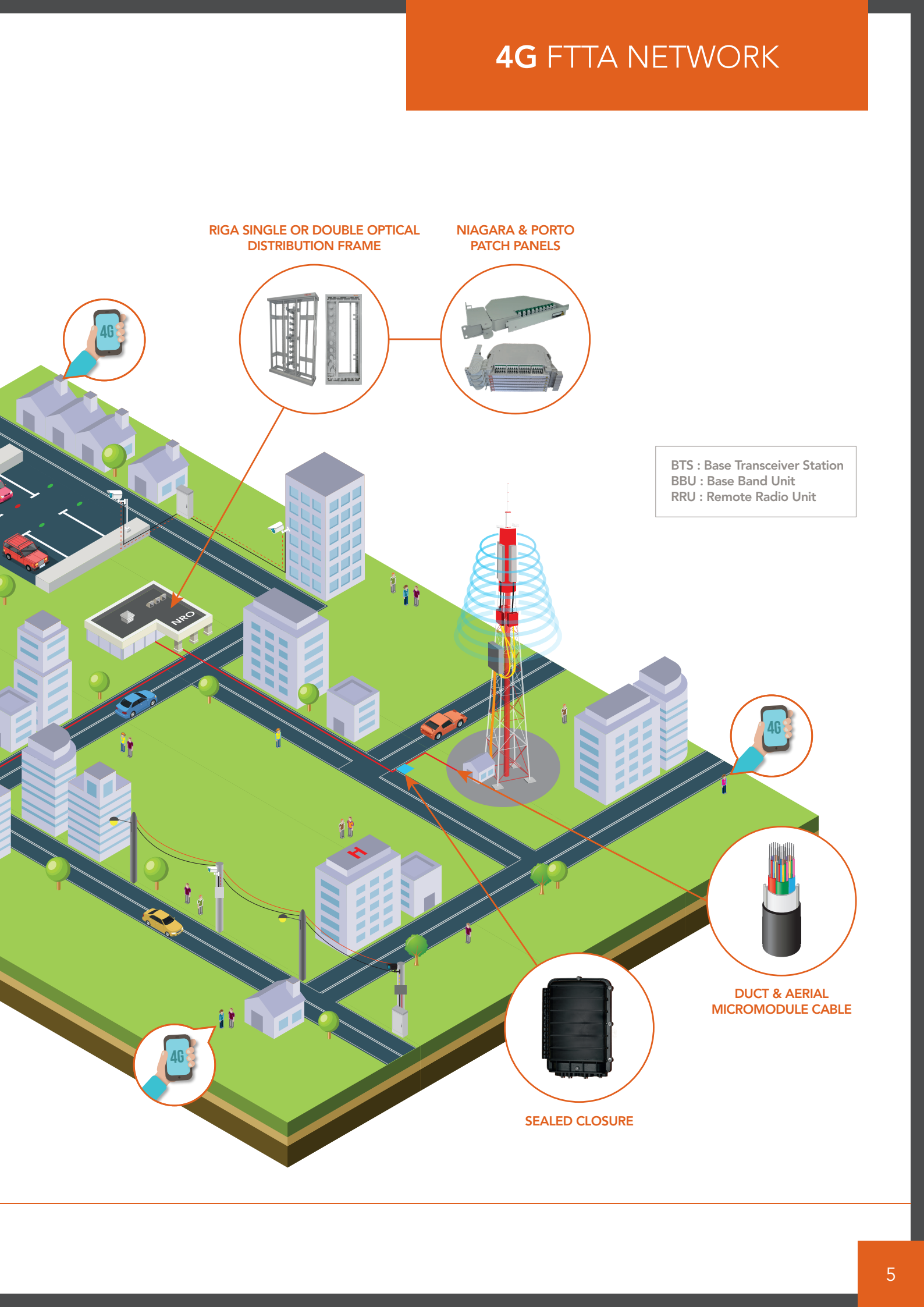
The Principle

5G technology is the fifth generation of standards for mobile phones. It will provide access to much faster speeds than 4G together with very short latency times and great reliability. It will also enable a greater number of simultaneous connections per area covered.

