

# DRS 500/IMS 500



KONGSBERG



## DGNSS REFERENCE AND INTEGRITY MONITORING STATIONS

DRS 500 and IMS 500 are the third generation DGNSS reference products from Kongsberg Seatex. The products feature a new graphical user interface for real time operation and system control. The new Human Machine Interface (HMI) is optimised for easy identification of, and fast operator response to events. The DRS 500 and IMS 500 are fitted with a state-of-the-art GNSS receiver supporting future signals in space.

In a DGNSS network infrastructure, the DRS 500 and the IMS 500 are integrated enabling both pre and post integrity control. A Central Monitor application (DGNSS CM) enables full remote operation of all stations in a network.

### **DRS 500**

The DRS 500 is a DGNSS reference station designed for permanent installation as a stand-alone system or as a part of regional GNSS infrastructure systems. The DRS 500 generates differential GNSS (DGNSS) corrections. Raw pseudo-range observations and other pertinent data from the GNSS receiver are used to calculate optimal sets of corrections at every measurement cycle.

The DRS 500 offers data integrity, check and quality control of each individual GNSS satellite. The data quality control algorithms implemented in the DRS 500 will detect errors not detected by the GNSS receiver itself.

### **IMS 500**

The IMS 500 is a DGNSS integrity monitor station designed for permanent installation as a stand-alone system or as a part of regional GNSS infrastructure systems. The IMS 500 is a module for reception and monitoring of differential GNSS (DGNSS) corrections.

The RTCM data will be checked for availability, position accuracy and other quality criteria. Alarms and warnings will be displayed and stored in an alarm file. Based on predefined fault criteria, the IMS 500 will switch between the two DRS 500 units in a redundant configuration.

### **Transmitters**

The DRS 500 is fully compatible with the DGPS Reference Station Transmitters from all leading manufacturers of such equipment. The transmitters amplify the signals generated from the DGNSS reference stations. The transmitters are fully configurable from the DRS 500 and the IMS 500. Other transmitters are available on request.

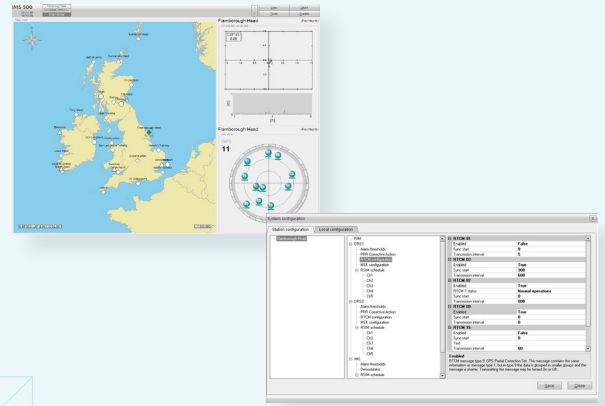
### **Redundancy**

Kongsberg Seatex delivers a cost-effective fully redundant solution consisting of two DRS 500 and one IMS 500 unit. One of the DRS 500 units can be reconfigured remotely or automatically to take the role of an IMS in case of failure in the IMS 500.

The standard redundant configuration also consists of two MSK 500 (Minimum Shift Keying Modulator) modules for interfacing to the transmitters.

# FEATURES

- Compliant with RTCM SC-104 ver. 2.3, RSIM ver. 1.2, IALA recommendation R-121, IALA guideline no. 1112
- Standard GPS corrections; RTCM type 1, 3, 7, 9, 16, 27
- GLONASS corrections; RTCM type 31, 32, 34, 35 (optional)
- Storage of raw data for post-processing
- Storage of alarms and configuration changes
- Pre, post and combined pre and post broadcast integrity mode
- Full remote control by direct or dial-up connection via CM
- Three user levels for operator functionality control



## HMI based status monitoring including:

- 2D position plot and graph
- Transmitter status
- Signal status bars and graphs
- Active alarms
- Module mimic diagram
- Satellite status
- Correction data status
- RTCM status and message type details

## HMI based configuration including:

- Alarm threshold and observation interval settings
- RTCM and RSIM message scheduling
- GNSS receiver parameter configuration and resets
- Modulator configuration
- Transmitter configuration
- Broadcast integrity mode configuration

# TECHNICAL SPECIFICATIONS

## DRS 500/IMS 500

### GNSS RECEIVER CHANNEL CONFIGURATION

240 channels <sup>1</sup>	
GPS	L1, L2, L2C, L5
GLONASS	L1, L2
BeiDou <sup>2</sup>	B1, B2
Galileo	E1, E5a, E5b, AltBOC
SBAS	
QZSS	
L-Band	

### INTERFACES

Serial data (default)	6 x RS-232/RS-422
	4 x Ethernet
	3 x USB 2.0
Baud rate	Up to 115 200 bytes/sec
Connection for keyboard and monitor.	

### MEAN TIME BETWEEN FAILURE

MTBF	> 50.000 hours
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### WEIGHTS AND DIMENSIONS

DRS/IMS Unit	
including strain relief	5.4 kg, 89 x 485 x 412 mm
GNSS antenna	7.6 kg, 380 mm x 200 mm

### POWER SPECIFICATIONS

DRS/IMS Unit	110 to 240 V AC, max. 60 W
GNSS antenna	5 V DC from processing unit

### ENVIRONMENTAL SPECIFICATIONS

#### Operating temperature range

DRS/IMS Unit	-15 to + 55 °C <sup>3</sup>
GNSS antenna	-55 to +85 °C

#### Humidity

DRS/IMS Unit	Max. 95 % non-condensing
GNSS antenna	Hermetically sealed

#### Mechanical

Vibration	IEC 60945/EN 60945
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#### Electromagnetic compatibility

Compliance to EMC, immunity/emission IEC 60945/EN 60945

#### PRODUCT SAFETY

Low voltage	IEC 60950-1/EN 60950-1
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<sup>1</sup> Tracks up to 120 L1/L2 satellites  
<sup>2</sup> Firmware update required  
<sup>3</sup> Recommended +5 to +40

Specifications subject to change without any further notice

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