

VTS AND COASTAL SURVEILLANCE RADAR

SBS-900 COHERENT SENSOR SYSTEM

SHARPEYE™



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 available in X or S band.

SBS-900 SHARPEYE™

The SBS-900 family is configured to provide a mast mounted environmentally sealed enclosure. The ultra-high reliability system is designed to provide a complete radar sensor or sensors package to system integrators that meet the requirements of a coastal surveillance system or a radar sensor forming part of a Vessel Traffic Service (VTS) system as defined in IALA Guidelines.

SBS-900-1	SBS-900-2 FREQUENCY DIVERSITY
X-BAND SHARPEYE™ TRANSCEIVER (MAST MOUNTED)	X-BAND SHARPEYE™ TRANSCEIVER (MAST MOUNTED)
RADAR DISTRIBUTION UNIT (RDU)	RADAR DISTRIBUTION UNIT (RDU)
STANDARD OR ADVANCED ANTENNA	STANDARD OR ADVANCED ANTENNA
SBS-900-3 FREQUENCY DIVERSITY	SBS-900-4
DUAL REDUNDANT X-BAND SHARPEYE™ TRANSCEIVER (MAST MOUNTED)	X AND S-BAND SHARPEYE™ TRANSCEIVER (MAST MOUNTED)
RADAR DISTRIBUTION UNIT (RDU)	RADAR DISTRIBUTION UNIT (RDU)
STANDARD OR ADVANCED ANTENNA	STANDARD 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

Detect and Protect.

KELVIN HUGHES
A Hensoldt Company.

SBS-900 COHERENT SENSOR SYSTEM

DESCRIPTION

The SharpEye™ transceiver(s) of the SBS-900 systems are housed in a separate dedicated enclosure designed to be situated outdoors, close to the antenna turning unit and not requiring an air-conditioned enclosure to be built close to the top of the mast. The premise of this solution is the significant reduction of system integration and infrastructure costs.

All SBS SharpEye™ radars are provided with an RDU as standard. The RDU incorporates a dual redundant power supply. The configuration and quality of the sub-systems ensure an availability of 99.9% meeting the *standard* and *advanced availability* requirements. Standardisation and the removal of the magnetron also provides 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, pulse Doppler processing and frequency diversity. The availability of multiple frequency channels provides excellent interoperability with other radars located in the vicinity of the installation.

The dual redundant configuration provides switch over from one transceiver to the pre-powered second transceiver in approximately 1 second in the event of a failure. 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)
MAST MOUNTED	REDUCED SYSTEM INTEGRATION AND INFRASTRUCTURE COSTS	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		9.01 - 9.49 GHz	2.92 - 3.08 GHz
NUMBER OF FREQUENCY CHANNELS		NON FD: 12 / FD: 25 PAIRS	8
PEAK POWER		UP TO 300 Watts	UP TO 200 Watts
DUTY RATIO		UP TO 13%	UP TO 10%
PULSE COMPRESSION RATIO		UP TO 2000:1	UP TO 1000:1
MINIMUM RANGE		≤50m	≤50
RANGE CELL SIZE		3.75m TO 15m RANGE CELL SIZES AVAILABLE DEPENDING ON APPLICATION	
INSTRUMENTED RANGES		6nm, 24nm AND 48nm	24nm AND 48nm
ROTATION RATE		ADJUSTABLE FROM 5-20 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		MAST ENCLOSURE RDU ANTENNAS (PLEASE CONTACT FOR MORE INFORMATION)	983 (H) X 1115 (W) X 449 (D) mm (APPROX) 700 (H) X 400 (W) X 270(D) mm STANDARD AND ADVANCED AVAILABLE IN A RANGE OF SIZES 5.5m (18ft) OR 6.4m (21ft) OR 3.9m (12ft) S-BAND
BEAMWIDTH STANDARD OR ADVANCED ANTENNA		HORIZONTAL BEAM VERTICAL BEAM POLARISATION	≤0.43° (NOMINAL) X-BAND KH STANDARD ≤2.0 (NOMINAL) S-BAND ≤0.38° (NOMINAL) X-BAND KH ADVANCED 25° (STANDARD) AND 14° (ADVANCED) HORIZONTAL OR CIRCULAR
ANTENNA GAIN		>34.5dB OR >36dB	28dB
WEIGHT		MAST MOUNTED ENCLOSURE ANTENNA RDU	SBS-900-1 125kg SBS-900-2 125kg SBS-900-3 145kg SBS-900-4 140kg DEPENDENT ON ANTENNA (PLEASE CONTACT FOR MORE INFORMATION) 25kg
COLOUR		HARDWARE ANTENNA	ANTHRACITE GREY SIGNAL WHITE OR SILVER GREY
OUTPUT DATA		DIGITAL OUTPUT AND 3 SETS OF ANALOGUE RADAR DATA TO EXTERNAL SYSTEMS	

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

UK (Head Office): Kelvin Hughes Ltd

Voltage, Mollison Avenue,
Enfield
EN3 7XQ, UK
t: +44 (0)1992 805 200



Offices Worldwide

WWW.KELVINHUGHES.COM

surveillance@kelvinhughes.com