

VADIS D.C. II

DIGITAL AUDIO BROADCASTING CONSOLE



 **KLOTZ**
DIGITAL

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**...from the company with
the most experience in digital
audio for live broadcasting**



VADIS D.C.II DIGITAL AUDIO BROADCASTING CONSOLE is based on the popular VADIS Audio/Media Platform. The D.C.II features a modular surface design adaptable to any customer's requirements. Available in sizes from 4 to 24 fader, as a split console and in compact news or workstation versions, the D.C.II provides a proper mixing surface for any live or production broadcast application. The unique design, separation of audio (VADIS frames) and control hardware (D.C.II, PC, GPI unit, etc.), provides a reliable, powerful and flexible audio mixing system. This separation of audio and control

gives operators the speed needed for live broadcasts, reduces facility wiring to a minimum, eliminates problems associated with traditional plant-wide audio cabling and ultimately provides faster installation. In addition when VADIS equipped control rooms are connected with only one duplex fibre optic cable and a single CAT 5, the ability to share audio, integrate plant-wide control and increase operator productivity is limitless.



The D.C.II allows the operator to have any input source appear on any fader of the console at any time. Inputs are assigned various internal and external logic functions which "travel" with the source wherever it appears on the D.C.II.

FADER MODULE

MIX-MINUS

This button assigns the channel to the Mix-Minus bus feeding the N-1 DSP which creates up to 11 different N-X stereo mix-minuses. Standard configuration of the D.C.II provides 8 mix-minus outputs. Mix-minuses and outputs are expandable to an unlimited number.

CUE

Toggles pre-fader audio on and off the cue bus output. Cue functions can also be activated by fader and/or ON/OFF button channel status, depending on operator requirements.

LED DISPLAY

Optional and standard functions for the channel are indicated in this display (i.e. "B" for balance, "E" - if optional EQ DSP is installed).

LED DISPLAY

Indicates the name of the source currently assigned to the channel.



STEREO BUS ASSIGN

These buttons assign the channel to the D.C.II's four standard stereo busses.

SELECT BUTTON

Activates the D.C.II Source Select LCD Buttons (see monitor module) and optional DSP control module allowing the user to change source mode (i.e. L-ONLY), control optional EQ/DYN or assign a new input to the channel's "A/B" source select buttons.

TB

If a mix-minusable source is selected on the channel it allows the operator talkback capability (IFB) to the individual source via designated console microphone(s). This button can also function as a talkback to a headphone output (SPLIT or IFB) directly related to this channel's microphone input, particularly useful in talkshow applications. The number of individual talkbacks is only limited to the number of mix-minusable sources and/or headphone outputs.

FADER

Since the system design separates the D.C.II from the VADIS Audio/Media frame, it allows every fader on the console to be mono and stereo. Logic functions "attached" to the input source can be activated by the fader. Those functions are easily determined by the end user.

ON/OFF

LED illuminated buttons turn the channel OFF and ON and activate internal console logic such as timer restart or speaker muting as well as external console logic such as machine starts or On-Air lights depending on the source.

A/B SOURCE



These LCD buttons display the name of the "A/B" source available for use on the channel. Pressing one of the buttons selects the channel source; the background color of the selected button changes from green to red and the source name also appears on the alphanumeric display just below the fader. Any source connected to the D.C.II is easily assigned to the "A/B" source LCD buttons via the Source Select Button section (see monitor module).

BUTTON GUARD



A newly designed button guard allows operators to place their fingers directly over the ON/OFF button area without activating the channel status. This button guard provides smooth, confident control and reduces operator errors.



MONITOR MODULE

PROGRAMMABLE BUTTONS

LED illuminated, these buttons are easily user defined and labeled for applications such as additional monitor source select, machine control buttons, dedicated talkback locations or any combination of these and more.

