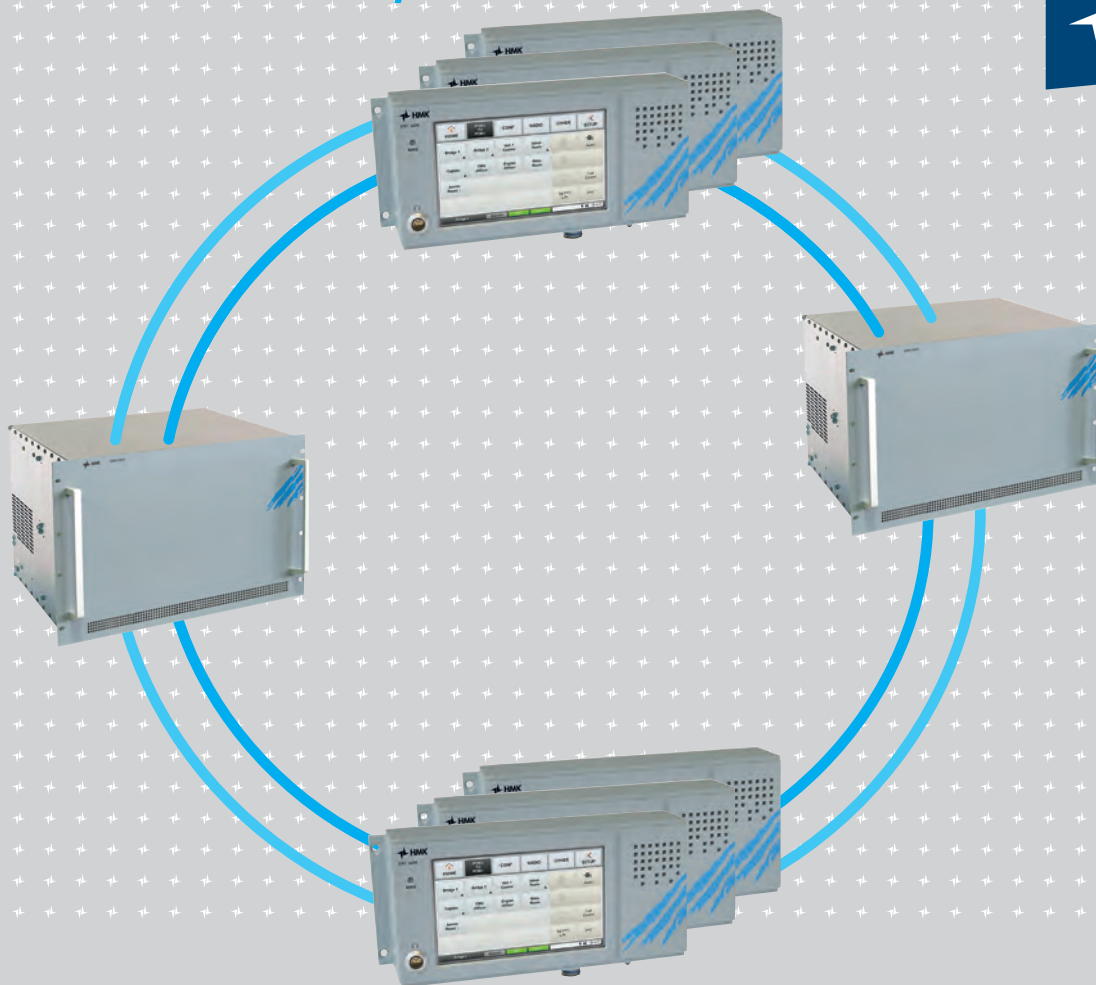




SEICAM[®] 3000 Digital Audio and Data Distribution System

**SEICAM[®]
3000**

Digital Audio and Data
Distribution System



Data Exchange for Internal / External Communications



DDN 3001
front view

SEICAM® 3000

The Innovation in Digital Audio and Data Distribution

General

With its digital technology SEICAM® 3000 features a high performance integrated audio and data exchange for internal and external communications. The system is designed for all kinds of shipborne as well as shore station applications.

