

Sirius

The Digital Broadcast System



D&R

The SIRIUS all digital On-Air console is just as easy in use as your analog console. It is astonishing simple in operation, yet has all the power digital software can offer you.

A simple, direct accessible and modular control surface enables customizing to station requirements. Access to more complex functions for technical users are available on the optional Super Module Control Surface.

Purchasing choices are straightforward: Modular input and output control surfaces, a modular control room section, a modular "super module" control surface and a 19" rack with all the interface modules to communicate with the outside world.

All faders/pots are motorized for ease of identification. A maximum of two control surface frames (holding 16 input faders) can be installed. A total of 64 inputs can be assigned to any of the 16 stereo faders. The output section has 2 stereo Program busses, 8 Group busses, 8 Cleanfeed busses, 6 Aux. Busses, Stereo Studio outputs, Stereo CRM outputs that can be assigned to any of the 64 outputs. Furthermore there are 62 Track inputs available.

SYSTEM DESCRIPTION.

The Sirius is designed and built around the latest development in DSP design from Texas Instruments. A close cooperation between Texas Instruments and D&R has resulted in a digital audio desk that is far ahead of its time in terms of reliability, speed and incredible DSP power.

HIGH LIGHTS.

- Modular construction.
- Modular audio interfaces (AD/DD/DA).
- Sample rate converters on all digital inputs.
- All in/outputs are electronically labeled.
- 64 input and 64 output router eliminates patching.
- 2 stereo Program busses, 6 Aux. busses.
- 2 x 8 busses available for production work.
- Remote connector per input. (GPIOs).
- Fader, switch or cue - start / stop.
- External remote of module functions.
- Remote for "ON-AIR" automation (GPIOs).
- Real time info displayed on every module.
- Assignable functions are visible in LCD.
- Assignable super module for all inputs.
- All settings visible by way of motorpots.
- Auto CRM, studio monitor muting.
- Auto Red light function.
- Auto conference talkback function.

- Auto communication.
- Panic switch for instant default setting.
- Complete module overview on VGA screen.
- Big virtual PPM meters.
- Storage of settings (snapshots).
- Intelligent recall™.
- Security system.
- Software updateable.
- Network option.

FADER MODULE CONTROL SURFACE.

The SIRIUS fader control surface module is a free assignable section of four input faders that can accept any of the 64 input sources. Which source connected is can be read in the display on the top of the module. This could be a mono or stereo source, analog or digital.

The lower section of the LCD displays the assignable function of the associated motorpot. The SEL switch assigns the super module to that particular input channel giving direct access to all input module functions in real time. An identical screen display gives the same possibilities in case the optional super module is not part of the system.

MODULE FUNCTIONS ARE.

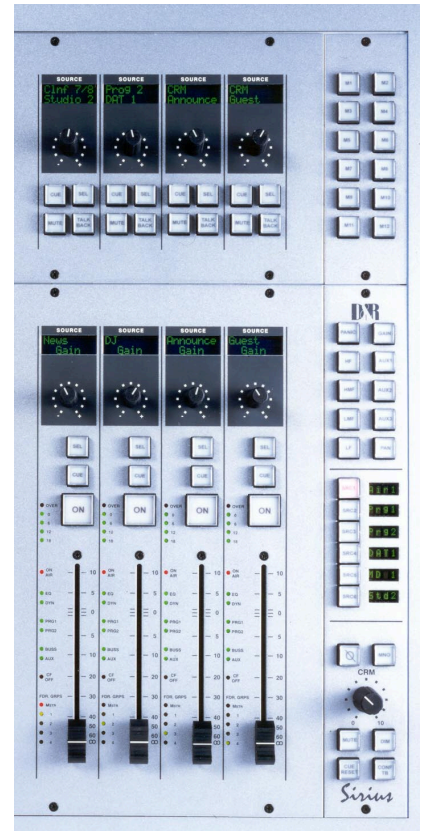
- Phantom switch.
- Phase reverse switch.
- Left to right or/and Right to left.
- Gain control.
- Aux. sends 1/2, 3/4, 5/6.
- Aux. Pan-pots.
- Aux. pre/post switching.
- Aux. On/off switching.
- Four band full parametric equalizer.
- LF is shelving or Low cut filter.
- LMF/HMF have Bell curves or Notch filters.
- HF is shelving or Hi-cut filter.
- Equalizer on/off switch.
- Full functioning compressor.
- Full functioning gate.
- Ducking with master/slave selection.
- Program 1, Program 2.
- 8 busses pre/post fader, mono.
- 8 Clean feed busses pre/post fader, mono.
- Pan pot.
- SEL, CUE, ON switches.
- 100mm motor fader.
- 5 segment metering per input.
- 4 assignable fader groups.