MONITORS

Headphone, control room and studio outputs each have their own level control and source selectors which include all console busses and external inputs. The headphone selection has a split function that allows PGM to be routed in one ear and any other selected source to the other. DIM located conveniently next to the control room level has an adjustment for predetermined attenuation; pressing DIM (toggle on/off) allows operators to quickly reduce speaker volume and then return to the control room monitor reference level. The control room output has logic activated muting. The studio output provides both a logic activated mute (speakers) and an unmuted output (studio headphones).



SOURCE SELECT LCD BUTTONS

When an input channel's Select Button is activated these LCD buttons display every source connected to the D.C.II and these sources are easily assigned to the "A/B" source buttons of an input channel. Sources on the Source Select LCD Buttons are arranged in banks by the end user based on the operator's priority. The MODE LCD button provides STEREO, MONO, L-ONLY, R-ONLY capability via a channel's Select Button then pressing the MODE button until the desired mode is shown for the channel source. The mode is then indicated in the LED display directly above the channel fader. The LCD button is more intuitive and faster to use than typical rotary or keypad router control panels allowing the operator to view up to six sources at one time.

NOTE: All logic, both internal (such as talkback) and external (such as machine control), follow every source connected to the console to any fader position of the operators choosing at any time. This provides the most comprehensive "logic follow the source" in the industry.

Since the LCD buttons are dynamic in both nomenclature and background color these Source Select LCD Buttons revert to Store and Recall console layout Preset Buttons when no input channel Select Button is activated.

The number of presets is unlimited and includes safety features to prevent operator errors; Presets recall all mix-minus, input sources, source logic control, talkback, bus assignment, optional voice processing, etc. and can be "taken" live on the air.

CUE/TALKBACK

MIX 1 and MIX 2

User assignable level controls for applications ranging from additional headphone level adjust or foldback to a particular mix-minus output.

CUE

Cue adjusts the amount of cue level to the cue output or to the headphones/control room monitor output via activation of the AUTOCUE button.

TALKBACK

Talkback adjusts the level of the incoming external talkback to the cue speaker.

TIMER CONTROL

AUTO

AUTO mode allows the user to run the Manual Timer, displayed on the flat screen, from predetermined input channel ON/OFF buttons; for example, when in AUTO Mode, the operator has the ability to have microphone channels trigger this timer and all other channels trigger the standard automatic timer.

START - STOP - RESET - HOLD

When AUTO is not activated, these buttons control the manual timer.

PROGRAMMABLE BUTTONS

These LED illuminated buttons are user defined for applications such as external program delay controls, hot keys to the audio file server, dedicated talkback destination and more.

STUDIO TALK

Studio talkback directs designated console microphone(s) to both muted and unmuted studio monitor outputs.

ALL TALK

Allows the operator to talk to all mix-minusable sources currently on channel faders, at the same time. This button can be programmed instead to talk to all studio headphones in applications such as talkshows.



MONITOR/CONTROL

FULL FUNCTION MACHINE CONTROLS

Machines 1 to 6 are duplicated in both full function machine control sections. This allows operators to control two different machines simultaneously but conserves space to handle 6 machines. Operators simply select a machine and the full function controls are "connected" to that machine. This proven layout of machine control eliminates operator error such as fast winding a machine that is playing out over the air during Off-Air production work. Additional blank buttons are located at the top for user defined functions such as record hot keys, direct patches, or for simply extending the machine control capability.

DSP CONTROLLER MODULE



This optional module is pre-configured to control the Equalizer, Dynamics, and future optional DSP modules. DSP modules can be added to the VADIS mainframe at a later stage, and are easily installed by the user. When the DSP Controller is added to the D.C.II with or without optional DSP modules, it gives full access to the built-in microphone preamplifier's MIC GAIN and PHANTOM POWER section as well as all other source GAIN, PHASE, PAN and BALANCE controls. Any adjustments can be stored in the D.C.II's Store and Recall Presets.



TELOS CONTROL MODULE

End user's TELOS CONTROLS are easily installed using the D.C.II's prefabricated TELOS mounting panel.

Contact KLOTZ DIGITAL or TELOS/CUTTING EDGE for further information.