Compared with conventional systems, the main advantages are its modular and flexible configuration capability and minimised need for cabling. Only two wires (4 wires for dual-homing), for audio communication and two wires for power feed are required to connect a user station - a crucial factor for cost saving in new systems as well as for refit programs.

Any equipment such as voice and data terminals, radio teletype equipment, message handling system, different kinds of crypto devices, sound powered telephones, and a public address system can be connected to the SEICAM® 3000. Thus, internal and external communications can be performed by the individual assigned user station.

The SEICAM® 3000 system consists of a collection of interface and control circuit cards mounted within a variety of custom VME chassis, depending upon application. Each chassis is designed for mounting in 19" racks.

Most chassis configurations include internal power supplies that accept a variety of input power options.

FEATURES

	■ Digital switching of voice and data, based on synchronous PCM coding	System architecture	■ Centralized or decentralized architecture, with up to 1000 user channels including channels reserved for network operation.
Connections/ Interfaces	■ Two-wire audio/data cable connections to user stations	System Integration	■ Configurable to customer's audio and data communications requirements
	■ Standard digital UP ₀ interfaces as well as various CCITT analogue interfaces	Remote Control	■ Via Ethernet interface
	■ Standard PCM30 -E1- interfaces for internodal-trunk connections	Attenuation	■ High crosstalk attenuation (> 92 dB)
	■ Connection of all tactical, nontactical, and radio communication resources via interfaces	Built-in test	■ Continuously
	■ Conferences with unlimited number of users	Backup	■ Inherent processing power backup

SEICAM® 3000 – Internal/External Communications

The digital distribution node family DDN 3001 is the central switching device which connects external and internal communication resources via programmable crosspoints including all associated control signals. It is operated via the easy-to-operate remote control system SWC 3001, which is the configuration and programming tool for control of the DDN 3001 and the user stations.

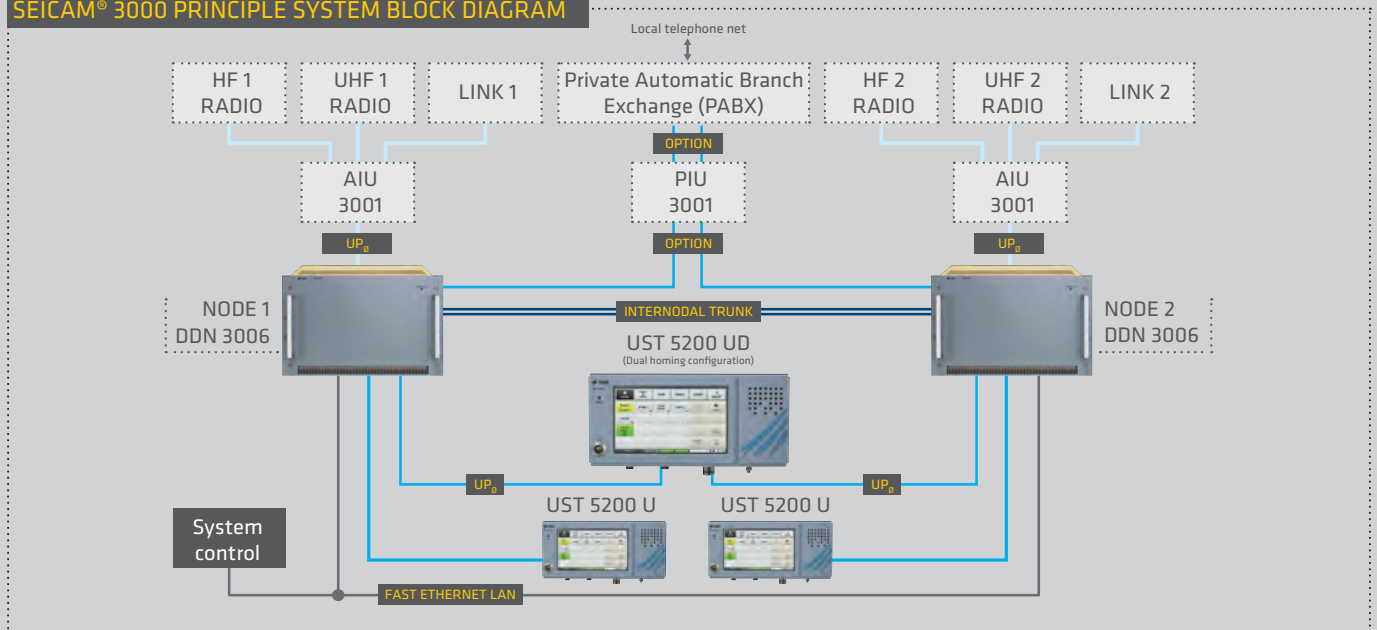
The user stations are located at the distributed user positions and provide access to all allocated radio resources for external communication. They also provide access to the

