

# TFD8000 - PRECISION MODULAR TIMING SYSTEM



## Ruggedised Ultra-Precision Modular Time & Frequency Distribution System



AS9100D Certificate Number : C0210021-AS3



# TFD8000 - PRECISION MODULAR TIMING SYSTEM

## Product Overview

The TFD8000 is a powerful and versatile time and frequency distribution system designed for applications where a wide variety of high precision time and frequency signals are required.

It is suitable for a wide range of high-end applications.



## Typical Applications

The TFD8000 is particularly suitable for applications requiring highly accurate time and frequency in a variety of formats,

e.g. military systems in naval or airborne applications such as:

- Communications Systems
- Encryption Devices
- Weapons Systems
- Navigational Equipment

The TFD8000 incorporates many features essential in mission-critical military systems:

- Ruggedised construction
- Modular platform
- Hot-swappable modules
- Configurable redundancy
- Optimal space envelope
- Sophisticated built-in monitoring and alarms



## Key Features

- Proprietary Backplane system ensures the provision of any frequency, pulse rate or timecode from just three- core signals
- Single, dual or triple redundant configurations available
- Internal or external time synchronisation source
- Optional selection of internal oscillators from Cesium to Quartz ensuring all stability requirements can be met
- Precision oscillator module available for low noise frequency outputs
- Available in a range of chassis configurations
- Wide range of option modules



# TFD8000 - PRECISION MODULAR TIMING SYSTEM

## Product Features - Highly stable frequency source

In demanding applications where the availability of a time synchronisation source is limited, the TFD8000 maintains an accurate time base by means of high stability frequency standards.

This enhanced holdover capability ensures both the continued provision of accurate time and frequency together with very high system availability. This feature is critical in applications such as when a submarine is submerged or when access to satellite synchronisation sources is denied.

## Product Features - System design

The sophisticated design of the equipment ensures high-speed digital pulse rates, timecodes and network interfaces are available together with low phase noise analogue frequencies in a single instrument.

The proprietary backplane system allows the distribution of any time or frequency format from just three core signals. This ensures that advanced requirements such as dual or triple redundancy can be simply achieved by this equipment thus improving the overall availability of the system.

## Configuration Options

The TFD8000 offers many different configurations, so the optimum system architecture may be constructed to meet your specific application.

Wherever feasible, input and output modules are mounted in the rear of the equipment whilst the man/machine interface modules are mounted in the front of the equipment.



# TFD8000 - PRECISION MODULAR TIMING SYSTEM

## Configuration Options

### Synchronisation Sources

- GPS (external or integral)
- LF Radio Transmission (WWVB, MSF, DCF77)
- Timecode (IRIG-B, IRIG-E, XR3, 2137, AFNOR)
- HaveQuick (I, II, IIa, Saturn)

### Signal Output

A wide range of signal and frequency output modules are available, including:

- Timecode output (IRIG-B, IRIG-E, XR3, 2137, AFNOR, TD1, TD2, HaveQuick, Saturn)
- Analogue frequencies (square wave or low phase noise sinusoidal)
- Pulse distribution
- Serial data distribution (RS232/RS422/RS485)
- Network Interfaces (ATM/NTP/PTP/SNMP)

### Tracking Oscillator

The holdover performance of the system is dependant on the internal oscillator(s) selected for the application. Options include the following frequency standards.

- Quartz,
- Rubidium
- Cesium

### Chassis Configurations

A range of chassis configurations is available dependant on the complexity of the requirement and the available space:

- Single Depth - 20 module slots – front only access
  - Dual Depth - 34 module slots – both front and rear access
  - Dual Pack - Additional chassis available for housing multiple Tracking Oscillator/ Clock modules
- As standard, the chassis are 19-inch rack-mountable units, with the Dual Depth chassis providing significantly enhanced functionality, whilst remaining compact.

For the most complex applications including full redundancy, a complete TFD8000 System may comprise a number of chassis in combination, thereby fulfilling demanding system requirements with the minimum space envelope.