ADDITIONAL FLAT SCREENS OPTION

The metal housing for the flat screens has a rugged titanium-type finish and is available in a touch screen version; both types match the D.C.II and its standard screen. Screens are 15.1 inches and all screens are "drop-in" furniture mounted.



ON-AIR INDICATOR

ON-AIR indicator is activated when microphones are ON, fader is up, and channel is assigned to PGM bus or indicator can be activated when any source meets these criteria.

METERS

The D.C.II comes standard with one matching flat screen display to provide dedicated program and audition meters. Switched meters follow source selection of the control room monitors; this allows the operator to meter any bus or external feed.

CLOCK

TIME OF DAY clock is conveniently located right below the PROGRAM meters to eliminate any confusion with timers. This screen layout keeps the most important operator information (Clock, On-Air indicator and Program meters) separated from secondary displays. The TIME OF DAY master clock can be synced to popular master clock systems.

TIMERS

One of the console's two timers is the MANUAL TIMER, with numeric and graphical display triggered by channel ON/OFF control via activation of timer's AUTO button. The other TIMER, located at the bottom right of the screen, is automatically triggered by input channel activation.

VADIS AUDIO/ MEDIA PLATFORM

VADIS MAINFRAME

The universal VADIS MAINFRAME accepts a variety of audio, data and DSP modules without limitation to inputs or outputs. The frame is standard with a dual fail-safe power supply and dual redundant digital audio sync modules.



Each VADIS frame is assigned a number which is indicated on the front panel in a large LED display for control rooms which require more than one frame or facilities installing plant wide VADIS Platform systems. Indicators on the front also show the status of the frame and indicate its operating sample rate (48 kHz, 44.1 kHz and Drop Frame or optional 32 kHz, 48 kHz and Drop Frame). The entire front panel is a "low flow" air intake with filtering.

The D.C.II standard console includes the appropriate number of VADIS mainframes and the following modules:

INPUTS*

- MIC Pre-amp
2 microphone pre-amps per module includes A/D conversion and analog insert points for each pre-amp.
- Analog Line
4 mono channels per module configurable in any combination of mono channels and stereo pairs
- Digital line with sample rate converters
2 stereo AES/EBU/S-PDIF inputs per module with sample rate conversion. Once the stereo AES source is connected to VADIS, left and right channels can be separated and appear on individual console faders, great for mixing 2 mono channels of digital audio from one AES stereo input.

OUTPUTS

- Digital and analog for PGM, AUD, AUX and UTIL busses
- 8 analog mix-minus busses (configurable in stereo pairs)
- Analog control room monitor
- Analog operator headphones
- Analog studio monitor
- Analog talent headphones

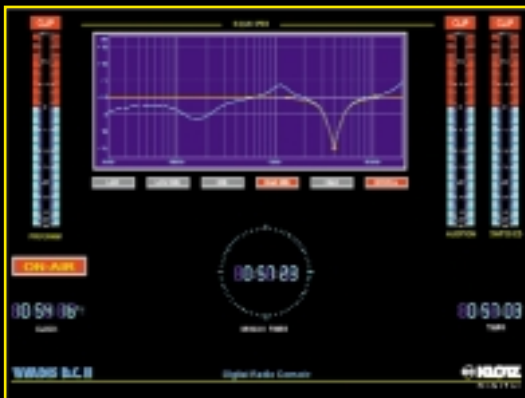
DSP MODULES*

- MIX DSP
This is a mixing bus module.
Quantities will depend on number of faders
- N-1 DSP
This mix-minus DSP creates 11 N-X stereo mix-minuses in conjunction with the D.C.II's mix-minus bus; any combination of mix-minus outputs can be configured in stereo pairs for ISDN codecs or special stereo remote mix-minus applications. An unlimited number of mix configurations can be saved in the D.C.II's Store and Recall Presets.
- GAIN DSP
Provides 64 channels of input gain adjustment.
- METER DSP
This DSP module provides the metering shown on the flat screen display for the D.C.II's console busses.