allocated internal communication stations such as other user stations, DTMF – telephones, PABX, public address system, sound powered telephone circuits, auxiliary signals, and other to be defined equipment.

The UST 5200 U with touchscreen display and freely programmable softkeys provides maximum operation flexibility. Direct “push button” access and also “telephone like” dial-up capabilities are provided. Mechanically, the user stations can be arranged as built-in, desk or wall mounted units.

Other UST types on request.

SEICAM® 3000 PRINCIPLE SYSTEM BLOCK DIAGRAM



EXTERNAL COMMUNICATIONS

This part includes all functions required for radio communications:

- Radio access by remote radio operators (voice, morse)
- Radio access by remote users (voice, morse, TTY, message handling)
- Radio access by data Link terminal equipment
- Insertion of cryptographic equipment
- Plain text /cipher control
- Emission control



DDN 3001 principle card frame construction

INTERNAL COMMUNICATIONS

The onboard communication capabilities include all functions required for:

- Tactical intercom, including
 - Point-to-point and conference communications
 - Group call/general call function
 - Direct call/dial function
- Alarm function
- Access to public address system (e.g. announcements and alarms)
- Access to sound powered telephone circuits
- Access to telephone systems
- Access to auxiliary audio and control signals
- Access to other systems (to be defined)
- Access to various programmed communication functions is gained by pressing the corresponding push-button at the user station.



UST 5200 U with point-to-point menu

UST 5200 U / UD

User Station

FEATURES

	User station for the digital distribution system SEICAM® 3000
Display with touch screen control	7" display, wide VGA (800 x 480 pixels) Programmable softkeys and dialogues, usable with gloves, analog resistive
Comms functions	Organized in tabbed folders For each tab up to 16 programmable target keys per page; unlimited number of pages homepage for favorite lines Dynamic human-machine-interfaces
Individual desktop	Associated individual desktop (optional) with PIN access Optional dual home capability
Build-in test	Comprehensive built-in test
Headset	Optional second headset receptacle with priority for instructors
Speaker	Built-in speaker
Microphone	Built-in microphone
Split left/right operation	(i.e. for ext/int. comms)
Mixed use	With predecessor UST 10xx series user terminals possible

TECHNICAL DATA

Communication softkeys	Unlimited number of target keys (16 per page) plus auxiliary control keys
Softkey inscription	Up to 2 lines per key
Character display	Any language (Unicode)
Display illumination	LED back-light longlife, dimmable
External comms functions (depending on system)	Direct radio access Crypto control Emission control
Internal comms functions (depending on system)	Point-to-point Virtual conference (consisting of point-to-point connections) Conferences Announcing Alarm release Dial-up access to powered telephone systems Access to sound powered telephone systems

