

VTS AND COASTAL SURVEILLANCE RADAR

SBS-800 COHERENT SENSOR SYSTEM

SHARP[™]
Eye



Kelvin Hughes Surveillance radar solutions for shore based applications have been specifically developed to meet the stringent operational requirements of port, harbour and river traffic operators as well as government agencies responsible for the protection of the coastal and littoral zones.

The SBS (Shore Based Sensors) radar sensor family includes non-coherent and fully coherent solid state radar sensors available in multiple configurations to suit the specific application whether it's a single radar site or part of a radar sensor network. An important part of a VTS and coastal surveillance system integration is the ability to easily adapt and integrate the radar sensor; our systems are specifically designed with this in mind utilising industrial standard protocols to make the work of the system integrator as easy and low cost as possible.

Our SharpEye™ technology provides superior target detection in harsh weather conditions and sub-clutter visibility of surface and low level air targets through the patented pulse sequences, coherent receiver, pulse compression and Doppler processing. The SBS sensors are range unambiguous and operate in X or S band.

SBS-800 SHARPEYE™

The SBS-800 family is configured to provide an upmast ultra-high reliability system without the need for dual redundancy of the radar sensor itself. The superior performance and reliability is only achieved with the solid state electronics and software of a SharpEye™ transceiver. The four product configurations available provide the system integrator with a standardised cost effective radar solution optimised for the specific requirements of a coastal surveillance system or radar sensor forming part of a VTS system as defined in IALA V-128 recommendation.

SBS-800-1	SBS-800-2
X-BAND SHARPEYE™ TRANSCEIVER (UPMAST)	X-BAND SHARPEYE™ TRANSCEIVER (UPMAST)
INTEGRATED TRANSCEIVER AND TURNING UNIT	INTEGRATED TRANSCEIVER AND TURNING UNIT
RADAR DISTRIBUTION UNIT (RDU)	RADAR DISTRIBUTION UNIT (RDU)
3.7m LOW PROFILE ANTENNA	5.5m LOW PROFILE ANTENNA
SBS-800-3 FREQUENCY DIVERSITY	SBS-800-51
X-BAND SHARPEYE™ TRANSCEIVER (UPMAST)	S-BAND SHARPEYE™ TRANSCEIVER (UPMAST)
INTEGRATED TRANSCEIVER AND TURNING UNIT	INTEGRATED TRANSCEIVER AND TURNING UNIT
RADAR DISTRIBUTION UNIT (RDU)	RADAR DISTRIBUTION UNIT (RDU)
5.5m LOW PROFILE ANTENNA	3.9m LOW PROFILE ANTENNA

APPLICATIONS

VESSEL TRAFFIC SERVICES	PORTS	HARBOURS
COASTLINES	OIL AND LNG TERMINALS	OIL AND GAS PLATFORMS
OFFSHORE WIND FARMS	SECURITY AND SURVEILLANCE	ESTUARY AND RIVERINE TRADE ROUTES

OUR SERVICES

PROJECT MANAGEMENT	RADAR TRIALS DELIVERY	INTEGRATED LOGISTICS SUPPORT
SPARES AND SUPPORT	TRAINING	INCREMENTAL CAPABILITY

SBS-800 COHERENT SENSOR SYSTEM

DESCRIPTION

The four systems are configured as a single upmast transceiver with the SharpEye™ sensor integrated in to the antenna turning unit so reducing the downmast housing requirements and improving the system performance.

All SBS SharpEye™ radars are provided with a RDU as standard. The RDU incorporates a dual redundant power supply. The configuration and quality of the sub-systems ensure an availability of 99.6% meeting the *basic* and *standard* availability requirements. Standardisation and the removal of a lifed magnetron also provide the operator with a simplified integrated logistics support (ILS) requirement.

SharpEye™ transceivers are fully coherent providing greater capability and situational awareness through digital pulse compression and pulse Doppler processing. The SBS-800-3 includes frequency diversity for enhanced small target detection.

The system is remotely controlled receiving system commands from the operators track extractor over the Wide Area Network (WAN). Local control is possible via the RDU control panel or optional service display, enabling the maintainer to fully control and display the radar locally for commissioning and maintenance purposes.

