RSI ComLINK

RSI
REDONDO SYSTEMS INC

Data Link Communications, Translation, Forwarding and Display System

RSI's Data Link Communications, Translation, Forwarding and Display System (ComLINK) is an off-the-shelf PC based system supporting the tactical data link communications and data translation/forwarding mission for allied armed forces around the world. ComLINK is currently in use in England, Germany and Poland. ComLINK is highly configurable by utilizing RSI's Operational Core user interface package and then layering multiple tactical data link interfaces from RSI's Interface Package Library (IPL). New customer application-specific requirements are easily accommodated.

Optional Integrated Keyboard/Display

Redondo Systems Incorporated (RSI) has been a leading provider of products and services in the areas of tactical data link and radar interface processing for over 20 years. RSI's product lines include fielded tactical data link and radar communications systems, radar and data link simulation systems, as well as stand-alone software packages and custom hardware solutions. RSI's major customers include:

- ♦ U.S. Army
- ♦ U.S. Air Force
- ♦ U.S. Navy
- ♦ U.S. Marine Corps
- ♦ Raytheon
- ♦ Northrop Grumman
- ♦ Lockheed Martin
- ♦ Rockwell Collins
- ♦ Thomson CSF
- ♦ EADS
- ♦ BAE
- ♦ SAIC
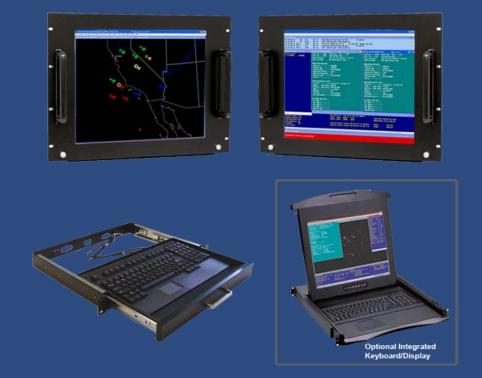
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ComLINK Interface Capabilities Include:

◈ Data Links

♦ Link 16	♦ Link 11, Link 11B	♦ NATO Link 1	♦ USMTF 2000
MIL-STD-6016	*MIL-STD-6011*	*STANAG 5501*	♦ TIBS
STANAG 5516	*STANAG 5511*	*(Multiple Editions)*	♦ VMF
JTIDS TIDP	*JCS Pub 6*		
(Multiple Revisions)	*(Multiple Revisions)*		♦ IDL
		♦ ATDL-1	♦ UDL
Smart Host for:	*TDS interfaces:*	*MIL-STD-6013*	♦ MBDL
Class 2H (1553B)	*NTDS (Parallel)*		
Class 2M (ADDSI)	*ATDS (Serial)*		♦ Lateral Tell
MIDS (multiple I/Fs)	*MIL-STD-188-203*	♦ FAAD Data Link	♦ Forward Tell
	MIL-STD-188-212	♦ NATO Link 14	
			♦ TESS
			♦ ICAO

◈ Data Forwarding

♦ Link 16 ◄► Link 11/11B

◈ Data Translation

♦ IDL ◄► Link 11/11B, FDL, UDL, ATDL-1

◈ Interface Protocols & Standards

♦ RS-232	♦ EIA-530	♦ V.36	♦ TCP/IP, UDP,
♦ RS-422	♦ EIA-530A	♦ X.25	MULTICAST
♦ RS-449	♦ SCRAMNET	♦ HDLC	
♦ RS-485	♦ V.35	♦ ADDSI	

◈ **User Interface**
- ◆ Multiple tactical displays
- ◆ Multiple hook readouts
- ◆ Operator input dialogs
- ◆ System operational status

◈ **Hardware Configuration**
- ◆ Ruggedized chassis
- ◆ Rack mount option
- ◆ Off-the-shelf I/O Cards
- ◆ Dual display monitors

◈ **Link 16 Terminal Interface**
- ◆ JTIDS network download files (read and create)
- ◆ Smart Host (terminal control and monitoring)

