

# Corporate Profile



*Leaders in Sync & Timing, Resilient PNT & GNSS Jamming Detection*

Founded by [Prof. Charles Curry](#) in 1986, Chronos provides sync, timing, phase & alarm monitoring systems for industrial networks including telecoms, high frequency trading/finance markets, broadcast, energy, enterprise IT and Defence markets. Chronos also specialises in components and systems for industrial resilient navigation and timing solutions including global navigation satellite system (GNSS), eLoran transmissions and GNSS jamming detection.

Chronos provides expertise and solutions in two key market areas. Time synchronisation in communication networks, vital for high speed, high bandwidth applications which use fixed and mobile networks. GNSS derived applications that utilise GNSS signals, increasingly part of every-day life but have significant vulnerabilities to localised jamming.

Chronos delivers solutions, components, knowledge and the service assurance tools to enable users to adopt, adapt and trust time, timing and location technology wherever it is required, anywhere in the world. ISO 9001 approved, Chronos has supplied network infrastructure deployments in more than 50 countries around the globe. All installations are supported throughout their operational lifetime with a 24x7 / next day swap repair service.

## **Sync, Timing, Phase & Monitoring Systems**

Chronos designs and manufactures sophisticated time and sync equipment including the [SyncBOX-u™](#), [SyncWatch](#) and [TimePort™](#) product series. SyncBOX-u™ is a stand alone device that offers Boundary Clock and Slave Clock functions. It can be built into existing networks that require Phase Sync where the network devices are not 8275.1 compliant so allowing services based on technologies such as LTE-A to be rolled out with minimal network investment. SyncBOX-u™ is managed by SyncGEM from a central site. SyncBOX-u™ also has a packet metrics capability so allowing the NOC to monitor and measure sync performance.

SyncWatch is a time, timing & phase family of test solutions for communication, energy and finance networks

## **Core Skills**

- Sync, timing, phase & monitoring
- Time testing solutions
- Industrial GNSS solutions
- GNSS jamming detection & locations
- GNSS OEM timing modules
- 24/7 next day support
- Full turnkey installations services
- Expert knowledge, consultancy & training

bringing Service Assurance and Quality of Service solutions to a wide range of organisations.

TimePort™ is a portable time calibrator, which utilises the innovative Chip Scale Atomic Clock (CSAC) technology enabling UTC time calibration to be undertaken in GPS denied environments. Chronos products are available internationally either direct or through global channels.

Chronos is the authorised channel partner in the UK, Denmark and Sweden for Microsemi's Timing & Synchronisation product portfolio offering complete solutions from the core of the network to the edge. Chronos also partners with Tekron offering high precision GPS clocks and time sync devices which are designed for smart grid and substations where performance, longevity, and reliability are paramount. Chronos also designs alarm monitoring solutions based on DPS Telecom's product portfolio. Through these relationships Chronos designs and delivers a wide range of timing and alarms monitoring products and solutions.

Chronos is a member of the [ITU Standards Committee](#) (ITU-T SG15/Q13), which sets the rulebook for timing in telecom networks and Prof. Curry is the founder of the [International Timing Sync Forum](#) (ITSF) which is the largest annual conference focusing on time and timing technology in telecom networks. Chronos is also a member of the Royal Institute of Navigation (RIN), Institute of Navigation (ION), International Loran Association and the Institute of Engineering (IET).

DATASHEET

Chronos also offers product, technology, and [knowledge based training seminars](#) on a regular basis to assist key skills development in speciality disciplines such as telecom timing and GPS applications. A portfolio of consultancy and testing services is delivered by Chronos' experts who deal with the very latest technological advances in telecom timing including [SyncE and IEEE 1588v2 \(PTP\)](#). The [Chronos Synchronisation MasterClass](#) has educated over a 1500 engineers with a two day knowledge based training course for anyone working on today's communication network infrastructure.



### Industrial GNSS Solutions

Partnering with industry innovators and leaders from around the world such as Septentrio, Racelogic (LabSat), GPS Networking, GPS Source, San Jose Navigation, Antcom and UrsaNav, Chronos supplies a comprehensive range of GPS, Galileo, GLONASS and Beidou products through [www.gps-world.biz](http://www.gps-world.biz). This includes navigation [receivers](#) for applications such as vehicle mounted, avionics, and embedded systems, to test equipment (simulators and recorders) and [GPS infrastructure](#) (antennas, splitters, [repeaters](#), fibre links) for the distribution of the GPS RF signal into challenging locations including hangars, indoor labs and wind turbines.



### GNSS Jamming Detection, Location & Mitigation

Chronos is recognised as the global leader in the emerging market for detecting and geolocating GPS

jamming technology which is being regularly used by civilian and criminal elements and is increasingly disrupting critical national infrastructure.

The GAARDIAN and [SENTINEL](#) collaborative research projects involved major UK infrastructure partners and law enforcement agencies, which Chronos led. Both projects were recognised globally as driving the challenge and setting the pace against this disruptive phenomenon.

A diverse range of [GPS jamming detection](#) solutions are now available from Chronos including hand-held devices, networked sensors, geolocation solutions, GPS interference susceptibility assessment services, multipath detection and mitigation solutions and eLoran timing receivers. The SENTINEL network of 24x7 sensors is continuously detecting jamming events on the UK road network and adjacent to critical infrastructure and delivering results to collaborators through a machine to machine link via a web GUI.



### GPS OEM Timing Modules

Chronos has developed a range of bespoke [GPS timing products](#) for time and frequency synchronisation in power and communications systems using TCXO, OCXO, Rubidium and CSAC technology which utilise the latest A-GPS high sensitivity software radio GPS solutions originally developed for the mobile phone market.

For more information please visit [www.chronos.co.uk](http://www.chronos.co.uk)

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