

Direction Finding Systems

CHELTON

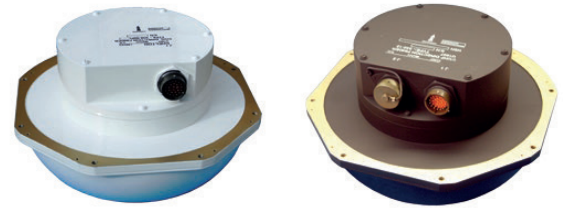
Directions Finding (DF) Systems for all Search & Rescue (SAR) Missions

SAR Requirements

The location of persons in distress needs to be quickly and accurately determined in order to maximise the chance of rescue success regardless of the prevailing conditions or the theatre of operation. Despite the improvements made in the COSPAS/SARSAT system, Search and Rescue crews on-board aircraft still rely on Direction Finding (DF) equipment to guide them in the last miles of the search, and indeed for much greater distances should the survivor not have a GNSS-based beacon.

The Solution:

The 935- Series of Tactical Direction Finders provide a range of integrated solutions for bus-controlled (1553B) and stand-alone direction finding systems in both SAR and CSAR environments. The 938- Series of Civil Direction Finders provide solutions for SAR only requirements. The DFs in both families include an integral synthesised receiver (covering 30-470MHz for the 935-series, and 88-470MHz for the 938 series), together with five Guard receivers to monitor pre-defined distress frequencies. Bearings are taken on all six receivers simultaneously. Data decoding is provided for COSPAS-SARSAT messages and for marine DSC messages via the associated Guard receivers. Stand-alone installations typically control the DF via RS422 using a Chelton-supplied



CDU, but the command interface protocol is available for customers to interface their own control interface as required.

The Chelton range of DF equipment utilises DSP (software defined) receiver technology and is designed for both military and civil use. The members of the DF family provide single box solutions, COSPAS/SARSAT compliant and compatible with the requirements of the Global Maritime Distress and Safety System (GMDSS).



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Combat SAR (CSAR):

In Military applications, the DF is required to interface to a CSAR beacon interrogator that initiates transmission from the rescue beacon in order to facilitate covert rescue. The Chelton 935 DF is designed to interface to suitable interrogators and to be able to take bearings in the brief period of beacon response. CSAR beacon compatibility is available for typical beacons including PRC112G, PRC434 and URX3000.

Civil SAR

To respond to customers wishing to deploy DFs on civil aircraft, Chelton have released an ITAR free version of the popular 935-series, known as the 938-series. This civil variant retains the majority of the features of the 935 system, with the exception of those specifically designed for military customers.

931 Series & System 7

Whilst the 935-and 938-series of DF represent the standard product range, Chelton continue to support the 931-series and 7-series DF systems.

Unlike the 935- or 938- which embody integrated receivers, the 931-series are antenna/processor devices that require connection to separate receivers which may already be on the aircraft platform. Bearing display is accomplished via serial interfaces including ARINC429 and ARINC407. If required, Chelton can also provide a range of Guard receivers to monitor the standard international distress frequencies, including a variant that provides decode of COSPAS/SARSAT distress messages.