◈ **Link 11 Circuit Control and Monitoring**
- ◆ Equipment configuration and monitoring (DTS, receivers, transmitters, power amplifiers, filters, antennas)
- ◆ DTS controls (transmit/ reset, radio silence, picket/ NCS, net mode, waveform, data rate, receive mode, diversity, Doppler, sync, error correction, response times)
- ◆ Discreet statuses (receiver, transmitter, power amplifier)

◈ **Track Database**
- ◆ 2000 objects (minimum)

◈ **Network Support**
- ◆ Multiple workstations
- ◆ Distributed processing
- ◆ Integrated situation awareness

◈ **GPS Interfaces**
- ◆ GPS Sync, IRIG-B

◈ **Data Forwarding**
- ◆ FJUAB, FPU, FRU

◈ **Aircraft Route Planning**
- ◆ Aircraft/Missile characteristics
- ◆ Terrain following using DTED

◈ **Automatic Initialization**
- ◆ Turn-key operation
- ◆ User defined adaptation parameters
- ◆ JTIDS network download files

◈ **Data Recording**
- ◆ All message traffic
- ◆ All operator actions

◈ **Data Reduction**
- ◆ Real-time and after-action reporting (DERG compliant)
- ◆ Extensive filters
- ◆ Prose, hex, octal and binary
- ◆ Operator actions

◈ **Playback**
- ◆ Processes recording files
- ◆ Recreates tactical displays
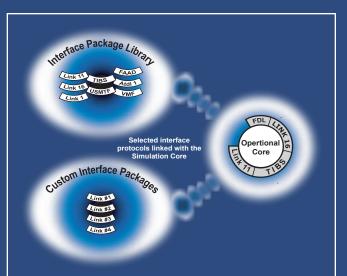- ◆ Recreates online DX

ComLINK System Description

ComLINK is a turn-key, PC based data link communications display system that uses ruggedized, commercial off-the-shelf hardware configurations for enhanced reliability and durability. ComLINK allows direct participation and monitoring of all configured data links as well as data forwarding and data translation from one link format and protocol to another. ComLINK creates tracks in its track database from received track messages and operator entered (voice told) tracks. External interfaces configured into the ComLINK independently scan the Track Database both on a periodic and on-demand basis to generate the appropriate messages and operator alerts for each object.

Message generation and processing is based on the requirements of the associated specification for each configured external interface (e.g. MIL-STD-6016B). Data received over a configured external interface is validated for errors and processed for automatic link responses (R^2 shifts, ID conflict processing, command processing, etc.), presentation of data in hook readouts, real-time data reduction, and automatic alerts. Non-periodic, non-automatic message traffic is generated in response to operator actions as well as in response to received messages.

The Interface Package Library (IPL) is a risk reduction technology providing an object-oriented suite of interface protocol packages which can be easily integrated with an Operational Core package to create custom system configurations. IPL packages and the Cores are implemented using the Ada programming language ensuring high reliability and reusability.

Pull-down and context specific pop-up menus simplify definition of the tactical data link environment. Pre-defined world maps, standardized tactical symbology, user defined map areas, integrated satellite imagery and digital terrain maps (DTED) provide enhanced visualization. Extensive user-friendly controls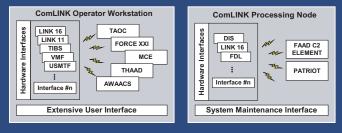 including display and data filtering, range/bearing functions, display zoom and offset, track histories, and allow operators to configure and use the tactical displays to provide optimal data visibility for situation awareness and analysis. ComLINK's user interface is optimized for operational use and provides extensive automated functions and operator alerts for tactical conditions reported/detected for configured data links.

ComLINK Workstation Ethernet Interface

ComLINK is normally configured as a single workstation supporting multiple data link interfaces. The number of external interfaces supported by a single workstation is virtually unlimited. When more external interfaces are required, ComLINK can be configured as a distributed network supporting multiple integrated workstations and processing nodes. In this configuration, ComLINK provides distributed processing and operator controls while maintaining fully integrated situation awareness and data availability at each workstation. Additional processing nodes can easily be added when elements of the system are physically separated. Single and dual display options are available.