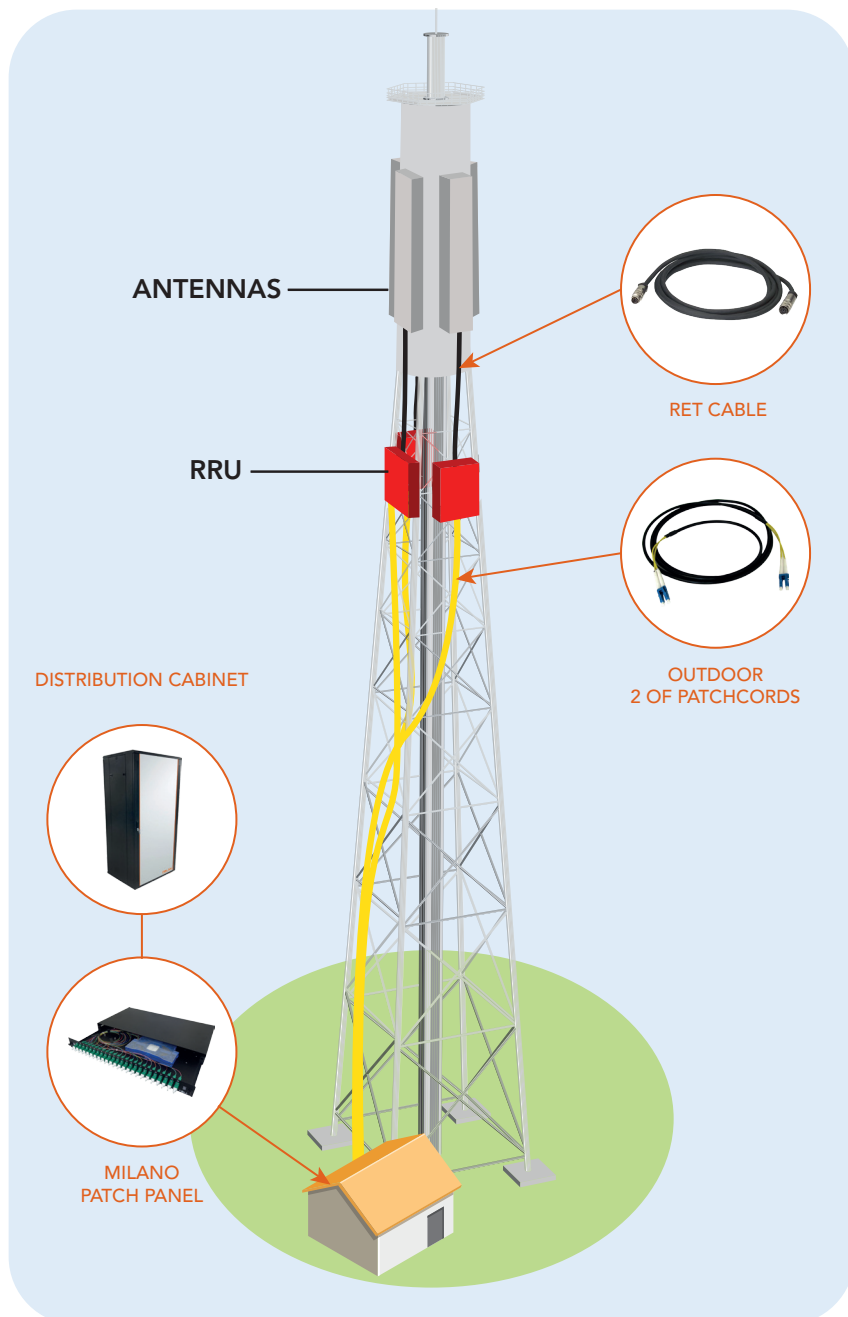
Eventually, it will be capable of connecting up to one million devices per square kilometre, which is ten times more than 4G. Once deployed, 5G could allow mobile telecommunication speeds of several gigabits of data per second, i.e. up to 1,000 times faster than the mobile networks used in 2010 and up to 100 times faster than the initial 4G.



