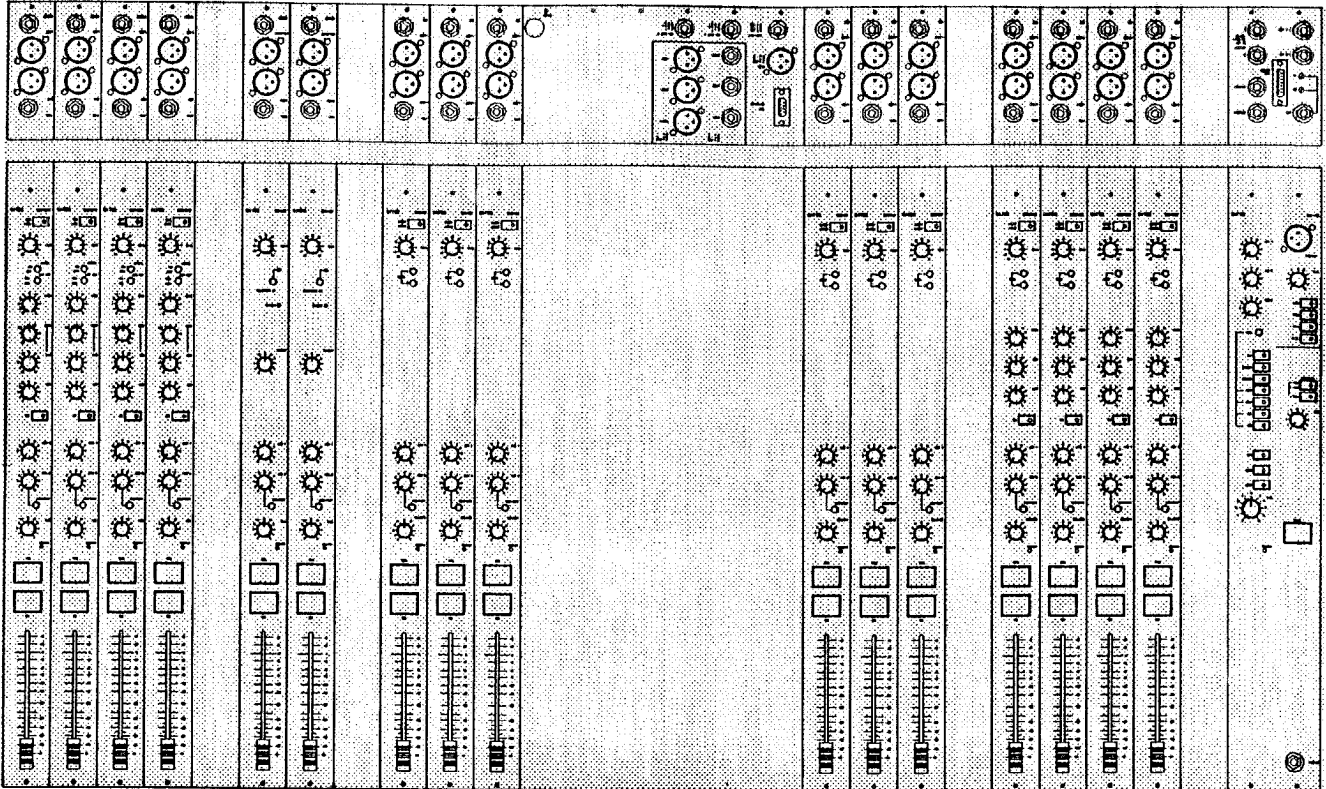


BCS100-SERIES



INSTALLATION AND USERS MANUAL

GENERAL

The DATEQ BCS100 series mixing consoles is a modular system which consists of a frame (BCS100), a master module (BCS110) and several input modules. The BCS100 frame holds a maximum of 20 input modules in any combination.

Power supply

The BCS100 has an external power supply (BCS120) to prevent noise induced by the magnetic field of the transformer.

