DCS 6000

User Manual

Digital Conference System

AO 6004 Audio Output Unit

1 List of Contents

2 Important

2.1 Compliancy

The equipment has been tested and found to comply with the limits of the following standards for digital devices:

- EN55103-1 (Emission)
- EN55103-2 (Immunity)
- FCC rules part 15, class A (Emission)

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial or light industrial environment. The equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the user manual it may cause harmful interference to radio communications.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

2.2 Installation precautions

Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place exposed to direct sunlight, excessive dust or humidity, mechanical vibration or shock.

To avoid moisture condensations do not install the unit where the temperature may rise rapidly.

2.3 Cleaning

To keep the cabinet in its original condition, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use organic solvents such as thinners or abrasive cleaners since these will damage the cabinet.

2.4 Repacking

Save the original shipping cardboard box and packing material; they will become handy if you ever have to ship the unit. For maximum protection, re-pack the unit as originally packed from the factory.

2.5 Warranty

The individual units in the DCS 6000 system are minimum covered by 24 months warranty against defects in materials or workmanship.

3 DCS 6000 Conference System

3.1 Features

DCS 6000 Digital Conference System is a system to be used at meetings, where a number of people are addressing the 'Floor' in a structured manor. The audio from the Conference units can be heard in the built in loudspeakers in the units.

The system does also allow for simultaneous interpretation for international conferences where multiple languages are used.

To enable all participants to understand the proceedings, interpreters can simultaneously translate the speaker's language as required. These interpretations are distributed through the connected Conference units and delegates can select the language of their choice and listen to it through headphones.

DCS 6000 Digital Conference System comprises of one CU 6105 or one CU 6110 Central Unit and a number of Conference Units, Gooseneck Microphones and other accessories depending on the system configuration.

The DCS 6000 system has the following main features:

- Fully digital
- Excellent sound quality
- "State of the Art" fully digital integrated interpretation, discussion and voting system offering interpretation, language distribution, conference microphone and voting facilities with attendance check with Chip Card ™.
- Digital transmission of audio from/to the Conference unit to/from the central unit using a unique digital DATA and AUDIO bus named DCS-LAN.
- Control of up to 4000 conference units. This number does not include Channel Selectors, Repeaters etc. In practical use there are no limits for the number of Channel Selectors in a system.
- Delegate and Interpreter units are powered and controlled by the CU 6105 or CU 6110 Central Unit.
- EX 6010 Extension Unit or PS 6000 Power Supplies is available if more units are required.
- Delayed switching on of power to the chains, to minimize the total 'in-rush' current on the Mains supply
- Designed for 31 interpreted channels and 8 open microphones
- Audio scrambling of the audio to avoid eavesdropping.
- Designed in a standard 1HE 19" cabinet.
- TCP/IP connection on CU 6105 and CU 6110 for external operation of the system using a PC or control system such as AMX ® or Crestron ®.
- Functionality on the CU 6105 and CU 6110 depends on the Feature License uploaded into the unit.
- Firmware in Delegate units, Interpreter Units, Central Units etc. is upgradeable
- Operated either stand alone or from a PC using the CU browser or using SW 6000 software.
- Added functionality and comprehensive features provided by SW 6000 software package running on PC

The SW 6000 is an optional software package, which expands the functionality of the DCS 6000 system. The software runs on standard computer technology (Standard PC with Windows 7, Server 2008 etc.).

Main features of the SW 6000 are:

- Microphone management
- Mimic panel operation
- Interpretation management
- Voting management
- Message handling
- Agenda handling
- Data stored on SQL data base
- Web service interface available for easy links to external applications
- Multi language user interfaces
- Supports different User types with different priorities, user interfaces and control possibilities

3.2 System components

The CU 6105/6110 Central Units support all available units in the DCS 6000 series:

Central equipment etc.

EX 6010	Extension Unit
PS 6000	Power Supply
AO 6004	Audio Output box
AO 6008	Audio Output box
RP 6004	Repeater for four chains
JB 6104	Junction Box with 4 outputs

3.2.1 Interpreter equipment

IS 6132P	Interpreter Unit
LS 6132P	Interpreter Loudspeaker

3.2.2 Conference equipment and channel selectors

DC 6990 P	Conference Unit (portable) with touch screen with two built-in channel selector, Chip-card and 5 voting buttons, configurable as Delegate, Dual Delegate or Chairman.
DC 6120 P	Conference Unit (portable)
DC 6190 P	Conference Unit (portable) with two built-in channel selectors
DM 6680 P	Conference Unit (portable) with voting
CM/DM 6080 F	Conference Unit (flush mounted) with built-in channel selectors
DM 6620 F	Conference Unit (flush mounted) with, Chip-card and 5 voting buttons
CM/DM 6680 F	Conference Unit (flush mounted) with one built-in channel selector, Chip-card and 5 voting buttons
MU 6040 C/D	Microphone Unit for use with FD/FC front plate with Loudspeaker, Microphone and Buttons. Available in Delegate (D) and Chairman (C) version
MU 6042 D	Dual Microphone Unit for use with FD/FC front plate with Loudspeaker, Microphone and two delegate Buttons
DV 6501 F	Voting Unit
AM 6040	Ambient Noise Microphone
CS 6340 F V/H	Channel Selector (flush mounted)