4G FTTA NETWORK



DIRECT ARCHITECTURE



RET CABLES

RET multipair copper cables are essential for the deployment of FTTA networks. They fit between the RRU (Remote Radio Unit), which transforms the optical signal into a radio frequency, and the antenna's (Remote Electrical Tilt) module. RET cables electrically control the tilt of the signal leaving the antenna.

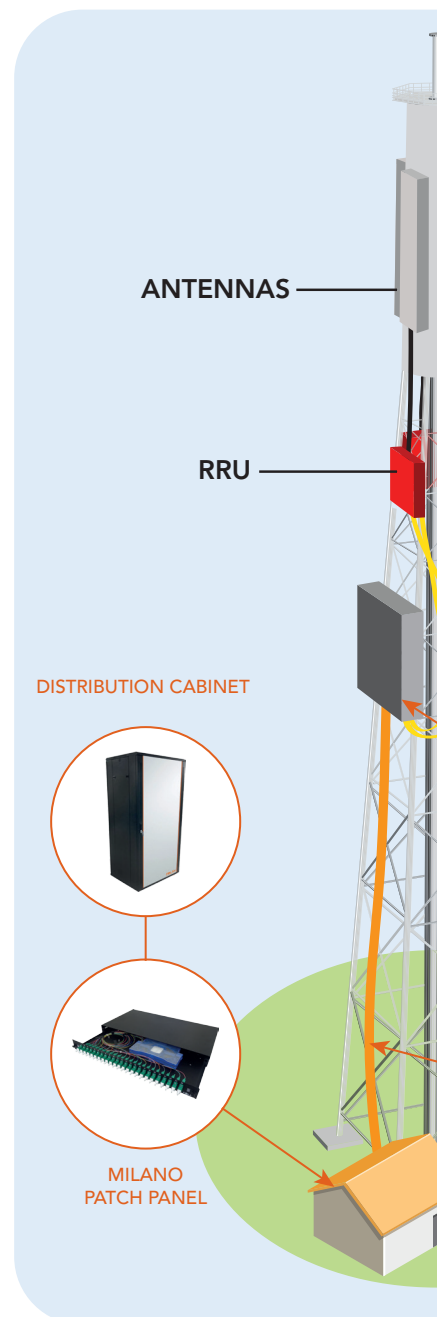
They are ideally suited to outdoor applications and can withstand wide temperature variations and significant mechanical stresses.

OUTDOOR PATCH CORDS

The 2 OF outdoor patch cords allow **optical data to be transmitted** as close as possible to the antennas before it is transformed into a radio frequency and broadcast by them.

Depending on the network architecture, it might come either from a **distribution box** fixed directly to the antenna (indirect architecture) or **technical panels** inside BTSs (Base Transceiver Stations) located at the foot of the antennas (direct architecture).

