CCSD-CURD Control unit with recorder and DAFS

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Invented for life

- Plug-and-play functionality for quick and easy connection of up to 80 Discussion Devices
- Intuitive web browser interface control for advanced configuration and control
- Built-in MP3 recorder with internal memory and USB recording
- Built-in Digital Acoustic Feedback Suppression (DAFS) for ensuring superior speech intelligibility
- On-board support for automatic HD camera control

The Control Unit is the main component of the CCS 1000 D Digital Discussion System. It supplies DC power to all connected Discussion Devices (CCSD-DS/ CCSD-DL) and monitors and controls the discussion system.

- Up to 80 Discussion Devices can be connected to a single Control Unit; the system can be expanded to a maximum of 245 Discussion Devices by using Extension Units (CCSD-EXU).
- The CCSD-CURD Control Unit has MP3 recording and Digital Acoustic Feedback Suppression (DAFS).
- Four RCA outputs at the rear of the CCSD-CURD ensure that it is optimized for use in courtrooms, i.e. for recording individual speakers.
- Touch-button control allows for easy configuration and operation of the unit, while intuitive LED indicators give a clear indication of the system settings.
- Conveniently positioned connections at the rear of the unit enable peripheral equipment to be connected to the discussion system, such as audio equipment, Ethernet switches, video switches, Bosch HD Conference Domes, and a PC or laptop.
- An intuitive web browser interface control allows basic and advanced system settings to be easily viewed and changed, as required.

Functions

Plug-and-play functionality
The plug-and-play functionality of the Control Unit allows Discussion Devices and system cameras to be conveniently connected to and removed from the system as required. A power down or restart of the system is not necessary, which ensures fast installation and reconfiguration times.

Web browser control
Basic and advanced system settings, including microphone management, can be easily viewed and configured using a web browser interface in combination with a tablet, laptop or PC.

- Changes made in the web browser interface are automatically updated in the Control Unit and vice-versa.
- An energy saving mode in the web browser interface allows the Control Unit and connected devices to automatically shut down if they are not used for two hours.
- The standby mode can be used during a meeting break. When this mode is selected, the Control Unit is set to standby and all Discussion Devices are switched off.

- The web browser interface also has an option to select a fixed IP address.

A RESTful API (Application Program Interface) can be used to:

- control the speaker's microphone.
- control the discussion modes and waiting lists.
- set the system to, and recover the system from, standby.
- retrieve and set the microphone sensitivity of an individual Discussion Device.
- facilitate web-casting and recorder solutions requiring microphone information, third-party Pan Tilt Zoom (PTZ) camera systems, and synoptic layouts for enabling and disabling microphones.

Microphone management

The maximum number of microphones that can be activated at the same time by pressing the microphone buttons on the Discussion Devices can be selected with the 'Number of Open Microphones' (NOM) button on the Control Unit.

- A maximum of four microphones can be selected on the Control Unit.
- This can be further extended to 25 microphones in the web browser interface.

Interruption microphone option

A Discussion Device can be configured as an interruption microphone that can always get the floor regardless of the number of open microphones. Typically an interruption microphone is positioned at a podium for use by guest speakers. The web browser interface allows a total of 25 Discussion Devices to be configured as interruption microphones or chairperson's devices.

Discussion modes

One of the following microphone modes can be selected by pressing the 'Microphone-mode' button on the front of the Control Unit:

- **Open mode** – Participants can speak by pressing their microphone buttons. When the maximum number of open microphones is reached, the next participant that presses their microphone button is added to a waiting list. The first participant in the 'waiting list' is allowed to speak when an activated microphone is disabled.
- **Override mode** – Participants can override each other by pressing their microphone buttons. When the maximum number of open microphones is reached, the next participant that presses their microphone button will deactivate the microphone that has been activated for the longest time (the chairperson's microphone is not included in the number of open microphones and, therefore, cannot be overridden by a participant).
- **Voice activation mode** – Participants can activate their microphones by speaking into them. A microphone can be temporarily muted by pressing and holding down the microphone button.
- **Push to talk (PTT) mode** – Participants can speak by pushing and holding in their microphone buttons. The microphone is deactivated when the microphone button is released. The maximum number of participants that can speak is determined by the number of open microphones.