4 Operating instructions

4.1 AO 6004 Audio Output Unit

4.1.1 General description

The AO 6004 Audio Output Unit for the DCS 6000 system enables the user to record the sound from a number of interpreted language channels or floor channel on external devices such as tape- or hard disk recorders by Analog interface.

It can also be used to distribute sound channels to for example infrared distribution or loudspeaker system.

4.1.2 Features

- Decoding of 4 language channels into analog audio chosen out of the possible 31 digital channels as well as the Floor channel in 3 qualities.
- The 4 decoded channels are available on 4 analog outputs (XLR connectors) transformer balanced.
- A number of AO 6004 can be combined to decode more channels. Up to 20 pieces AO 6004 can be connected and configured in one system to decode more channels.
- Easy to use with preconfigured settings and automatic channel assignment at start-up:

  Output A – channel 0 (Floor)

  Output B – channel 1

  Output C – channel 2

  Output D – channel 3
- The unit is connected to the DCS-LAN as any other unit and by controlling it from the CU 6105/CU6110 it can be placed anywhere in the system.
- The unit can be used as a single unit, installed in a 19'' rack or inserted in a slot in the CU 6005.

4.1.3 User controls, indications & connections

4.1.3.1 Front plate layout

The front plate layout of the AO 6004 Audio Output Unit consists of 4 XLR Analog transformer balanced outputs and 2 DCS-LAN connectors:

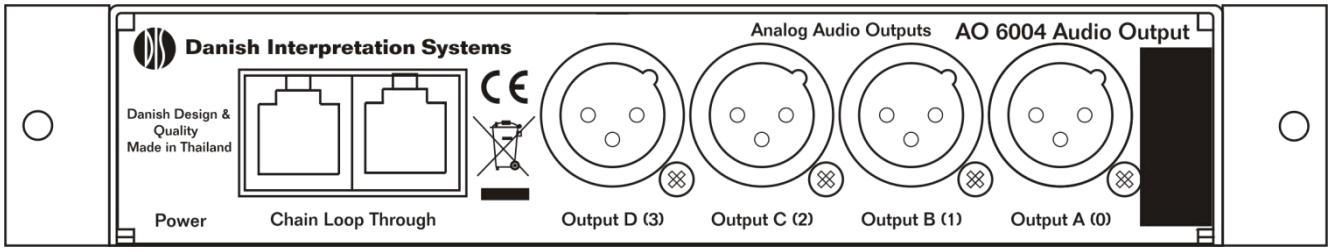

Figure 0-A AO 6004 Back Panel

4.1.3.2 Front plate controls and indicators

The AO 6004 is an easy to use AO unit with pre-configured settings and no user interface in terms of controls, display or indicators.

4.1.3.3 Front plate connectors

4.1.3.3.1 Audio Output A to D

On the front are located 4 XLR 3P connectors, each supplying transformer balanced audio signal from each of the 4 channels.

The outputs can be used for tape recording purpose i.e. or for connecting a Digital infrared transmitter like DT 6008, DT 6032 or an Analog infrared transmitter for wireless transmission of the interpreted languages.

4.1.3.3.2 DCS-LAN connector

Two RJ45 sockets are located at the front of the unit for connecting to the previous unit like the CU 6105/CU6110 Central Unit or any other unit with a DCS LAN connector and to the next unit like an IS 6132 Interpreter Unit, CS 6340 Channel Selector, DM/CM 6xxx Conference Unit.

4.1.4 System settings

4.1.4.1 Pre-configured settings

The AO 6004 comes with pre-configured settings and can be used without additional configurations.

The AO 6004 automatically assigns channels to the outputs at start-up. Output A is assigned channel 0 (Floor), Output B is assigned channel 1, Output C is assigned channel 2 and Output D is assigned channel 3.

The output volume for each channel is +3 dB, which is the recommended level for connecting to DT 60xx.

The unit can be re-configured using SW 6000. The settings for a reconfigured unit can be saved in the CU 6105/CU6110.

4.1.4.2 SW6000 settings

The SW6000 can be used for changing the assignment of channels to outputs and for setting the volume.