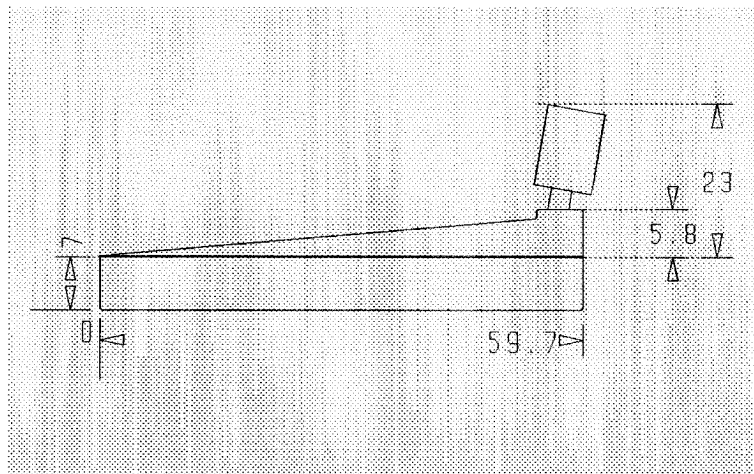
The BCS120 is connected to the frame with a 7-pin connector.

Input modules

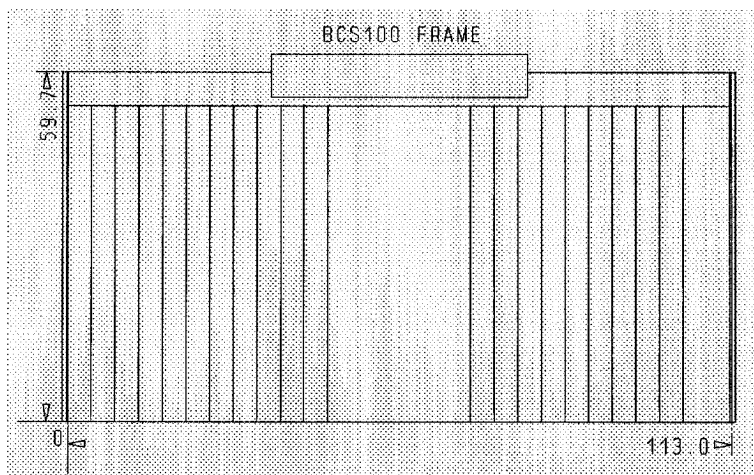
There are 5 different input modules:

BCS101 : MIC
 BCS101E : MIC (with equalizer)
 BCS102 : LINE
 BCS102E : LINE (with equalizer)
 BCS103 : TEL (telephone hybrid)

The modules can be placed anywhere in the frame.

**Master module**

The BCS100 has a double-width master module. This module is normally placed at the extreme right, but this is not strictly necessary.

**Meter bridge modules**

The meter bridge of the BCS100 contains all the information displays:

BCS121 : DCF77 atomic clock/timer/stopwatch
 BCS122 : PPM meter

With exception of the BCS122 PPM meter, these modules can be placed anywhere in the meter bridge.