Chassis power supply options include 115 / 230VAC, 48VDC, 24VDC along with UPS options

### Environmental Specifications

Temperature (Operating) : 0°C to +50°C

Temperature (Storage) : -40°C to +70°C

Humidity: MIL-STD-810E Procedure 507.3 Salt Fog: MIL-STD-810E Procedure 509.3

Altitude: MIL-STD-810E Procedure 500.3 Vibration: MIL-STD-167-1

Shock: MIL-S-901-C EM: MIL-STD-461 CE01, CE102, CS101, RS101, RE101, CS114 (10kHz-30MHz), RE102 (10kHz- 1GHz), RS103 (2MHz-19GHz) ESD: IEC801-2

Disclaimer : Brandywine & TFS are always seeking to improve our products, the information in this document only provides general indications of product capability, suitability and performance, none of which shall form any part of any contract.



# Satisfied customers include..

ABB Singapore Airbus Defence & Space ASM Technologies Ltd Atkins Babcock International BAE Systems BBC BP CMC Engineering Malaysia	EDF Energy Indian Navy Jakarta Metro Leonardo Electronics Defence And Security London Stock Exchange London Underground MBDA Ltd MTRC Hong Kong National Air Traffic Services	NASA NEC Network Rail Northrop Grumman Park Air Systems Ltd Qinetiq Ltd Raytheon Systems Ltd Rockwell Automation SBS Transit Singapore Siemens Transportation	Singapore Stock Exchange Telent Technology Services Limited Teligent Thales UK Transport For London Viacom
--	---	---	---

## Sales Contacts and Global Representatives

### TFS UK Head Office

Mrs Laura Cain  
 Sales Coordinator  
 TFS, Witham, CM8 3AL, UK  
 Tel : +44 (0) 1376 514114  
 laura.cain@timefreq.com

### Europe, Middle East, Africa, Australia

Mr David Wright  
 Director of Sales, Europe, Middle East,  
 Africa, Australia  
 Tel : +44 (0) 1694 722891  
 dwright@timefreq.com

### Asia, China, India, Japan

Mr Neil Pitman  
 Director of Sales - Asia  
 China, India, Japan  
 Mobile : +44 (0) 7973 859342  
 neil.pitman@timefreq.com