INDIRECT ARCHITECTURE



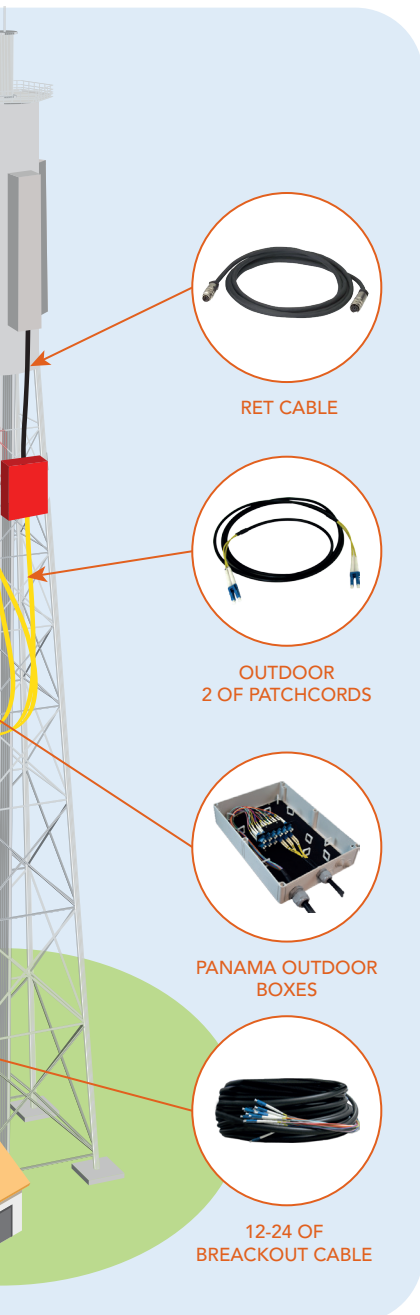
PRECONNECTORISED OUTDOOR CABLES

12-24 OF preconnectorised outdoor cables are used in indirect FTTA architectures upstream of outdoor cables. They make it possible to **connect optical panels** that are integrated in the racks and boxes of BTSs to **distributions boxes** installed as close as possible to the antennas.

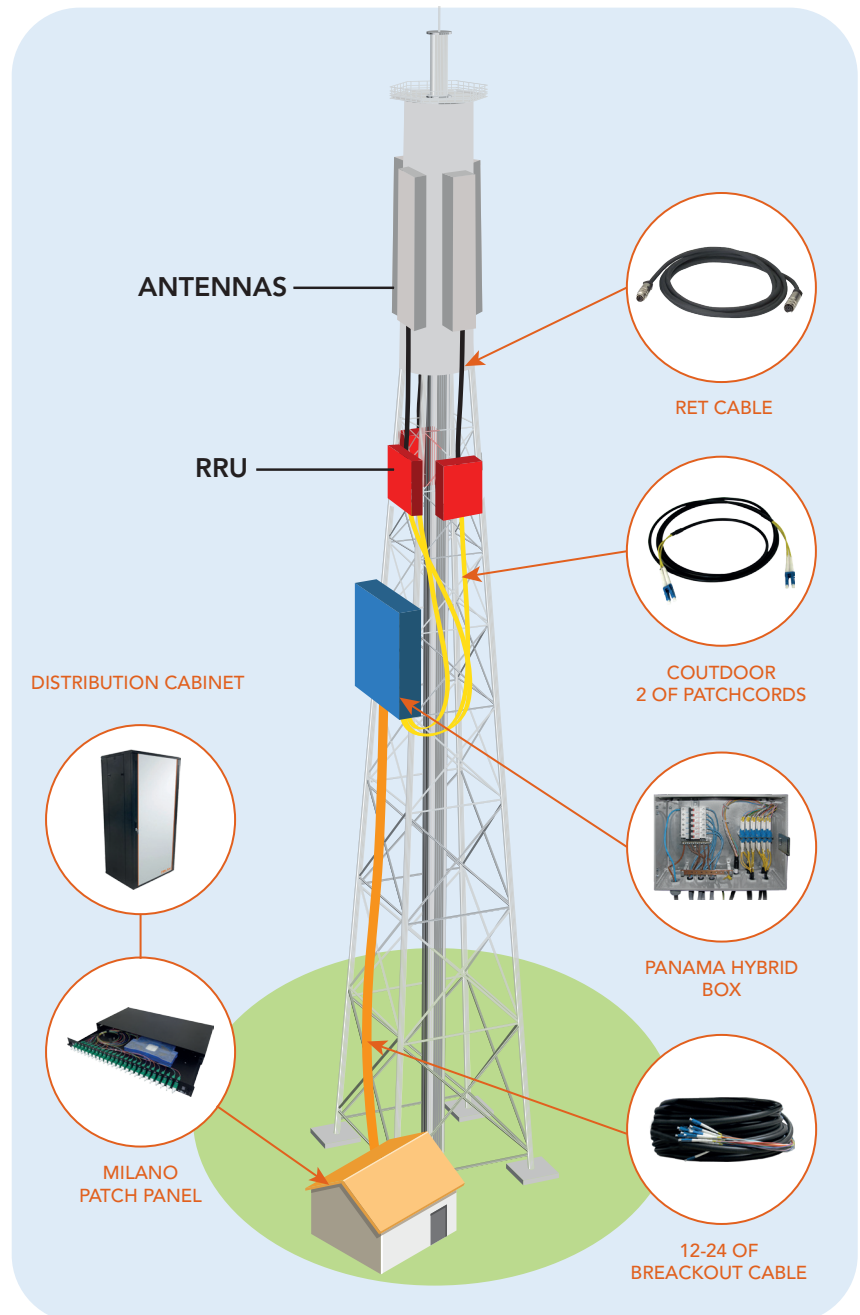
These cables, which make it possible to connect different devices **quickly**, are subjected to varying weather conditions and can withstand significant changes in temperature and significant mechanical stresses.