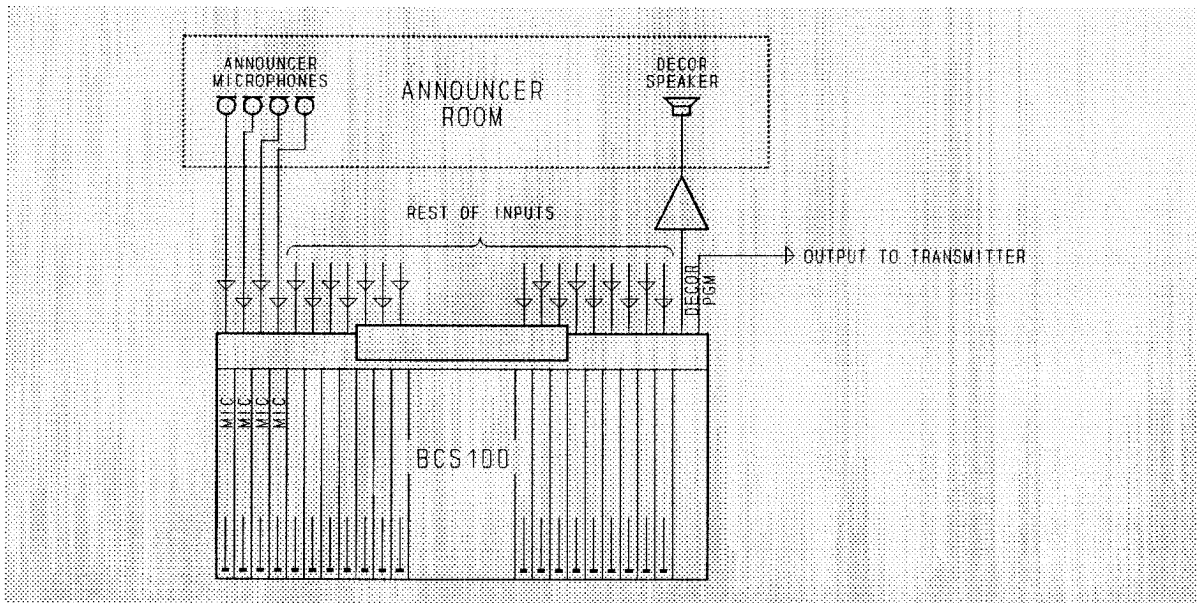
CONNECTIONS**PGM (ProGraM)**

The PGM output is the master output of the mixing console. The PGM signal is balanced and available at three XLR connectors: mono, left and right. The fully floating balanced outputs (transformer balanced) may be used for outside signal transmission (cable modulators, transmitters or high quality transmission lines).

In addition to the balanced PGM outputs the BCS100 also has three unbalanced outputs (PGM1/PGM2/PGM3). These may be used to connect recording equipment in the studio.

DECOR

Except for the microphone channels, all channels are routed to the DECOR output. The DECOR output may for instance be used as signal source for loudspeakers in the announcer studio.

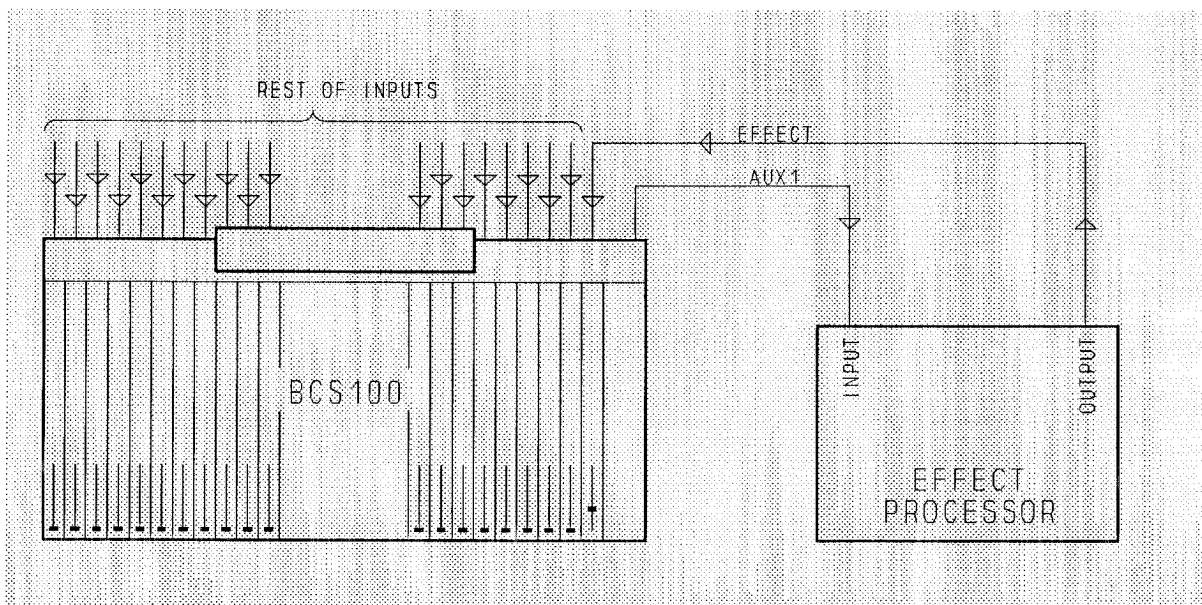


Application example of DECOR-output

Aux 1/2 (AUXiliary)

The stereo AUXiliary outputs may for instance be used as signal source for effect processors. The signal level for each channel can separately be adjusted with their respective AUX level controls. The signal to the AUX output can be pre- or post-fader, this is selected with the PRE/POST switches or with internal jumpers. The AUX1/2 controls on the master module are the master signal controls for the AUX1/2 outputs.