Interface for connecting peripheral equipment

The Control Unit enables the following equipment to be connected to the Digital Discussion System:

- System cameras – for giving a clear visual overview of the proceedings. A maximum of six Bosch HD Conference Dome cameras can be connected to the system with native support (the camera presets can be configured in the web browser interface). The CCS 1000 D Digital Discussion System supports the tvONE CORIOmaster mini C3-510 and the Kramer MV-6 3G HD-SDI Multiviewer video switchers.
- External wired or wireless microphone – to allow a guest speaker or an audience to participate in a discussion.
- Sound reinforcement system – for transmitting the proceedings to an audience in the same room or an adjacent room.
- Audio equipment – for broadcasting music through the loudspeakers of the discussion system.
- External audio processor – for modifying the floor signal distributed to the participant loudspeakers and headphones (i.e. equalizing).
- Telephone coupler – to allow a remote participant to join a discussion via a telephone/video connection.
- External recorder – for recording and playing back discussions.
- PC or laptop (connected via micro USB connector at rear of Control Unit) – for updating the software or for transferring recordings (discussions) from the internal memory of the Control Unit.

Built-in MP3 recorder

The built-in recorder can record discussions in the MP3 format to the internal memory or a USB memory stick with a maximum capacity of 128 GB, which can store up to 4,000 hours discussion. By default, recordings are divided into files of one hour's duration containing the date and time of recording. Continuous recording (i.e. for courtrooms) can be configured in the Control Unit, if required.

- **Internal memory** – recordings are automatically saved to the internal memory unless a USB memory stick is connected to the USB connector at the front of the Control Unit. The internal memory can record up to 8 hours discussion.
- **USB memory stick** – recordings are automatically saved to a USB memory stick when it is connected to the Control Unit. A USB memory stick of 128 GB can record up to 4,000 hours discussion.

LED indicators inform users when data is being recorded to the internal memory or USB memory stick. Three short beeps and a red flashing LED indicate when 5 minutes of recording are left. A long beep and a red/green flashing LED indicate when it is not possible to record a discussion (i.e. internal memory full and USB memory stick not connected to the Control Unit, USB memory stick full or damaged).

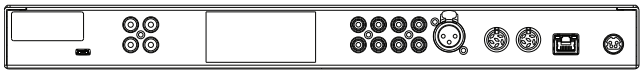
Built-in monitor loudspeaker
The built-in loudspeaker and headphone socket allows for:
- live monitoring of a meeting from the Control Unit.
- prelistening of audio files before replaying them to the Floor.

Built-in Digital Acoustic Feedback Suppression (DAFS)
The built-in Digital Acoustic Feedback Suppression (DAFS) feature suppresses acoustic feedback (also known as 'howling' or 'Larsen effect'). This improves speech intelligibility by allowing the speaker volume to be set as loud as required without any risk of acoustic feedback.

Controls and Indicators
- Mains power on/off button with red/green LED indicator. Red indicates that the system is off (no power available from the external power supply). Green indicates that the system is active (Control Unit and all connected devices powered up).
- Plus/minus buttons for setting the volume range of all connected Discussion Devices – used in combination with LED indicators for showing the selected volume.
- Microphone-mode button for selecting one of the microphone operating modes – used in combination with LED indicators for showing the selected mode.
- Open microphone button for selecting the number of microphones that can be activated at the same time – used in combination with LED indicators for showing the number of activated microphones.
- Plus/minus buttons for setting the volume of the built-in loudspeaker or headphones, if connected – used in combination with LED indicators for showing the selected volume.
- Combined record/pause button for starting and pausing a recording session.
- Stop recording button for ending a recording session.
- Internal recording LED indicator, and USB recording LED indicator.

Connections
Front of unit
- 1 x 3.5 mm (0.14 in) stereo headphone socket.
- 1 x USB connector.

Rear of unit:



CCSD-CURD rear view
- 1 x 4-pole circular female 24 VDC power input connector.
- 2 x 6-pole circular female connectors for loop-through connection of 40 Discussion Devices per trunk.
- 1 x RJ45 Ethernet connector for communication with web browser interface application.
- 1 x 3-pole XLR female microphone input connector with phantom supply.
- 1 x RCA input for 'Floor' (i.e. external audio source, such as a CD or DVD player).
- 1 x RCA output for a 'sound reinforcement system'.
- 1 x RCA input/output for either:
  - 'Recorder' for connecting an external recorder.
  - 'Insertion' for connecting an external audio processor.
  - 'Telephone/mix minus' for allowing a remote participant to join a discussion via a telephone/video connection.
  - 'Participant loudspeaker' for distributing the participant loudspeaker signal to a sound reinforcement system.
    Only one piece of audio equipment can be connected to this RCA input/output at any one time. The RCA input/output has to be configured by selecting the required option in the web browser interface.
- 4 x RCA outputs for individual microphone recording, e.g. for recording individual speakers in a courtroom.
- 1 x micro USB connector.

