# HF1 HF2

# PALOMAR

Palomar SCS 3.0 Secure Communication System

Modular, scalable integration of multilevel secure voice/data/video communications

# Advanced, modular communications solutions for the information-based, net-centric battlespace



An uncompromising combination of reliability, modularity, upgradability and interoperability makes the Palomar SCS 3.0 Secure Communication System the solution of choice for all multi-mission platforms in the 21st century.

- NSTISSAM / TEMPEST 1-92 Level 1
- Reduced size, weight and power
- Simultaneous clear and secure operation
- Digital voice, data and video management
- Multilevel secure Voice over Internet Protocol (VoIP)
- Complete management of communication assets and user configurations
- Easy customization due to modern modular design
- Radio and crypto relay
- Intercom conferencing
- Wideband audio (optional)
- Binaural audio (spatial optional)
- Redundancy and emergency operations
- Extensive BIT capabilities
- Radio-priority configurable for each position
- Conduction-cooled sealed enclosures
- Standard interfaces: MIL-STD-1553 and Ethernet
- Compatible with all standard headsets and microphones
- NVIS compatible and daylight readable
- DO-178B and DO-254 certifiable

Palomar SCS 3.0 Secure Communication System Integrated, flexible communications solutions for a wide range of platforms and deployments

The Palomar SCS 3.0 Secure Communication System features an advanced set of modular building blocks that meet the most stringent military requirements of 21st-century information-based warfare.

The solution's native scalability supports integration of communication systems for a wide range of platforms, from compact aircraft to large secure ISR aircraft, to sizable multilevel secure, battle-ready tactical installations.

Palomar has combined its proven expertise and core technologies in TDM switching, IP and TEMPEST with standards based and COTS architectures in a modern, highly flexible and upgradable design for today's multi-mission platforms and deployments. Our systems have unmatched flexibility, from automated multiband relay of voice/data/video to radio, crypto, modem and sensor control to dynamic, multilevel secure communications management.

This flexibility makes mission reconfigurations more efficient through a user-friendly configuration manager, reducing typical modification costs and timelines.

### Digital Switching Unit (DSU)

The DSU manages all connections among communications and data assets, crew members and operatives. The DSU is a modular, secure, TEMPEST qualified communications interface and control

unit for all internal and external, secure and non-secure voice and data streams and ports.

- Best of non-blocking TDM and IP buses combined in one unit
- High-speed TDM architecture with very low deterministic latency for high-quality service and audio
- Architecture optimized for high bandwidth and universal interface
- Software defined configuration manager to quickly and efficiently add, delete, modify or simply manage mission and communications plans
- Quick, low-cost upgrades and modifications with a modular, open cPCI 3U backplane, expandable with software updates or future Palomar and COTS cards
- T1, Ethernet and MIL-STD-1553B ports
- Central unit available in ½ ATR and other smaller enclosures
- Scalable with additional DSU via Ethernet for larger system roll-on/roll-off functionality with smaller than ever SWaP

#### Typical Small System Architecture



#### Typical Large System Architecture





## Digital Crew Unit (DCU) Architecture

The SCS 3.0 system features our new DCU architecture, allowing standard unit circuitry to operate with a wide range of panels without hardware

or application software modifications.

- Minimum cost to change or redesign front panel quickly
- Generic programmable architecture with a universal connector
- Flexible backplane with all key functionality and a programmable panel interface
- Software only control panel available for existing computer screens and multi-function modules

   no need for extra space and wiring for special applications
- Binaural audio with support for ANR and dual headsets per position





#### Flight Deck Digital Crew Unit (FD-DCU)

FD-DCUs provide flight crew members access to in-flight conference networks, radio channels, guard channels, NAVAIDs and other voice and data assets in the aircraft.

- Separate volume controls for each channel plus master volume control
- LED or screen based indicators for activity and transmit/receive modes
- Multilevel secure operation
- Emergency communication access to other control modules
- Direct connection to selected radios and NAVAIDs in stand-alone and emergency backup modes
- Controls for radio and intercom channel selection, receive/transmit, stereo balance, VOX sensitivity, AGC, HOTMIC, security level and more

#### Common Digital Crew Unit (C-DCU)

C-DCUs provide the same functionality as FD-DCUs but have panels that meet the needs of mission area crew members. They can also add optional human interface elements like display screens and specialized control modes.

- Controls for radio and intercom channel selection, receive/transmit, volume, VOX, AGC, HOTMIC, security level, playback and more
- Access to other control modules in emergency mode

#### Performance

Radio receive levels	Software selectable 0.1 Vrms to 15.8 Vrms and 150 $\Omega$ , 600 $\Omega$ , and >4K $\Omega$
Radio transmit levels	Software selectable from 0.1 Vrms to 2.0 Vrms
Microphone inputs	Low-level dynamic, high-level amplified
Headphone outputs	Binaural and monaural, standard and ANR high level (600 $\Omega$ cups) and low level (19 $\Omega$ cups)
Frequency response	Up to 20 Hz - 20 KHz
Speech intelligibility	91 percent at peak noise
Crosstalk isolation	Red/black separation greater than 100 dB at 1 KHz
Audio and data latency	Audio: <3 milliseconds Data: Ethernet QoS settings and load dependent
Audio quality	Distortion <3 percent, idle channel noise -56 dBr
Visibility	Programmable luminosity curves
Power	28 V per MIL-STD-704
Environmental	Designed to RTCA/DO-160F, MIL-STD-810G
EMI/EMC	MIL-STD-461F and RTCA / DO-160F, MIL-STD-464 and RTCA / DO-160F
TEMPEST	NSTISSAM 1-92 Level 1
Software design assurance	RTCA/DO-178B Level C
Hardware design assurance	RTCA/DO-254 Level C
Operation standards	RTCA/DO-214
Quality assurance and best practices	SAE AS9100 and ISO 9001

# Palomar Secure Communication System

## Programs

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P-8A Poseidon	Boeing / US Navy
P-8 India (P-8I)	Boeing / India
737 AEW&C Wedgetail	Boeing / RAAF
737 AEW&C Peace Eagle	Boeing / Turkish Air Force
Korean 737 AEW&C	Boeing / L3 / Republic of Korea
AWACS	Boeing / USAF / Saudi Arabia /
	NATO / UK / ROF / Japan /
	USAF Block 40-45
VH-3D / VH-60N / VH-71A	VIP
MC-130H Combat Talon II	AFSOC
TACAMO/ABNCAP (E-6B)	USN / USAF
P-3 AEW&C	Lockheed Martin / US Customs
Special Mission P-3s	USN
NP-3	USN
Sea Sentinel (AP-3C)	L3 / RAAF
CP-140	Thales / Canadian Forces
Airborne Laser	Boeing / USAF
CL-604 / 605	Bombardier / Royal Danish Air Force Turkish Air Force
AC-130H/U Gunships	AFSOC
HC-130J Deepwater	Lockheed Martin / USCG
German P-3	USN FMS / German Navy
Korean P-3	L3 / ROKN
Portugal P-3	Lockheed Martin / Portuguese Air Force
Pakistan P-3	Lockheed Martin / Pakistan Navy
Taiwan P-3	Lockheed Martin / Taiwan
AW-149	Leonardo
C-130J Block 8.1 Upgrade	Lockheed Martin / multiple nations
AFSOC C-130J	Sierra Nevada Corp. / USAF
C-27J	Leonardo / US Coast Guard





For more information about the SCS 3.0 Secure Communication System, please contact us at 949-766-5300 or sales@palpro.com.

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