

# SYNCHRO

## PRECISION TIME AND FREQUENCY TRANSFER

For the most demanding applications SYNCHRO provides precision time and frequency transfer and synchronisation across optical communication channels.



### KEY FEATURES AND BENEFITS

#### Precision and Accuracy

Precise and accurate 10 MHz and 1 PPS synchronisation with less than 20 picoseconds Maximum Time Interval Error (MTIE) and Modified Allan Deviations (MDEV) approaching  $1 \times 10^{-15}$  after 1000 seconds for next generation optical atomic clocks.

#### Free-Space Optical and Fibre Communications

SYNCHRO has been designed to operate robustly over Free-Space Optical (FSO) communications and up to 150 km of optical fibre using Dense Wavelength Division Multiplexing (DWDM).

#### Integration with atomic clocks

SYNCHRO can integrate seamlessly with any clock or oscillator. Input 10 MHz and 1 PPS are automatically tuned by SYNCHRO to provide precise synchronisation and then instant hold-over from the clock if the link is compromised.

#### Secure Encryption Technique

SYNCHRO has been developed to work in parallel with quantum secure time transfer and can be extended to provide the ultimate level of security. By measuring the quantum state and time of arrival of polarisation entangled photons sent across the link, synchronisation can be achieved better than 5 nanoseconds while continuously demonstrating the link has not been spoofed and is secure.

### SYNCHRO APPLICATIONS

#### Defence and Space

SYNCHRO can be used to provide precise synchronisation for phased array and bi-static radar, between Defence platforms using FSO communications and for space and satellite applications.

#### Critical Infrastructure

SYNCHRO can be used to provide resilience against GNSS disruption in data centres and telecommunications.