Certifications and approvals

EU	CE, WEEE[1]
US	UL, FCC
CA	CSA, ICES-003, EPS[1]
KR	KCC, KC[1], K-MEPS[1]
AU/NZ	RCM, MEPS[1]
RU/KZ/BY	EAC
JP	PSE[1]
CN	China RoHS, CCC[1]
TW	BSMI[1]
SA	SASO

Note: [1] Only applicable for the power adaptor.

Region	Regulatory compliance/quality marks
Europe	CE DECL_EC_CCSD-CURD

Parts included

Quantity	Component
1	CCSD-CURD Control Unit
1	Mains power cord
1	24 VDC power supply
1	Micro USB cable
2	Sets of chairperson's buttons for a Discussion Device
1	Exchange tool for buttons
1	Set of feet for table top use

Quantity	Component
1	Set of 19" 1U mounting brackets
1	Safety instructions
1	Installation note
1	DVD with operation manual and supporting tools

Technical specifications

Electrical

Supply voltage Adaptor	100 to 240 VAC, 50/60 Hz
Current Consumption voltage Adaptor	1.9 A (100 VAC) to 1 A 240 (VAC)
DC voltage Control Unit	24 V, 6.0 A
Maximum number of Discussion Devices for Control Unit (without Extension Unit)	40 Discussion Devices per trunk 80 Discussion Device in total 24 V, Max 5.2 A (short-circuited protected)
Discussion Device loudspeakers volume control	15 steps of 1.5 dB (starting from -10.5 dB)
Limit threshold level to unit	12 dB above nominal level
Gain reduction due to number of open microphones (NOM)	1/SQRT (NOM)
Sample rate	44.1 kHz
Frequency response	30 Hz to 20 kHz
Ethernet speed	1 Gb/s

Total Harmonic Distortions (THD)

Nominal input (85 dB SPL)	< 0.5%
Max. input (110 dB SPL)	< 0.5%

Audio inputs

XLR nominal microphone input	-56 dBV
XLR maximum microphone input	-26 dBV
RCA nominal input	-24 dBV (+/- 6 dB)
RCA maximum input	+6 dBV
S/N	> 93 dBA
Frequency response	30 Hz to 20 kHz
THD	<0.1%

Audio outputs

RCA nominal output	-24 dBV (+6/- 24 dB)
RCA maximum output	+6 dBV
S/N	> 93 dBA
Frequency response	30 Hz to 20 kHz
THD	<0.1%

Recorder

Recording/ Playback (bit rate)	64, 96, 128, 256 Kbit/sec
Recording/ Playback (sample frequency)	44.1 kHz

Monitoring loudspeaker

Nominal output	72 dB SPL
Frequency response	200 Hz to 16 kHz (acoustical)
Gain range	Mute -10.5 to +12 dB

USB memory stick compatibility

SanDisk USB memory stick	Formatted with FAT32 file system. Maximum size: 128 GB.

Recording capacity in hours

Bite rate	Internal memory size/ hours	USB memory stick size/hours			
	225 MB	16 GB	32 GB	64 GB	128 GB
64	8 hrs	500 hrs	1000 hrs	2000 hrs	4000 hrs
96	5 hrs	350 hrs	700 hrs	1400 hrs	2800 hrs
128	4 hrs	250 hrs	500 hrs	1000 hrs	2000 hrs
256 *	2 hrs	125 hrs	250 hrs	500 hrs	1000 hrs

* Supported when recording floor only.
Note: When floor and output x are selected, all times in the above table are reduced by 50%.

Mechanical

Dimensions including feet (H x W x D)	45 x 440 x 200 mm (1.8 x 17.3 x 7.9 in) 19" wide, 1 RU high
Height of feet	5.5 mm (0.2 in)
Mounting	Tabletop or 19 " rack
Material (top and base)	Painted metal
Color (top and base)	Traffic black (RAL 9017) matt-gloss
Rim front panel	Pearl light grey (RAL 9022) matt-gloss

Weight (CCSD-CURD)	Approx. 3.4 kg (7.5 lb)
Environmental	
Operating temperature	5 ºC to +45 ºC (+41 ºF to +113 ºF)
Storage and transport temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	5% to 98% non-condensing

Ordering information

CCSD-CURD Control unit with recorder and DAFS
Control Unit for the CCS 1000 D Digital Discussion System, has MP3 recording and DAFS, provides DC power for a maximum of 80 Discussion Devices, enables peripheral equipment to be connected to the system.
Order number **CCSD-CURD**

Accessories

CCSD-EXU System extension unit
Extension Unit for the CCS 1000 D Digital Discussion System, provides DC power for a maximum of 85 additional Discussion Devices.
Order number **CCSD-EXU**

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