



# YOUR BEST WAVE IS STILL OUT THERE

When it comes to innovation and technological progress in the trading space, the Swiss Stock Exchange has an outstanding track record. Recently, its operator SIX has invested in microwave-based trading connections and owns today's largest microwave network in Europe. A closer look reveals how this breakthrough technology enables the fastest data transmission between trading centers – and where the service is already available.

At the Swiss Stock Exchange, we have a long history of not only ensuring the stability and availability of our trading infrastructure, but also of making the most modern and innovative technology accessible to all our participants. Our track record of deploying breakthrough technology in the trade and post-trade areas harks back all the way to 1995 when we were the first exchange in the world to introduce fully electronic trading and settlement. To actively shape the future of trading, we aim to offer the most advanced technology within our unique market structure. Today, the Swiss Stock Exchange is the first regulated exchange in Europe to own and operate an international microwave (or radio frequency, RF) network which enables the fastest transmission of market data between trading centers.



**By Gregor Braun,**  
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## The largest microwave network in Europe

The microwave network of the Swiss Stock Exchange offers solutions to trading firms looking for lowest latency from and to Zurich. SIX aims to making markets more efficient and bringing faster and more secure data to customers as well as fostering equal access to the most modern market data transmission technology for the benefit of all market participants.

SIX is the largest microwave network provider in Europe and the second largest in the world. The network is operated by SIX subsidiary 12H (see box) and currently links Zurich with London, Frankfurt and Milan as well as Milan with Frankfurt and London. Furthermore, SIX partners with the operator of Nasdaq's Nordic exchanges to offer microwave services between London and Stockholm (see box).

## Better execution conditions for all market participants

The ultra-low latency microwave network of SIX is crucial for trading participants of the Swiss Stock Exchange – such as market makers and liquidity providers – be it in the equities and ETF space or as well as for fixed income, derivatives and FX trading. By offering the fastest transmission of market data between trading centers, SIX is able to provide the best possible trading conditions in Swiss securities and strengthen our position as their reference market.

Microwave technology enables customers to execute their trading strategies faster while at the same time improving their risk management. It allows Swiss Stock Exchange trading participants to identify price movements and implement investment decisions as quickly as possible. As a result, improved liquidity and tighter spreads create better execution conditions for all market participants.

SIX is committed to provide a single source for the best low-latency services from and to Zurich. Equal access to the microwave network is ensured for all trading participants at both regulatory and technical levels, in line with Switzerland's legal framework.

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### Taking the direct line

Microwave technology allows fastest transmission of trade data between exchange data centers. Microwave can deliver lower end-to-end latency than fiber because it takes a more direct line between the two ends of the network. Also, microwave signals travel at the speed of light through air, rather than over fiber, which can attenuate signals. This speed advantage is coupled with a high level of availability and reliability. For this purpose point-to-point connections between the matching engines of exchanges are designed, built and operated. Along the ideal path the data signals are reinforced through dishes on towers. However, every gain comes with a downside which in this case is capacity, meaning the limited amount of bandwidth available per route.

### Democratizing low latency access

Through its market-leading know-how and its investments in technology, SIX is uniquely positioned to further grow its microwave services. The completion of the route between London and Stockholm for RFNE was a great achievement in 2020 and despite continued Covid-19 impediments SIX is working on further expanding its network. SIX is convinced that building and operating low-latency networks is a key puzzle piece in the democratized low latency access to exchanges.

For this purpose, SIX is looking to enlarge its European footprint and offer the services to other exchanges and market participants. This includes executing on the plan to connect BME, the Spanish market infrastructure group acquired by SIX, to the microwave network. In general, SIX can help other exchanges by providing equal low latency access and allow them to keep a level playing field on their markets.

To be able to continue to offer market leading low latencies and highest availability SIX will continuously invest in improving routes and selecting the best available technology.

**“Microwave technology enables customers to execute their trading strategies faster while at the same time improving their risk management.”**

### Combined expertise, unique offering

The microwave service of SIX is fully integrated in the portfolio of the Swiss Stock Exchange. It was launched in 2018 through the Zurich-based joint-venture 12H AG (“12H”) between the Swiss financial infrastructure provider SIX and the microwave solutions provider 12Horizons Pte Ltd. Majority-owned by SIX since early 2020, 12H also entered a partnership with the operator of Nasdaq’s Nordic exchanges and created the jointly owned company RF Nordic Express AB (“RFNE”). In September 2020, it successfully launched its first service between London and Stockholm, further extending the unique low-latency microwave service available through the Swiss Stock Exchange.

[www.six-group.com/microwave](http://www.six-group.com/microwave)

**SIX Swiss Exchange**

**Zurich. London.  
Frankfurt. Milan.  
Stockholm.**

**Discover the largest microwave network in Europe.**

Our ultra-low latency microwave network enables trading participants of the Swiss Stock Exchange to benefit from the fastest transmission of trade data. Discover how you can execute your trading strategies faster and improve your risk management.

**Swiss-made. World-class.**

**SIX**

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