The assignable motorpot on the input section of the Sirius can be instantly assigned to any of the labeled functions in the control room monitor module. This could be Source, HF, HMF, LMF, LF, Gain, Aux. 1/2/3, Pan. By first activating the SEL switch, only one input is assigned to one of the above mentioned functions.

The SEL switch assigns the input module to the optional Super Module and always activates the related screen page. At the same time one of the 10 functions in the CRM module, such as source, gain, HF, Aux1 etc. can be assigned to the module's motorpot. Without activating the SEL switch all motorpots in the fader modules can be given one of the aforementioned functions

The CUE switch speaks for itself. The ON switch activates the audio signal and provides a control signal. A local 5 segment led bar indicates input level.

Alongside the motor fader all possible assigned functions are clearly indicated by function LED's giving an instant overview of what has been assigned in that particular input channel.



SEND MODULE.

The (optional) Send module section positioned above the fader module can be seen as a control section for 64 discrete mono outputs or 32 stereo outputs or any combination. The upper row of the display can be given the name the output section is assigned to, such as Aux1 or Program or Cleanfeed or etc. etc. The lower section of the display indicates where the Sirius output is assigned to physically in your studio. This could be Studio 1, CRM or a reverb or the ON-AIR output or any other output name that is convenient to use in the studio.

The motorpot positioned below controls the output level. The SEL switch activates the output page on the screen of that particular output section. A talk back switch is available on every output section as well as a Mute switch and Cue switch. A maximum of 16 direct accessible output sections is available in the Sirius. Please be noted that the send module can also be controlled via the computer screen, without having the hardware controls in front of you.

MACRO MODULE.

The macro module has twelve switches that can be user programmed to execute single functions, an absolute real time saver in live On-Air broadcasts where speed is required.



CONTROL ROOM MONITOR MODULE.

The upper section of this module shows 9 dedicated module functions that instantly can be assigned to the motorpots in the fader modules.

The assigned function will be seen in the display above the motorpot. It is crystal clear which function these motorpot controls, a necessity in live broadcast!

The second section in the CRM module are the six source switches for your CRM. These sources can be selected out of any of the 64 inputs or from the summing busses. Labeling of all these inputs and outputs on screen (a setup task) instantly provide you with these selections in the CRM source switches. The 4-digit display indicates the source you are listening to. This could be Program 1, Off AIR, Aux. outputs or even any input connected to the external in/output units.

The next section houses the CRM motor-pot, right signal phase reverse switching, stereo/mono switch, a mute switch, dimming, Cue reset and a conference talkback.

This completes the description of the functionality of the user control surfaces when you are working without the "super module"

A very intuitive approach, which is very understandable for the inexperienced analog user type of engineer. Once a setup has been programmed, all day to day functions are under immediate control of the engineer/presenter.

SUPER MODULE.

This optional module represents in actual knobs and switches all functions available for any input signal connected to the Sirius. The screen layout

represents a nearly identical functional layout of the Super Module in case you do not want to purchase the Super Module for reasons of simplicity.

As you can see from the pictures a Sirius input module is quite heavily loaded with functions to be able to cope with any audio request in case the Sirius is used for production work. The input section has switchable 48-volt phantom powering, phase reverse switch, a left to right and a right to left switch, a gain control and the source selection switch. The Aux. section has a level and pan control between even and odd Aux. Outputs, a pre/post switch and an ON switch.

The equalizer is quite extensive with four bands all equipped with Q (bandwidth) frequency and level control. All four bands have the same frequency range from 10 Hz up to 20 kHz. Apart from the on/off switching of any individual band the two outer bands (LF/HF) can be used separately as sweepable high or low cut filters.

The Mid bands (LMF/HMF) can be used as notch filters when needed.