The return signals from effect processor may be connected to a normal input channel and then sent to the PGM output.



Application example of AUX-output

CR (Control Room)

This output is the signal source for the control room loudspeakers. With the group of seven select switches on the master module you select the signals to be sent to this output. The output can be muted to prevent feedback caused by open microphones in the control room.

ON AIR 1/2

The ON AIR outputs can be connected to signalling devices such as "ON AIR" warning lights. The two ON AIR outputs are programmable with jumpers on the input modules. When microphones are being used in two rooms (e.g. a DJ mike in the control room plus extra mikes in announcer room), separate ON AIR signalling can be used. The ON AIR jumper on the DJ input should then be set to ON AIR 1 and on the other microphone inputs to ON AIR 2.

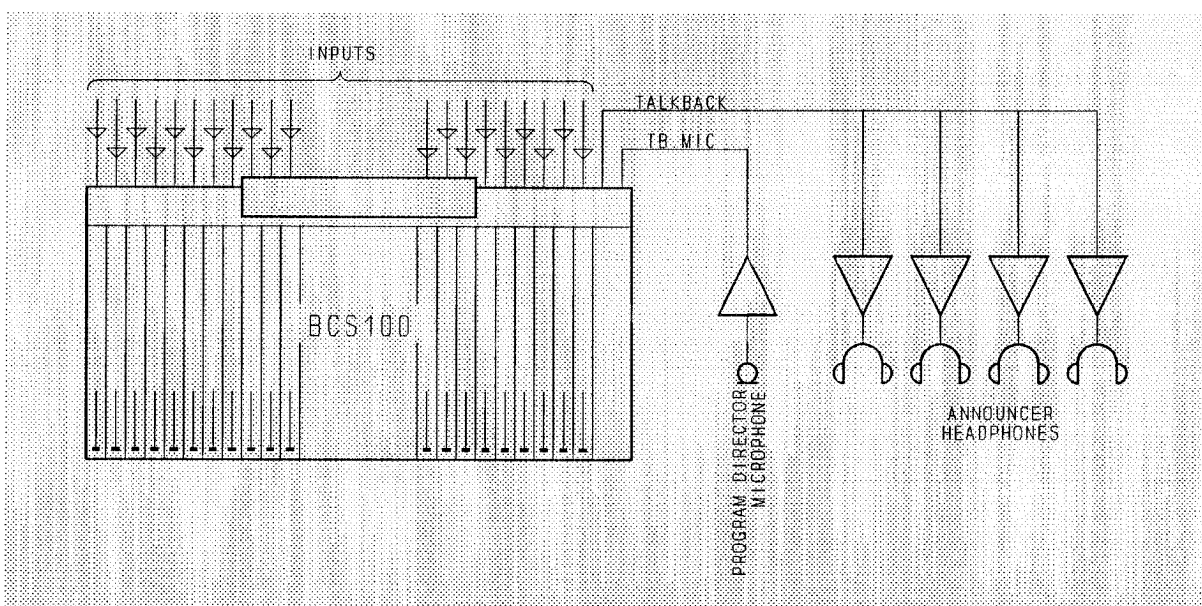
AIR/SPARE1/SPARE2

These inputs can be used to connect the final (off air) program signal, thus after it has passed the complete path from studio to listener. The source can be a tuner or the input signal to the transmitter. Attention: these inputs are not balanced and if you use a tuner connected to a cable radio distribution network, a groundloop may occur. To prevent this, we advise using a transformer in the signalpath of the antenna or the audio. The AIR or SPARE inputs can also be used for tape monitoring during recording.

TALKBACK/TALKBACK MIC

The T.B. Out jack is used for the announcer's headphones. When the engineer pushes the Talkback switch, the signal is sent to this output.