Both the Conference Administration Application (CAA) and the Conference User Application (CUA) can be used to configure the AO units connected. They both have settings for assigning channels to each of the 4 outputs A-D. Each output can be set to one of the 31 language channels or one of the three Floor channels:

Floor: automatic gain controlled output

Floor 1: loudspeaker unregulated audio

Floor 2: loudspeaker regulated audio

An ambient microphone will only be active on the Floor channel, not on Floor 1 or Floor 2

Values: {Floor 2, Floor 1, Floor, 1,…, 30, 31}

The volume of the outputs can also be set if the default settings are not appropriate.

Values: {Off, -40, -39,…, 14, 15}

Refer to the CAA and CUA User Manuals for more details.

4.1.5 Normal operation

4.1.5.1 Powering up

Connect the AO unit(s) to the rest of the system via the DCS-LAN connectors and connect the audio outputs to the appropriate units (tape recorders, infrared transmitters, etc.).

Switch on the power on the Central Unit.

During the initialization the AO unit will automatically assign channels to the outputs. The unit is immediately ready to use after start-up unless other channels need to be assigned to the outputs or the channel volume needs to be adjusted. These adjustments can only be done using the SW 6000.

5 System Setup

5.1 General guidelines

Connect the AO 6004 to the DCS-LAN using shielded CAT5e cables (F/UTP or U/FTP)

Please observe the following guide lines:

- Maximum cable length in one chain is 200 m without repeater. This includes interconnection cables between the units. The max. usable cable length depends on the units connected and length of feeding cables etc.
- Maximum cable length in one chain when using repeaters is 650 m..

5.2 Typical schematics

Connect the AO 6004 to the DCS 6000 network using Cat 5 cables. The Analog Audio output connectors are connected to either tape recorders for recording the interpreted channels or to a DT 6008 Infrared Transmitter for transmitting the interpreted channels wireless.