* Quantities of above modules depend on user requirements

OPTIONAL VADIS MODULES

Below are the currently available optional modules; many more will be available in the near future including Delay DSP, controller modules for Intercom, multi channel I/O modules and a wide variety of software modules for automation, AGC, silence sensing and more.



PARAMETRIC EQ DSP MODULE

This DSP module has four audio channels, each with its own 5 Band parametric equalizer.

Level adjustments have a control range of ± 15 dB. Bandwidths (Q) between 0.2 and 3.0 octaves and continuously variable frequencies can be selected in the three mid-ranges. The LOW and HIGH shelving filters have continuously variable frequency settings and a preset slope rate of 12dB/octave.

All EQ parameters are controlled via an optional D.C.II console DSP controller module installed in either the console's module area or optional meter bridge. No DSP controller is required for applications such as secure settings of On-Air voice processing; the EQ module can be controlled instead from temporary connection of a keyboard and mouse to the D.C.II. Copies of these settings can also be applied to all other D.C.II voice processor equipped rooms.

When activated a graphic display of the EQ replaces the manual timer area on the flat screen allowing the operator to continue monitoring On-Air and timed signals.

Any number of modules can be added to the VADIS frame(s) as these DSP optional modules are available to the D.C.II as a "pool" (available on demand).

VADIS 880 REAR VIEW WITH MODULES



Up to 21 modules in any combination of input, output and DSP can be installed. All modules have gold contact audio connectors and are hot swappable as well as interchangeable throughout the frame. All VADIS frames act as master digital audio syncs; however, frames can slave to two different types of digital audio sync house clocks. BNC connectors are shown for house word clock inputs as well as XLR for AES/EBU house clock.

When VADIS frames are connected together with the KLOTZ DiAN fibre optics, synchronization is distributed. Controllers such as the D.C.II console, GPI units, PC's and other types are connected to VADIS with the standard 10/100 based T Ethernet connection. VADIS frames and various controllers can be located remotely or in the same room as the D.C.II or both depending on user requirements.

GPI UNIT / EXTERNAL LOGIC CONTROL

The GPI unit is Ethernet controlled and connected to the D.C.II with a single CAT5 cable, one 32 channel unit is included with each D.C.II console and an unlimited number of units can be connected together via Ethernet. Each unit provides 32 channels of relay contact closure outputs and 32 channels of opto-isolated programmable inputs. External devices are attached to the GPI unit through gold contact connectors and each output trigger signal can be defined as high/low, pulse positive/negative, edge positive/negative or continuously latching. Each logic input port is programmable to activate many of the D.C.II functions such as channel ON/OFF, talkback, or

directly control the VADIS Platform while using the D.C.II for other Off-Air applications. GPI outputs can be shared by multiple D.C.II channels such as all microphone channels trigger On-Air lights port. External devices can trigger a GPI input and activate a "macro" of events as well. The GPI unit is 19" wide and 2 rack units high and since they are Ethernet connected can be located anywhere in the plant. Ethernet connection technology between GPI units dramatically reduces room to room logic control wiring, speeds installation. It is also particularly useful for logic commands needed around the plant from single or multiple consoles.



DYNAMICS (DYN) DSP MODULE

This DYN module contains 4 stereo audio channels each with the following dynamics functions:

- Expander
- Compressor
- Limiter
- Low pass filter
- Delay in the signal path for "look ahead" adjust

Each of the above functions is fully featured with comprehensive control parameters

All DYN parameters are controlled via an optional D.C.II console DSP controller module installed in either the console's module area or optional meter bridge. No DSP controller is required for applications such as secure settings of On-Air voice processing; the DYN module can be controlled instead from temporary connection of a keyboard and mouse to the D.C.II. Copies of these settings can also be applied to all other D.C.II voice processor equipped rooms.

When activated a graphic display of the DYN replaces the manual timer area on the flat screen allowing the operator to continue monitoring On-Air and timed signals.

Any number of modules can be added to the VADIS frame(s) as these DSP optional modules are available to the D.C.II as a "pool" (available on demand).