The next section houses the dynamics of the Sirius. It contains a good sounding compressor / limiter with adjustable parameters plus gate and ducking functions. Two separate gate/compression LED bars show you the amount of compression/gating of the input signal.

The fourth section of the Super Module houses the Program, Buss and Cleanfeed assignment.

Both routing sections can be programmed to route the input signal pre or post the fader, to switch it to mono and to assign it to one or more of the output or/and Cleanfeed busses.

The final section duplicates the motor-fader with Cue and ON switch and you'll find here the fader group switches. Any of the inputs can be a master

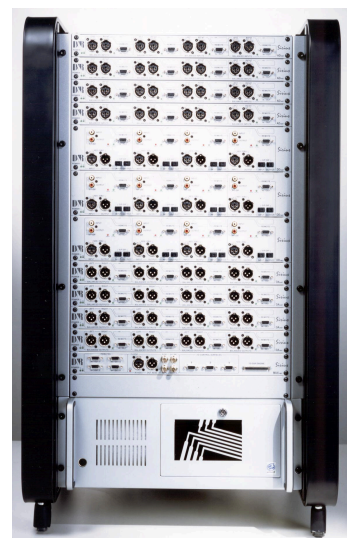
or a slave and assigned to one of the four fader groups.

A pan pot and 8 segment led bar completes the Super Module's input features.

The 40-segment display helps you to save user definable settings, load them onto the work surface and compare them with other settings. Default settings can be instantly recalled.

MODULAR AUDIO RACK UNIT.

The Sirius has a separate 19" audio rack containing all digital and analog in and outputs. It also contains the interface with the DSP board. The following modular in/output racks are available.



INPUT RACK UNIT.

- Analog lines in unit with 4 stereo signals and user definable remote in and out relays (GPIOs).
- Analog Mic input unit with 8 balance d Mic inputs and user definable remote connector relays (GPIOs).
- Digital in (out) with selectable AES3, S/P-DIF, Optical (toslink) 24 bit, 32kHz-96kHz (internal sample rate converter) and user definable remote connectors (GPIO's).

OUTPUT RACK UNIT.

- Analog line out unit with 8 balance d mono signals on XLR. Level is selectable between +4dBu or -10dBv. DA is 24 bit.
- 24 bit digital out (in) unit with interfacing on AES3, S/P-DIF, Optical (toslink) all active at the same time.

MUX RACK UNIT.

- The digital interface rack houses the
- Multiplexer cards.
 - Four user definable Remote in and out relays.
 - The system frame clock in/out (AES3, BNC).
 - A system master clock (256FC) In/Out (BNC)
 - Three user interface connections.
 - Digital audio interface to DSP board.

SUMMARY.

This is a short description of all the functions the Sirius can perform for your broadcast station. It is evident that all usual broadcast functions such as faderstart, communications, Self-Op operations are available at the touch of a button. This will be dealt with in depth in the user manual of course.

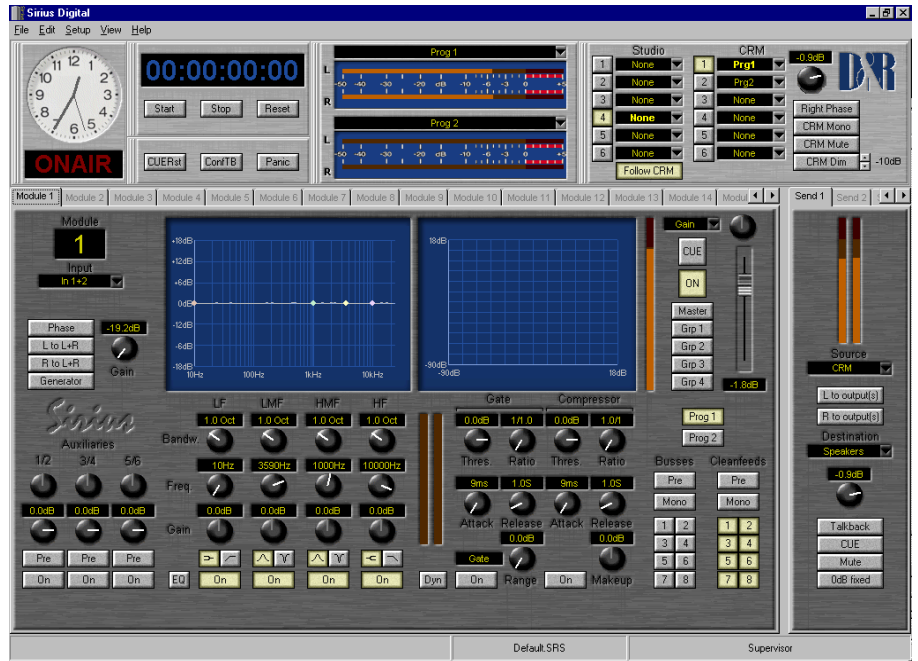
You can set and save console parameters for seamless session transitions. You can change a Mic input into a line input at the touch of a button.

