

## High security at high elevations.

Renon cable car in Bolzano: A 950-meter ascent under the protection of Axis.



Organization:  
Strutture Trasporto Alto  
Adige S.p.A. – STA

Location:  
Bolzano, Italy

Industry segment:  
Transportation

Application:  
Cable car surveillance,  
onboard and in stations

Axis partner:  
Plantec S.r.l.

### Mission

The public transport link between the center of Bolzano and the plateau of Renon, in the hamlet of Soprabolzano, Italy, has a long tradition: for more than 100 years, families, commuters, students and tourists have been using this service. After 40 years of honorable service, STA (Strutture Trasporto Alto Adige S.p.A.) decided to replace the old cable car with a new type of cableway which is faster, more spacious and technologically-advanced.

The bid competition announced not only the construction of a cable car with superior quality and technology than its predecessor, but also the implementation of a wireless video surveillance system active both along the route and inside the cars, since the security and efficiency of the cable car had become a fundamental requirement both for tourists and to encourage citizens to use public transport instead of their own cars.

### Solution

The bid was won by Leitner Technologies, a Vipiteno-based company specializing in the design and construction of cable car systems worldwide. Leitner, together with its technology partner PlanTec, a Bolzano company specializing in the design and implementation of high-technology systems, presented the winning project which encompassed the installation of Axis network cameras.

### Result

The new Renon cableway has a transport capacity of 550 people per hour in 8 cars which can carry up to 35 people each. The 26 installed Axis cameras based on a wireless system make this the world's first cable car protected by real-time views of the cars.

"The new Renon cable car is an important milestone in our policy of modern and sustainable transport for the entire Alto Adige province, which will play a major role not only in local public transport but also beyond the province's borders. As the first of its type in Italy and representing the state of the art worldwide, the new cable car is undoubtedly the standard bearer for an innovative and forward-looking management model."

Giorgio Pilotti, Leitner project lead for the Renon cable car.

### 985 meters of vertical ascent are secured

PlanTec is the developer of the project, which involves a complex technology infrastructure: in fact, it was necessary to develop an efficient wireless video surveillance system to monitor the arrival and departure stations, the entire route and the 8 cars. To guarantee the real-time transmission of the images from the cars, the Alto Adige-based company implemented the project with the aid of 26 Axis network cameras on a HiperLAN network supplied by Alvarion.

At the boarding stations, four AXIS 212 PTZ and AXIS 211 Network Cameras were installed. The choice of AXIS 212 PTZ was dictated by the capabilities that the PTZ controls can offer: it is possible to take instant panoramic and PTZ shots and reproduce images in high resolution, all without any moving parts, to minimize wear and tear; the availability of a field of view of 140° allows the entire monitored area to be framed, unlike standard PTZ cameras, which allow the viewing of only individual sections of a scene at one time; in addition, it is possible to switch from a complete panorama to a magnified image in a few seconds with a few simple operations. The AXIS 221 was selected because, being capable of producing high-quality images under all lighting conditions, it is ideal for complex security installations both in indoor and outdoor environments. Also installed in the departure station in the valley are two AXIS 221 and AXIS 214 PTZ cameras, pointing towards the arrival station on the mountain. Two additional cameras were mounted in the middle of the cable car route to monitor the line, level with the fourth support structure of the cableway.

The AXIS 214 PTZ cameras provide high-quality color images combined with PTZ functions which can be managed remotely by the operators: the functions for day and night images allow completely perfect color images to be obtained even when the level of illumination is low, as well as extremely sharp black-and-white images under very low-light conditions.

For the video surveillance of the individual cabins, 16 AXIS 216MFD Network Cameras with wide-angle optics were installed; they are built-in units with a discreet, compact and vandal-resistant design, located on the false ceilings inside each car and linked to the wireless transmission system. Thanks to the 1.3 megapixel sensor inside these cameras, it is possible to obtain sharp and detailed images perfectly suited to identifying any object or person.

Onboard each car, in addition to the two cameras, NVRs were installed to record images 24 hours a day; the entire monitoring and video recording system, managed by the AXIS Camera Station software, was installed at the mountain station and can only be accessed by authorized service personnel. In the event of an alarm or the detection of an anomalous movement, it is possible to connect directly to the NVR in the car in question and access the images of the other camera.

All of the images from the 26 cameras are viewable by the "drivers" on three separate monitors (one dedicated to the images from the car, one monitoring the line and one monitoring the locations in the valley); finally, a fourth monitor is installed in the valley station and is also dedicated to monitoring the real-time images from the cars. The transmission by real-time video signal for the cars is guaranteed by a robust system based on the HiperLAN protocol supplied by Alvarion, consisting of three access units positioned at the mountain and valley stations to cover the route of the cable car and one at the fourth support structure.

"We are fully satisfied with the installed project. Thanks to Axis, we have succeeded in meeting the primary requirement, which was to implement an efficient video surveillance system. Thanks to their many features and optimal image quality, the different models of Axis network cameras installed have proven to be the ideal solution for the installation," stated Mario Barbato, Managing Director of PlanTec.



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Südtiroler Transportstrukturen A.G.  
Strutture Trasporti Alto Adige S.p.A.

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