D.C.II VARIETY

D.C.II 4 POSITION CONSOLE

The D.C. II console frame is an open architecture. Users can configure the surface with a variety of modules that are 4 faders in width, allowing console sizes ranging from 4 faders to 24 faders with an unlimited numbers of audio sources. The four module position frame (right) depicts two fader modules, monitor module and optional DSP and push button controllers.



D.C.II NEWS CONSOLE

The D.C.II compact console is perfect for voice over or news booth applications. The console frame is a drop in furniture style and comes complete with external power supply; console will accept any available D.C.II module(s).



D.C.II WORKSTATION CONSOLE

A D.C.II console in a half size module version is a complement to digital audio workstations, producer areas and talent control. The console frame is a drop in furniture style and is complete with external power supply; a variety of half size modules are available.

D.C.II 4 POSITION SPLIT CONSOLE

D.C.II split console frames are available in 1, 2, 4 module widths. Other possibilities are available – contact KLOTZ DIGITAL for further information.



D.C.II 4 POSITION METERBRIDGE

The optional meter bridge is available to replace the standard flat screen for applications where traditional VU meters, cue speakers, meter bridge mounted DSP controllers, additional LCD buttons and a variety of future control modules simply plug in.



D.C.II SPECIFICATION

Dynamic range

Analog Line output, unity gain (RMS)	Source impedance: = 600 Ohm	≥ 111 dB
Analog Line input, unity gain (RMS)	Max. input level = +15 dBu	≥ 103 dB
Microphone (RMS)	Source impedance: 200 Ohm, Sensitivity = -20 dB	≥ 101 dB
	Source impedance: 200 Ohm, Sensitivity = -40 dB	≥ 83 dB
	Source impedance: 200 Ohm, Sensitivity = -61 dB	≥ 62 dB

Frequency response

Analog Line output	20 Hz to 20 kHz	≤ -0.15 dB
Analog Line input	20 Hz to 20 kHz	≤ ±0.05 dB
Microphone	40 Hz to 20 kHz	≤ ±0.5 dB

Crosstalk

Analog Line output	20 Hz to 20 kHz	≤ -95 dB
Analog Line input	20 Hz to 20 kHz	≤ -97 dB
Microphone	40 Hz to 15 kHz	≤ -90 dB

THD+N

Analog Line output	20 Hz to 20 kHz	≤ 0.02 %
Analog Line input	20 Hz to 20 kHz	≤ 0.002 %
Microphone	22 Hz to 22 kHz, Sensitivity = -20 dB	≤ 0.002 %
	22 Hz to 22 kHz, Sensitivity = -40 dB	≤ 0.008 %
	22 Hz to 22 kHz, Sensitivity = -61 dB	≤ 0.08 %

Differential frequency distortion

Analog Line output	-6 dBFS, max. output level = +15 dBu	≤ 0.07 %
Analog Line input	-6 dBFS, max. input level = +15 dBu	≤ 0.01 %
Microphone	+6 dBu input, Gain = 4 dB	≤ 0.5 %

Max. input level

Analog Line	reference full scale digital	+22 dBu
Microphone	reference full scale digital	+18 dBu

Max. output level

Analog Line	reference full scale digital	+22 dBu
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Gain trim range

Analog Line	reference full scale digital +12 dBu/+15 dBu/+16 dBu/+22 dBu
Microphone	reference full scale digital -61 dBu ... +18 dBu

Noise

Microphone EIN, Quasi-peak CCIR weighted	Source impedance: 200 Ohm, Sensitivity = -20 dB	≥ 110 dB
	Source impedance: 200 Ohm, Sensitivity = -40 dB	≥ 112 dB
	Source impedance: 200 Ohm, Sensitivity = -61 dB	≥ 112 dB

Nominal output levels

Bus outputs	balanced	+4 dBu
Monitor outputs	balanced	+4 dBu
Mix-Minus outputs	balanced	+4 dBu

Digital audio sync

Internal Sample Rate		44.1 - 48 kHz
External Sample Rate (Source devices)	AES input with SRC	22.5 - 56 kHz
Wordclock sync	input, output	BNC
AES/EBU sync	input	XLR