Administrative control functions	Display maintenance (key lock for cleaning)
Volume controls	Separate for headset left, headset right and speaker
Interfaces	1x UP ₀ , 24 V DC power, Headset (Lemo)
Optional Interfaces	2x UP ₀ for dual homing UST 5200 UD Audio output (i.e. external speaker) 3 input ports (i.e. for external PTT foot switch) 3 output ports (i.e. for external signaling/alarming) Wideband sonar audio 2 nd headset Auxiliary RS 232 / RS 422 interface
Power supply	24 VDC nom. 12 W
Operation temp.	-15°C to +55°C
Storage temp.	-40°C to +80°C
Humidity	Max. 95% up to 40° C
Shock	Compliant with BV 0430 for surface vessels, installation area 1
Vibration	Compliant with BV 0440 diagram 1 and 6
EMI	Compliant with MIL-STD-461D
Height	133 mm
Depth	60 mm
Width	302 mm (with mounting angles) 275 mm (without mounting angles)
Weight	Approx. 2.5 kg

UST 5200 UD user station



DDN 300X Family

Digital Distribution Node

FEATURES

	Establishing links for internal and external communication
	Handling of digital and audio signals between USTs, loudspeakers and different radios
Interfaces	For different USTs, loudspeakers and radios
Connections	Up to 256 peripheral UP ₀ devices connectable
	Redundant operation in case of failure without loss of data
Remote control	Via the MHS software SWC 3001
Build-in-test	Comprehensive built-in test



DDN 3004 Digital distribution node (e.g.)

The digital distribution node DDN 3004 is a 8 U 19" rack-mounted unit. The node sets all selected crosspoints. It connects users with standard and special interfaces. Its high reliability is supported by a backup of master controller and redundant address and data busses on the backplane. In the event of failure there is an automatic switch-over. A built-in test announces the DDN status to the controlling device. For broadband voice secure and Link data a broadband switch is used.

The DDN 3001 contains a VME-bus backplane with max. 20 card slots.

CP 3001 Central Processor Card

This powerful PC-card is the central control unit of the system. It provides an Ethernet interface for remote control of the node. Two CP 3001 are used in the DDN to provide redundancy. One CP 3001 runs in "online"-mode, the other in „standby“-mode. In case of a CP failure the second CP takes over the control of the node. Together with the redundant internal interfaces this concept gives high reliability of the DDN. The "online" CP receives the actual communication plan

TECHNICAL DATA

Audio analogue	0 dBm, balanced, 600 Ω ± 20%
Signal/noise ratio	> 50 dB
Crosstalk attenuation	> 92 dB
Interfaces	Digital UP ₀ (2 x B plus 1 x D-channel), various other interfaces available
Connectable devices	Max. 256
Power supply	18 VDC to 31 VDC, 24 VDC nom.
Operation temp.	-15°C to +55°C
Storage temp.	-40°C to +80°C
Humidity	Max. 95% relative humidity at 40°C
Shock	Compliant with BV 0430, 16 g, 20 ms 30 g, 11 ms
Vibration	Compliant with BV 0440 diagram 1 and 6
EMI	Compliant with MIL-STD-461D
Height	354 mm
Depth	370 mm
Width	483 mm (19" unit)
Weight	Approx. 21 kg

including the user station's key allocation and the connectivity plan with the complete circuit definitions (i.e. radio, crypto device and User Station definition to a communication circuit) from the remote control software SWC 3001.

The plans are stored internally and used to perform the switching activities based either on remote commands or on inputs from the User Stations. As a result, the CP generates switching commands for the digital switch cards DS 3001 and for the Link matrix i.e. realized by the analogue interface unit AIU's. The "standby" CP gets all information from the "online" CP.

DS 3001 Digital Switch Card

It provides 16 UP₀ interfaces for USTs or analogue interface units.

DM 3001 Data Matrix Card

It provides 6 opto isolated digital interfaces for serial data communication

NI 3001 Node Interconnection Card

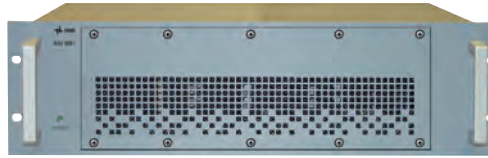
It is used in larger systems to interconnect nodes using 2 Mbit/s trunks. Each card provides six trunk lines with a capacity of 30 channels. Physically the interface is an E1-line which uses a proprietary protocol.