We know that this is a very brief description of a very complex product, yet easy to use. If you need more information to be able to get a fuller "picture" of the Sirius, do not hesitate to ask us for the user manual which explains functions in detail.

SPECIFICATIONS (subjected to change)

GENERAL SYSTEM PARAMETERS.

Level specs in dB full scale for digital and dBu for analog data. 0dBu=0.775Vrms.
 Sampling rate: 32kHz, 44.1kHz, 48kHz +/- 20ppm (internally synchronised).
 Headroom: internally floating and 20dB for I/O to fixed point.
 Frequency response: 20-20kHz, 0.1 dB
 A/D Crystal 24 bit Delta Sigma, 128x over sampling.
 Dynamic range: typically 105 dB,
 THD+Noise: <-95dBfs.
 D/A Burr-Brown 24 bit delta-sigma converter.
 Dynamic range: typically 106 dB.
 THD+Noise: <-96dBfs.



MICROPHONE INPUTS:

Mic inp. bal. 2kOhm - 128dB (60dB gain range).
 CMRR: mic input max.. gain: 50Hz 75dB.
 Phantom is switch able +48volt.

LINE INPUTS

Input sensitivity: -10dBv to +6dB.
 Line inp. bal 10kOhm +/- 20dB gain range.
 CMRR: Line input max.. gain: 50Hz 50dB.

LINE OUTPUTS.

+6dBu electronically balanced (optional transformer balancing).
 Impedance <47ohm at +6dBu.
 Maximum output: +26dBu.

DIGITAL INPUTS

AES/EBU (AES3), S/P-DIF, Optical (toslink).
 16/20/24 bit, 32kHz to 96kHz (built in sample rate converter).
 THD+N: -105dBfs @1kHz, 0dBfs.
 Input impedance: 110 Ohm (XLR) 75Ohm (cinch).

DIGITAL OUTPUTS.

AES/EBU/AES3, S/P-DIF, Optical (toslink) active at the same time.
 16/20/24 bit, 32kHz to 96kHz (System clock or sample rate conversion to corresponding input clock).
 Output level: 2 to 5 volt.
 Output impedance: 110 Ohm.

EQUALISATION:

- LF: +/- 18 dB @10Hz up to 20kHz shelving/low cut, Q: 0.1 to 3 variable.
- LMF: +/- 18 dB @10Hz up to 20kHz bell/notch Q: 0.1 to 3 variable.
- HMF: +/- 18 dB @10Hz up to 20kHz bell/notch Q: 0.1 to 3 variable.
- HF: +/- 18 dB @10Hz up to 20kHz shelving/high cut, Q: 0.1 to 3 variable.

DYNAMICS

Compressor
 Threshold: -80dB to +18dB.
 Ratio: 1:1 to 20:1.

Attack: 1mSec to 10 Sec.
 Release: 1mSec to 10Sec.
 Gate:
 Threshold: -80dB to +18dB.
 Ratio: 1:1 to 20:1.
 Attack: 20uSec to 10 Sec.
 Release: 1mSec to 10Sec.

CLOCK

System clock internally 32kHz, 44.1kHz, 48kHz, 20ppm.
 Frame clock: BNC in/out 75Ohm TTL.
 Master clock: BNC in/out 75Ohm, TTL 256 frame clock.

DIMENSIONS AND WEIGHT.

Fader Module drop-through dimensions:
 435x490x125mm (WxHxD) 16 kg/ 7.27 Lbs.

Super Module drop-through dimensions:
 435x270x125mm (WxHxD) 10kg / 4.5 Lbs.

I/O 19" Rack is 16HE per unit.



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