3 ARCHITECTURES

CHITECTURE



HYBRID ARCHITECTURE



PANAMA OUTDOOR BOXES

In the case of indirect installation, PANAMA outdoor boxes enable the **hybrid passive connection** and **coiling** of your FTTA network's outdoor cables and patch cords.

Subjected to varying weather conditions, they are perfectly suited to outdoor applications and ensure the **connection and distribution** (optical and/or power supply) of RRU's (Remote Radio Units) positioned as close as possible to the antennas.

19" RACKS AND BOXES

As part of FTTA deployment, 19" racks and boxes are integrated within **BTSs** (Base Transceiver Stations) in order to accommodate active **BBU** (Base Band Unit) equipment and the optical fibre (optical patch panels) needed for mobile networks.

FOLAN racks and boxes are available in **different widths, heights and depths** and will fit seamlessly into the machine rooms of FTTA infrastructures.

MILANO SLIDING PATCH PANEL

The MILANO 19" sliding optical patch panel has been designed to meet the needs of **direct connectorisation**, which is widely used in FTTA deployment.

Located inside **BTSs** (Base Transceiver Stations), it enables simple, fast and controlled dispatching and connects active **BBU** (Base Band Unit) equipment to the boxes (optical or hybrid) serving the antennas. It can provide up to **48 fibre connections** in a single U of space.



FTTA 5G NETWORK



PATCH CORDS & CABLES

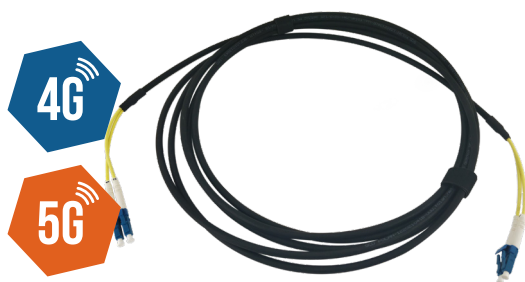


RET CABLES

- Type of cable: category 5e multipair copper cable
- Shielding: SF/UTP
- External diameter: 6.7 mm
- Lengths available: 0.5 to 70 m
- Outer jacket: LSZH
- Fire resistance: flame retardant - IEC 60332-1
- Temperature range: -40 °C +70 °C
- Maximum voltage: 300 VDC
- Male RRU connector: DIN 8-pin or DB 9-pin
- Female antenna connector: DIN 8-pin
- Connector certificate: IEC 60130-9
- Protection index of connectors: IP67

OUTDOOR PRECONNECTORISED CABLES

- Application: Indoor/outdoor
- Capacity: 12 OF/24 OF
- Type of fibre: SM G652D, MM OM2, OM3 available on request.
- Sub-assembly: 900 µm
- Retubing: 2 mm
- External diameter: 13 ± 0.5 mm (12 OF) & 15 ± 0.5 mm (24 OF)
- Outer jacket: Anti-UV LSZH-FR
- Connectors: SC-APC, SC-UPC, LC-APC, LC-UPC



OUTDOOR OPTICAL PATCH CORDS

- Application: Indoor/outdoor
- Capacity: 1 OF/2 OF
- Type of fibre: SM G657A2, MM OM2, OM3 available on request.
- Sub-assembly: 900 µm
- Retubing: 2.4 mm
- External diameter: 5.5 mm
- Outer jacket: Anti-UV PE LSZH-FR
- Connectors: SC-APC, SC-UPC, LC-APC, LC-UPC, LCD-UPC