AIU 3001

Analogue Interface Unit

TECHNICAL DATA

Input voltage/ power supply	24 VDC, 18 to 31 VDC nom.
Internal voltage	24 VDC and 5 VDC via DC/DC converter
Power consumption	Max. 60 W, 3.4 A
Operation temp.	-15°C to +55°C
Storage temp.	-40°C to +80°C
Shock	Compliant with BV 0430 16g, 20 ms/ 30g, 11 ms
Vibration	Compliant with BV 0440 diagram 1 and 6 (-10 dB)
EMI	Compliant with MIL-STD-461D
Height	132,6 mm (3 U)
Depth	500 mm (without handles and plug connectors)
Width	482,6 mm (19" unit)
Weight	Approx. 8.8 kg (basic device)



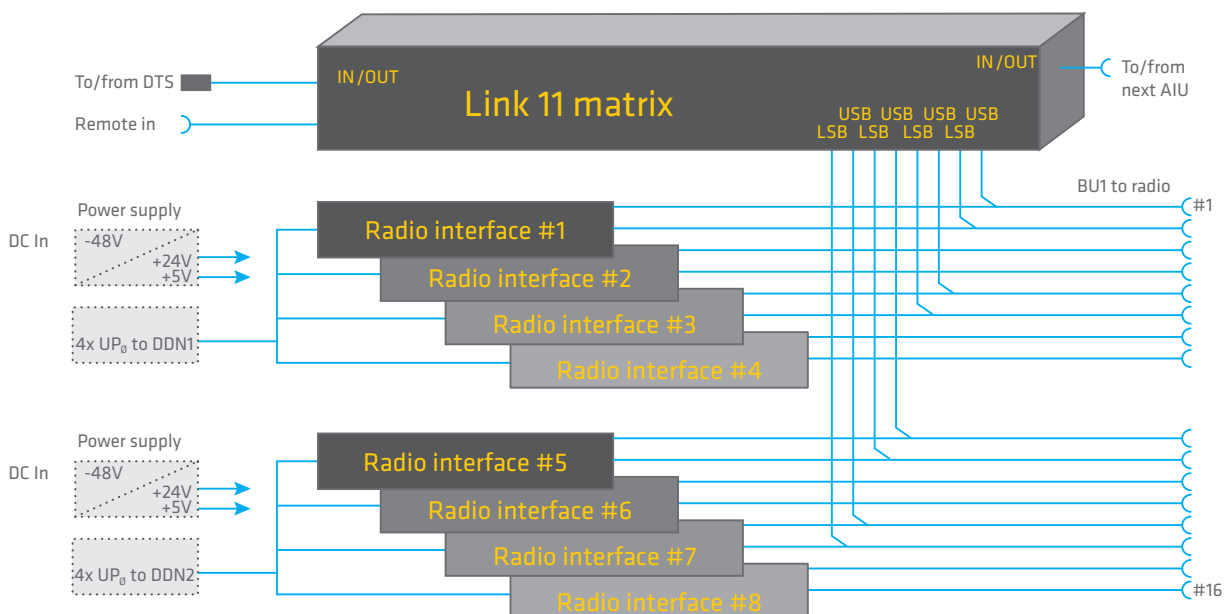
AIU 3001 Analogue interface unit

The AIU 3001 provides up to 16 audio interface cards or broadband switching cards. The AIU is used to interconnect the different radios to the DDN. It contains A/D, D/A converter and the interface logic for the radios and digital interfaces (UP₀-Type) to the DDN. Broadband switching cards may be used to provide Link interfaces to external Link equipment.

PABX Interface Unit PIU 3001 - option

The PIU 3001 is similar to the AIU 3001 and provides interfaces to standard telephone systems. It supports dialing via analogue telephone lines using DTMF signalling and can be connected to the DDN with UP₀ digital lines.

AIU 3001 - SIMPLIFIED BLOCK DIAGRAM



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Digital Audio and Data
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Hagenuk Marinekommunikation

A company of the ATLAS ELEKTRONIK Group