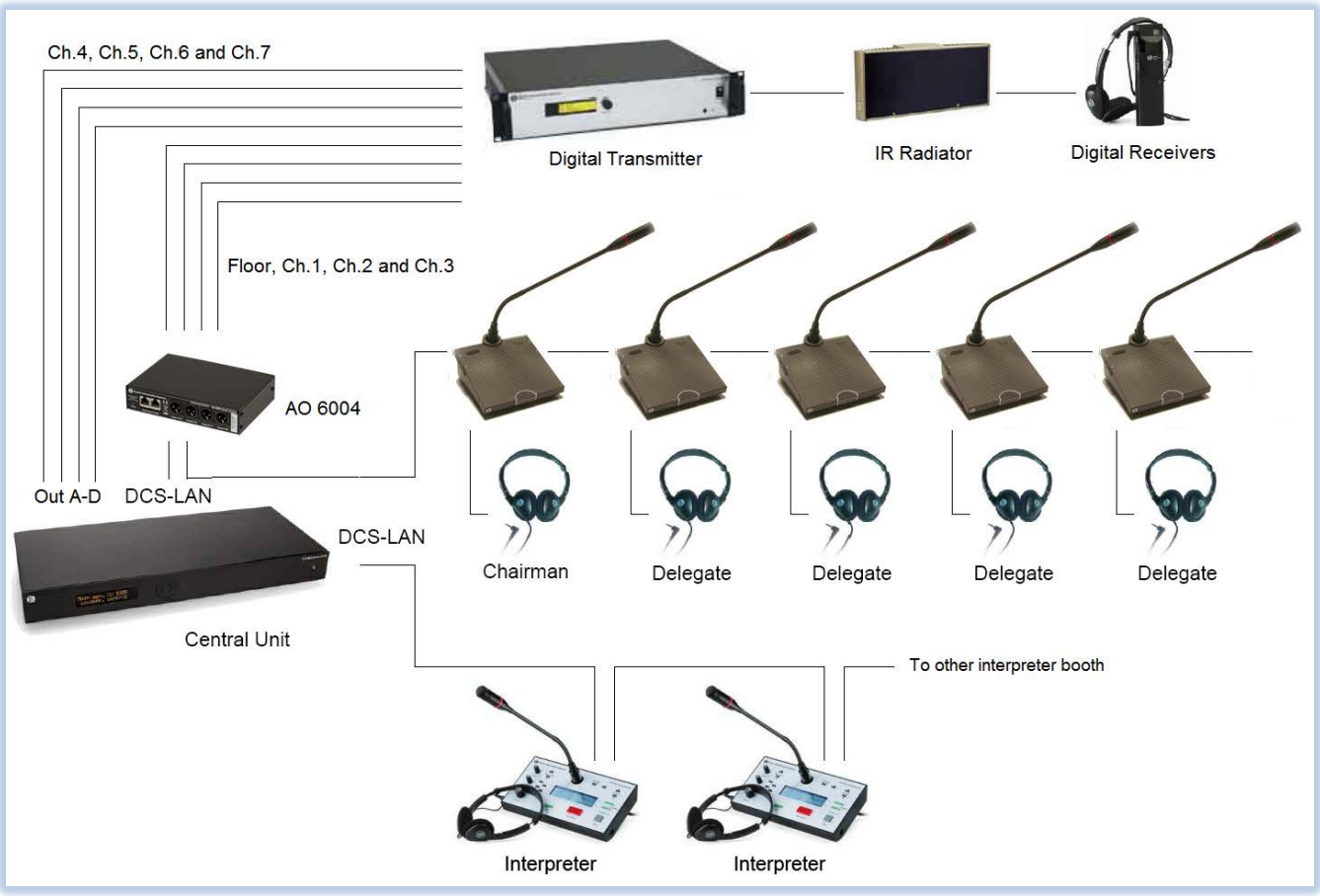

Figure 0-A Typical schematic

5.3 Using AO 6004 with DT 60xx Digital IR-Transmitter

When using the AO 6004 with the DT 60xx Infrared Transmitter, the audio output level on the AO 6004 has to be set to match the sensitivity on the transmitter.

The correct level on each connected channel on the AO 6004 is +3dB. This level is factory preset, but can as earlier mentioned be changed using SW 6000. Please refer to the section 'Pre-configured settings' on page 8. The DT 60XX input level settings should be set to –6dB.

6 Technical Specifications

6.1 Technical specifications

Digital Section

Sound quality ..... 20 bit audio @ 32 kHz sampling frequency

Analog Section

Output signal type.....ground lifting transformer balanced

Nominal output level: ..... 0 dBm at nominal input

Max. Output level: .....15 dBm

Frequency response..... 50-16kHz

Signal to noise ratio: .....>85 dBA

Total harmonic distortion: ..... < 0.1%

General

Power requirement.....24-48 V DC

Power consumption.....2W maximum

Power supplied from .....CU 61xx / EX 6010 / PS 6000

Temperature to guarantee specified performance

.....5 Deg C. to 40 Deg C. (35 to 80 % humidity)

Storage temperature

..... -20 Deg C. to 60 Deg C. (10 to 80 % humidity)

Weight.....0.84 kg

Dimensions (W x H x D).....180 (205) x 38 x 120 (120) mm

Dimensions in bracket are including brackets

Connectors

DCS-LAN network ..... 2 pieces RJ45

Analog outputs connectors ..... 4 - XLR3 male connectors

Remote Control commands in/out

By using SW 6000 the user can control the following settings in the AO 6004 through the CU 6105/CU6110.

*..... Channel number for each output channel

*.....Volume setting for each channel

* The settings can only be read or controlled from the SW 6000.

Specifications are subject to change without notice.

6.2 Connection Details

DCS-LAN Chain

The DCS 6000 system uses Cat5e, Cat6 or Cat7 F/UTP or U/FTP cables with screened RJ45 connectors.

EIA 568-B wiring shall be used.

Important: The names of Cat5/6/7 cable type have changed.

Old name	New name
FTP	F/UTP
STP	U/FTP
UTP	U/UTP

Important: Use only F/UTP or U/FTP (screened) cables and screened RJ45 connectors and not U/UTP cable, which are unscreened.

How to wire a Cat5e (EIA 568-B) cable to a RJ45 con.:

Pin	Function	Connector #1	Connector #2
1	In-going +	ORG/WHT	ORG/WHT
2	In-going -	ORG	ORG
3	+48V	GRN/WHT	GRN/WHT
4	0V	BLU	BLU
5	0V	BLU/WHT	BLU/WHT
6	+48V	GRN	GRN
7	Outgoing -	BRN/WHT	BRN/WHT
8	Outgoing +	BRN	BRN

Important: If other color codes are used then the four pairs are connected as follows:

Pair 2: Pin 1 & 2
Pair 3: Pin 3 & 6
Pair 1: Pin 4 & 5
Pair 4: Pin 7 & 8

The phase of the pairs must be correct and the wiring spec. as stated in Cat5e (EIA 568-B) have to be followed.

Note: Cat6 and Cat7 cables can normally only be terminated in sockets (female) and not in cable plugs.

Cat6 and Cat7 can thus only be used for feeding cables terminating in wall outlets or patch panels.

Analog Audio Out

XLR3 male

Pin	Signal	Cable type
1	Earth	2 x 0.25 mm2 shielded.
2	Signal +	
3	Signal –	

6.3 Accessories

Cat5e Connection Cables (AWG24)

EC 6001-0.5 Connection Cable 0.5 m 10 03 22500

EC 6001-01 Connection Cable 1 m 10 03 23101

EC 6001-02 Connection Cable 2 m 10 03 23201

EC 6001-05 Connection Cable 5 m 10 03 23501

EC 6001-10 Connection Cable 10 m 10 03 24102

EC 6001-20 Connection Cable 20 m 10 03 24202

EC 6001-50 Connection Cable 50 m 10 03 24502