FRC JACKET

- Ericsson RRU
- Compatible connector: FullAXS
- Protection index: IP67
- Protection: Anti-UV



NSN SLEEVE

- RRU Nokia
- Compatible connector: NSN
- Protection index: IP65
- Protection: Anti-UV



FOLAN offers tailor-made network solutions for your RRH/RRU connection, hybrid (copper + fibre cable) or layout (racks, 19" boxes and accessories) needs.
Call us on +33 (0)4 78 800 810

FOLAN PRODUCT CHARACTERISTICS

NEW FOR 2020: TERRASSE BOX

5G



TERRASSE BOX

- Dimensions (W x H x D): 506 x 382 x 190 mm
- Protection index: IP65
- Shock resistance index: IK10
- Fixing: wall or pole-mounted
- Installation: direct connectorisation or pigtail
- Capacity: 48 SC

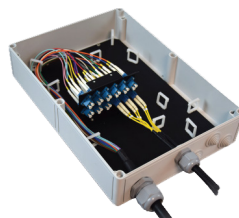
PANAMA OUTDOOR BOXES

4G

5G

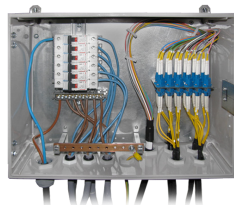
PANAMA BOX

- Dimensions (W x H x D): 215 x 360 x 111 mm
- Protection index: IP66
- Shock resistance index: IK08
- Fixing: wall- or pole-mounted (option)
- Installation: direct connectorisation or pigtail
- Capacity: 12 SC/12 LCD + 2 integrated splicing cassettes with the possibility of 12 OFs, which is 24 OFs in total



PANAMA HYBRID BOX

- Dimensions (W x H x D): 415 x 300 x 185 mm
- Protection index: IP55
- Shock resistance index: IK10
- Fixing: wall- or pole-mounted (option)
- Installation: direct connectorisation
- Capacity: 12 SC/12 LCD



PANAMA COILING BOX

- Dimensions (W x H x D): 254 x 360 x 111 mm
- Shock resistance index: IK08
- Fixing: wall- or pole-mounted (option)
- Capacity: up to 70 m of Ø 5 mm cable
- Cable inputs: 2 cable inputs
- Option: sealed inputs



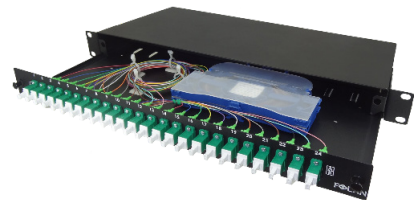
PANAMA COMPACT BOX

- Dimensions (H x D x W): 154 x 90 x 250 mm
- Protection index: IP54
- Shock resistance index: IK10
- Fixing: wall- or pole-mounted (option)
- Installation: direct connectorisation or pigtail
- Capacity: 12 SC/6 LCD + integration of 1 splicing tray with the possibility of 12 OFs



TERMINAL EQUIPMENT

4G



MILANO PATCH PANEL

- Dimensions (H x D x W): 42.5 x 240 x 430 mm
- Format: 19"
- Tray: sliding
- Installation: direct connectorisation or pigtail
- Capacity:
 - Up to 3 cassettes with 12 splices, which is 36 splices in total
 - Up to 48 OFs via direct connectorisation (LC)
- Cable inputs: 6 at the back of the panel



19" DISTRIBUTION CABINET

- Height: 22 to 47 U
- Width: 600 or 800 mm
- Depth: 600, 800, 1000 or 1200 mm
- Maximum load: 800 kg (on actuators)
- Protection index: IP20

19" WALL BOX

- Height: 6 to 22 U
- Width: 600 mm
- Depth: 450 or 600 mm
- Maximum load: 60 kg
- Protection index: IP20



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