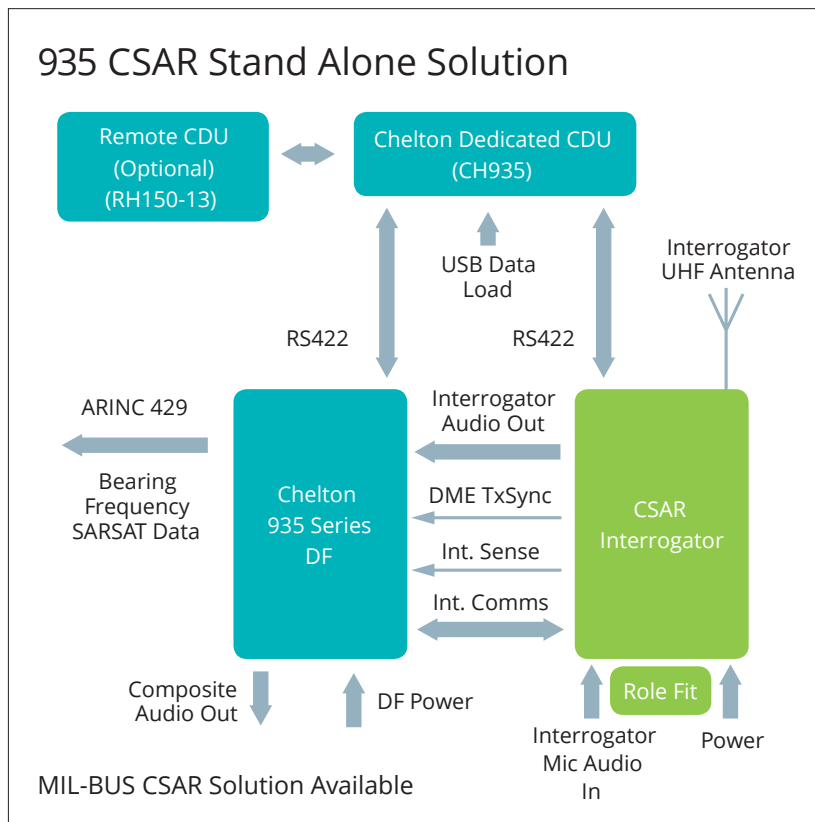
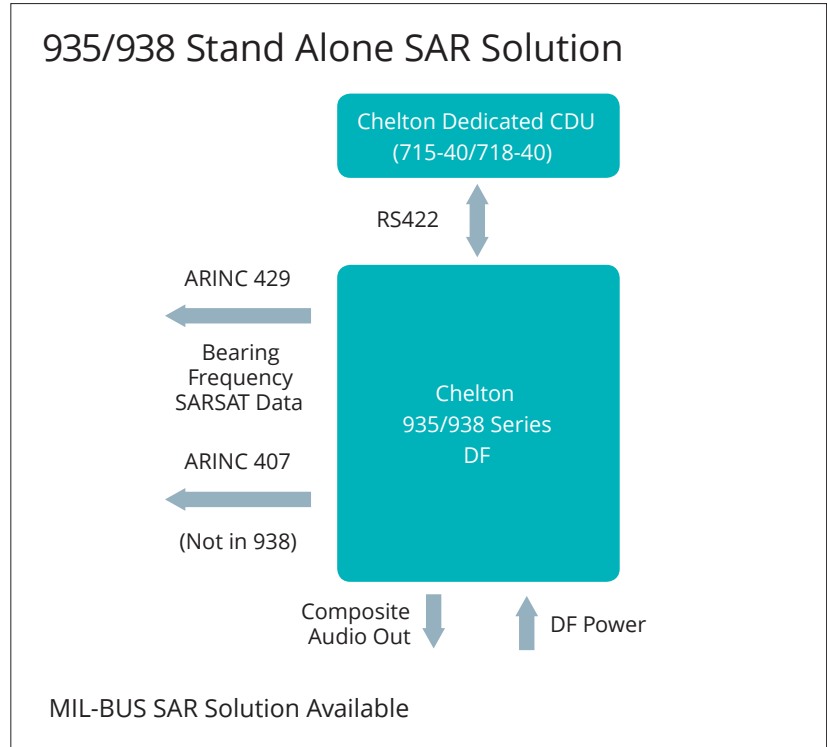
The System 7 Direction Finder is a legacy stand-alone product with embedded receivers that (along with its associated 400-047992 controller) provides a complete small-size system that provides relative bearing information, COSPAS-SARSAT decodes, and can also provide bearing information output via ARINC429.



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CONFIGURATION CAPABILITY

Features	938	935	931	System 7
Frequency Range				
30 - 88MHz		•	•	
88 - 118MHz	•	•	•	
118 - 243MHz	•	•	•	•
225 - 407MHz	•	•	•	•
407 - 470MHz	•	•	•	
Integrated Receivers				
30 - 470MHz	•	•	No receivers embedded	Two parallel receivers tuneable over the individual bands stated above
88 - 470MHz	•	•		
121.5MHz Guard	•	•		
156.525MHz (CH70) Guard	•	•		
156.800MHz (CH16) Guard	•	•		
243MHz Guard	•	•		
406.025 - 406.076MHz Guard	•	•		
Specific Functions	2.5:1			
CSAR*		•		
COSPAS-SARSAT Decoding	•	•		•
GMDSS VHF DSC Decoding	•	•		
Interface Options	Nominally Omnidirectional in Azimuth			
RS 422	•	•		•
ARINC 407		•	•	
ARINC 429	•	•	•	• (When used with dedicated controller)
MIL STD 1553B		•		
Installation Details	-3 dBi min	0 dBi min	-3 dBi min	-3 dBi
Antenna Overall Diameter	286mm	286mm	286mm	192mm
Antenna Height above Airframe	90mm	90mm	90mm	114mm
Antenna Penetration	75mm	75mm	75mm	75mm
Controller/Display Size	68x147x182mm	68x147x182mm	36x82x113mm	64x80x115mm

* With associated CSAR Interrogator