Processing resolution internal

56 bit

Conversion

Microphone with A/D conversion		24 bit
A/D conversion		20 bit
D/A conversion		20 bit

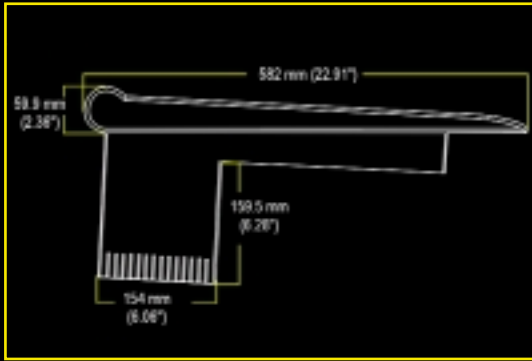
Digital signal format

Signal Format		AES-3, S/PDIF
AES-3 Input Compliance		24 bit
AES-3 Output		24 bit

Common mode rejection

Analog Line input, unity gain	20 Hz - 20 kHz	≥ 60 dB
Microphone	40 Hz - 15 kHz	≥ 60 dB

* Specifications subject to change without any notice



D.C.II CONSOLE DIMENSIONS

Width for overall console
incl. side panels:

D.C.II 2 Position	417 mm (16.42")
D.C.II 4 Position	748 mm (29.45")
D.C.II 6 Position	1079 mm (42.48")
D.C.II 8 Position	1410 mm (55.51")

Depth (incl. arm rest): 582mm (22.91")

D.C.II POWER REQUIREMENTS

Input AC voltage: 85 - 264 VAC
D.C.II console max: 320 watts
Chassis grounded through AC cord and
ground lug on console mainframe

VADIS 880 DIMENSIONS

Height: 4 HE, 176 mm (6.93")
Width: Rack mount, 482 mm (19.00")
Depth: max. 536 mm (21.10")

Weight (fully loaded frame):
25 kg (55.1 lbs)

VADIS 880 POWER REQUIREMENTS

Input AC voltage: 85 - 264 VAC
VADIS 880 max: 400 watts
Chassis grounded through AC cord
and ground lug on mainframe

COMPANY INFO

KLOTZ DIGITAL is a high-tech company with profound engineering know-how in high-speed data-transmission, user application software and network application software.

The company manufactures and distributes hardware components and control software for Audio/Media producers and offers consulting and integration services for all types of digital system applications within the modern Audio/Media industry.

Our solutions are proven in radio and TV broadcasting stations, audio for video and film, internet-casting, live sound (theatre, opera houses, concert halls) and commercial sound (stadiums, adventure parks, retail store) applications.

CUSTOMER GROUPS

The digital processing of audio signals and distribution of related data is used everywhere people are working in the professional audio and media arena; this applies specifically to broadcasters, live sound re-enforcement, recording and public address users. With its modular firmware solutions, KLOTZ DIGITAL is addressing clients in special application areas as well as the wide market for digital Audio/Media processing.

SERVICE & SUPPORT

Alongside the price-performance ratio and the quality of the products, the service attitude of the KLOTZ DIGITAL team is an important part of the corporate philosophy. A multinational team of audio and broadcast specialists support customers worldwide. Unique consulting know-how, on-time installation support and excellent after-sales services are key to the global implementation of KLOTZ DIGITAL's technology. KLOTZ DIGITAL places special emphasis on the relationship with the user, particularly in the case of capitol purchase investment goods. The relationship developed with the client is the basis of KLOTZ DIGITAL's overall success.



YOUR LINK TO NEW MARKETS

KLOTZ DIGITAL is the inventor and global market leader of digital signal processing and distribution systems for the modern Audio/Media industry.

KLOTZ DIGITAL's VADIS Platform architecture decentralizes the various types of signal processing and allows integration of multimedia and telematic services.

Users of the VADIS Platform dramatically improve efficiency of production and realize completely new business models and market areas.

Visit our website for the latest news.
www.klotzdigital.com



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