<b>Austria, Germany &amp; Switzerland</b> <b>Semic RF Electronic GmbH</b> <i>Contact : Wolfgang Gruber</i> Tel: +0049 89 614 1520 Email: sales@semic.de Web : www.semic.de	<b>Israel</b> <b>IES Electronics Agencies (1986) Ltd</b> <i>Contact : Avi Nataf</i> Tel: +00972 37530700 Email: info@nisko-ies.com Web : www.nisko-ies.com	<b>Philippines</b> <b>Imaginet International Inc</b> <i>Contact : Mr Blair Duncan</i> Tel: +63 2 895 9755 / Fax : +63 2 895 9766 Email: blair@imagnet.com.ph Web : www.imagnet.com.ph
<b>Australia &amp; New Zealand</b> <b>Unitronix</b> <i>Contact : Tim Marshall</i> Tel: +0061 02 4977 3511 Email: sales@unitronix.com.au Web : www.unitronix.com.au	<b>Italy</b> <b>Millimettrica RF &amp; Microwave Components SRL</b> <i>Contact : Aldo Cagno</i> Tel: +0039 011 317 9910 Email: acagno@millimettrica.it Web : www.millimettrica.it	<b>Singapore</b> <b>PROGRESO Networks (S) Pte Ltd</b> <i>Contact : Victor Tang</i> Tel: +65 6509 9600 / Mobile +65 9735 1700 Email: victor@progreso.com.sg Web: www.progreso.com.sg
<b>Brazil</b> <b>Sigtron Instrumentos e Servicos Ltda</b> <i>Contact : Eduardo Strafacci</i> Tel: +0055 11 5031 7359 Email: eduardo@sigtron.com.br Web : http://sigtron.com.br/	<b>Japan</b> <b>Nacelle Co Ltd</b> <i>Contact : Mr Hisato Tadokoro</i> Tel : +81 3 5921 5099 Email : tadokoro@nacelle.co.jp Web : www.nacelle.co.jp	<b>Thailand</b> <b>CSG Solution (Thailand) Company Ltd</b> <i>Contact : Mr Chinnaret Kusathisiriphan</i> Tel: +66 2 575 2971 / Mobile +66 94 951 6524 Email: chinnaretk@csgs.co.th Web: www.csgs.co.th
<b>China, Hong Kong &amp; Macau</b> <b>Spectrum &amp; Master Comms. Technologies</b> <i>Contact : Mr William Lai</i> Tel: +852 2529 1111 / Mobile +852 9378 9271 Email: smcthk@netvigator.com	<b>Korea</b> <b>ETOOB</b> <i>Contact : Jaydon Lee</i> Tel : +82-2-6677-3409 Email : jaydon.lee@etooob.co.kr Web : www.etooob.co.kr	<b>Turkey</b> <b>Merit Elektronik</b> <i>Contact : Levent Celebi</i> Tel: +0090 312 472 7495 Email: leventc@meritelektronik.com.tr Web : www.meritelektronik.com.tr
<b>Indochina (Vietnam, Laos, Cambodia)</b> <b>Hanova JSC</b> <i>Contact : Mr Hai Le</i> Tel: +84 91 351 4905 Email: hai.le@hanova.vn Web : www.hanova.vn	<b>Malaysia</b> <b>Alam Sinergi Teknik Sdn. Bhd.</b> <i>Contact : Mr HH Chew</i> Tel: +60 3 7847 5925 / Mobile: +60 13 5131068 Email: hhchew@alamsinergitekNIK.com	<b>South Africa</b> <b>Satellite 2000 Systems International Inc</b> <i>Contact : Fred Joubert</i> Tel: +001 818 991 9794 Email: sales@sat-2k.com Web : www.sat-2k.com
<b>India</b> <b>PDAC Microsystems Pvt Ltd</b> <i>Contact : Mr Pradeep Dhar</i> Tel: +91 40 40247626 / Mobile +91 80082 95670 Email: pradeep@pdac.in Web : www.pdac.in	<b>North America : USA &amp; CANADA</b> <b>Brandywine Communications Inc.</b> Tel: +1 877 367 7962 Fax: +1 714 755 0175 Email: info@brandywinecomm.com Web : www.brandywinecomm.com	<b>U.A.E.</b> <b>Zener Fire &amp; Security LLC</b> <i>Contact : Ranjith Nambiar</i> Tel: +0021321548618 Email: ranjith@zenerfire.com Web : www.zenerfire.com
<b>Janus Trading Co</b> <i>Contact : Mr Santosh Krishnan</i> Tel: +91 124 408 6641 Email: santosh@januscorp.in Web : www.januscorp.in	<b>North Africa, Mauritania, Morocco, Tunisia, Algeria, Libya, Egypt, Chad, Mali</b> <b>ProComSat</b> <i>Contact : Hussein Ait Si Selmi</i> Tel: +0021321548618 Email: hussein@procomsat.com Web : www.procomsat.com	
<b>Signowave Solutions Private Limited</b> <i>Contact : Santosh Kulkarni</i> Tel : +91 40 6717 2356 / Mobile : +91 70327 09060 Email: santosh.kulkarni@signowave.com Web : www.signowave.com	<b>Spain &amp; Portugal</b> <b>Tecnologia GPS S.A.</b> <i>Contact : Jose Luis Estaban</i> Tel: +34 91 323 72 30 Email: comercial@tecnogps.es Web : www.tecnogps.es	

**tfs Time & Frequency Solutions**

25 Eastways, Witham, Essex, CM8 3AL, UK  
 Phone +44 (0) 1376 514114 | Fax +44 (0) 1376 516116  
 Email : enquiries@timefreq.com

**brandywine communications**

153 Warner Ave, Tustin, CA 92780, USA  
 Phone +1 714 755 1050  
 Email : Info@brandywinecomm.com

Disclaimer : Brandywine & TFS are always seeking to improve our products, the information in this document only provides general indications of product capability, suitability and performance, none of which shall form any part of any contract.