BENEFITS		FEATURES	
VALUE	ADVANCED CAPABILITY AFFORDABLE LOW COST OF OWNERSHIP	LOW POWER	PULSE COMPRESSION RATIOS UP TO 1000:1
ULTRA-HIGH RELIABILITY AND AVAILABILITY	SOLID STATE ELECTRONICS GRACEFUL DEGRADATION MINIMUM MOVING COMPONENTS RDU DUAL REDUNDANT POWER SUPPLY	CONTINUOUS HEALTH MONITOR	BUILT-IN SELF TEST SYSTEM STATUS MONITOR
CLUTTER INSUSCEPTIBILITY	SMALL TARGET DETECTION MTD FILTER BANK ADAPTIVE CLUTTER PROCESSING ALGORITHMS	OPEN ARCHITECTURE	INDEPENDENT DISPLAY OPTIONS INTERFACING TO TRACK EXTRACTOR VIA RDU ASTERIX INTERFACE, LAN (OPTION) OR RS232/422 (3 SETS OF RADAR DATA TO EXTERNAL SYSTEMS)
UPMAST	INTEGRATED TURNING UNIT AND TRANSCEIVER	FULLY COHERENT	PATENTED PULSE SEQUENCE DOPPLER PROCESSING
INCREMENTAL CAPABILITY	CAPABILITY ENHANCEMENTS MISSION UPDATES USEFUL LIFE EXTENSION	LOCAL CONTROL	SERVICE DISPLAY RDU
		BLANKING SECTORS	THE RADAR CAN BE CONFIGURED TO TRANSMIT ONLY IN THE FIELD OF VIEW THAT IS OF INTEREST

SPECIFICATION

	X-BAND	S-BAND	
OPERATING FREQUENCY	9.21 - 9.49 GHz	2.92 - 3.08 GHz	
NUMBER OF FREQUENCY CHANNELS	NON FD: 7 / FD: 12 PAIRS	8	
PEAK POWER	200 Watts	200 Watts	
DUTY RATIO	UP TO 13%	UP TO 10%	
PULSE COMPRESSION RATIO	UP TO 1000:1	UP TO 1000:1	
MINIMUM RANGE	≤15m	≤40m	
RANGE CELL SIZE	5m AND 15m RANGE CELL SIZES AVAILABLE DEPENDING ON APPLICATION		
INSTRUMENTED RANGES	24nm AND 48nm	24nm AND 48nm	
ROTATION RATE	ADJUSTABLE FROM 10-20 rpm		
SECTOR TRANSMISSION	UP TO 4 SIMULTANEOUS BLANKING SECTORS WHICH CAN OVERLAP AND BE ADJUSTED WITH 0.1° RESOLUTION		
POWER MODES	HIGH AND LOW POWER MODES		
DIMENSIONS	TRANSCEIVER/TURNING UNIT RDU STANDARD ANTENNA (PLEASE CONTACT FOR INFORMATION ON ADVANCED ANTENNAS)	765 (H) X 460 (W) X 520 (D) mm (APPROX) 700 (H) X 400 (W) X 270(D) mm 3.7m (12ft) OR 5.5m (18ft) OR 3.9m (12ft) S-BAND	
BEAM WIDTH STANDARD ANTENNA	HORIZONTAL VERTICAL POLARISATION	≤0.7° OR ≤0.45 ° (NOMINAL) X-BAND 25° HORIZONTAL	≤2.0 (NOMINAL) S-BAND
ANTENNA GAIN	STANDARD ANTENNA	>32dB OR >34dB	
WEIGHT	UPMAST ANTENNA RDU	SBS-800-1 135kg SBS-800-51 185kg 25kg	SBS-800-2 AND 3 145kg
COLOUR	HARDWARE ANTENNA	ANTHRACITE GREY SIGNAL WHITE OR SILVER GREY	
OUTPUT DATA	3 SETS OF RADAR DATA TO EXTERNAL SYSTEMS		

All parameters are nominal and indicative based on a typical radar configuration.

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