The T.B. In jack is used for the microphone of the program director. The director can select the microphone with a switch, which must be connected to the CTRL (ring) of the microphone jack.



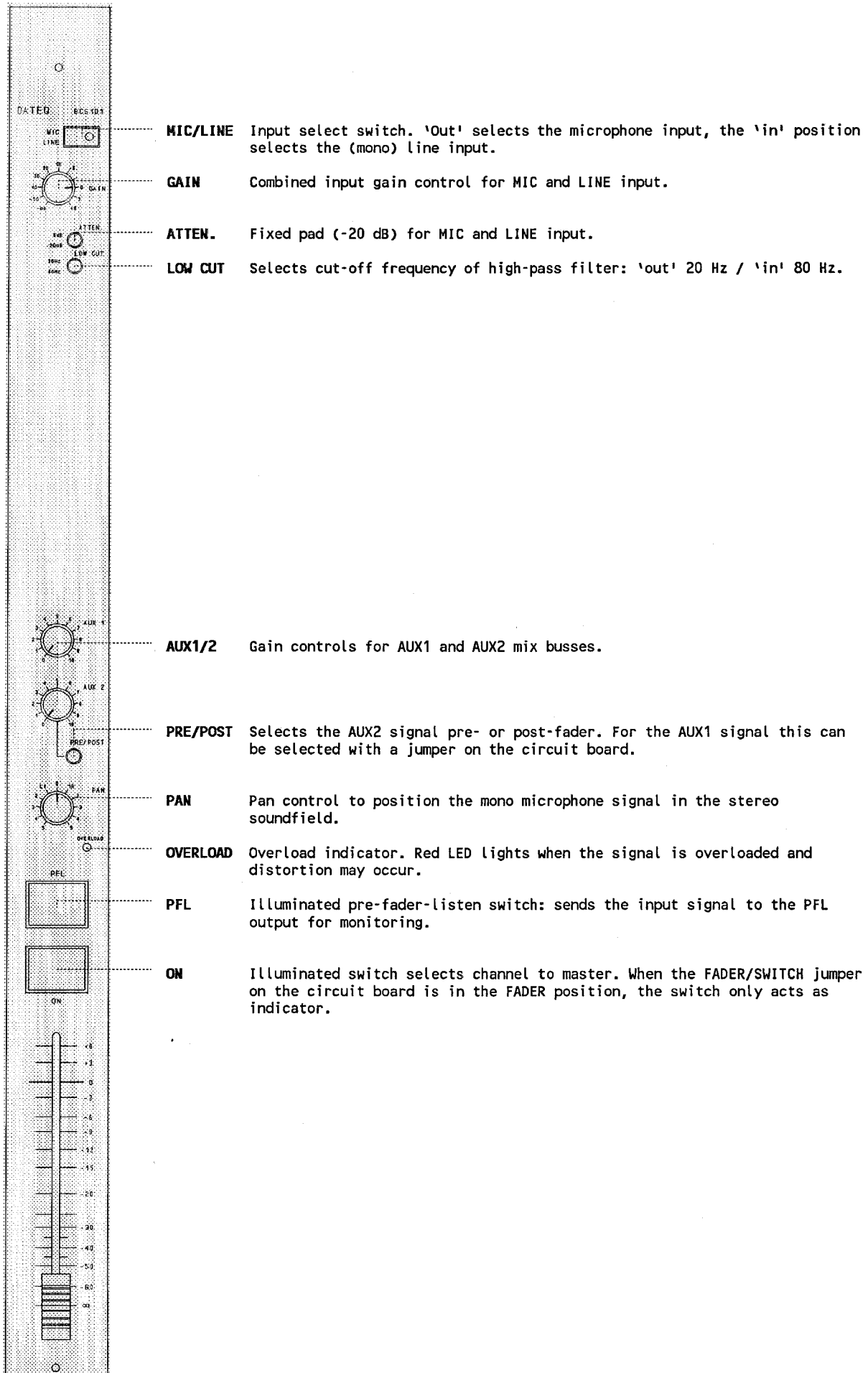
Application example of TALKBACK in- and outputs

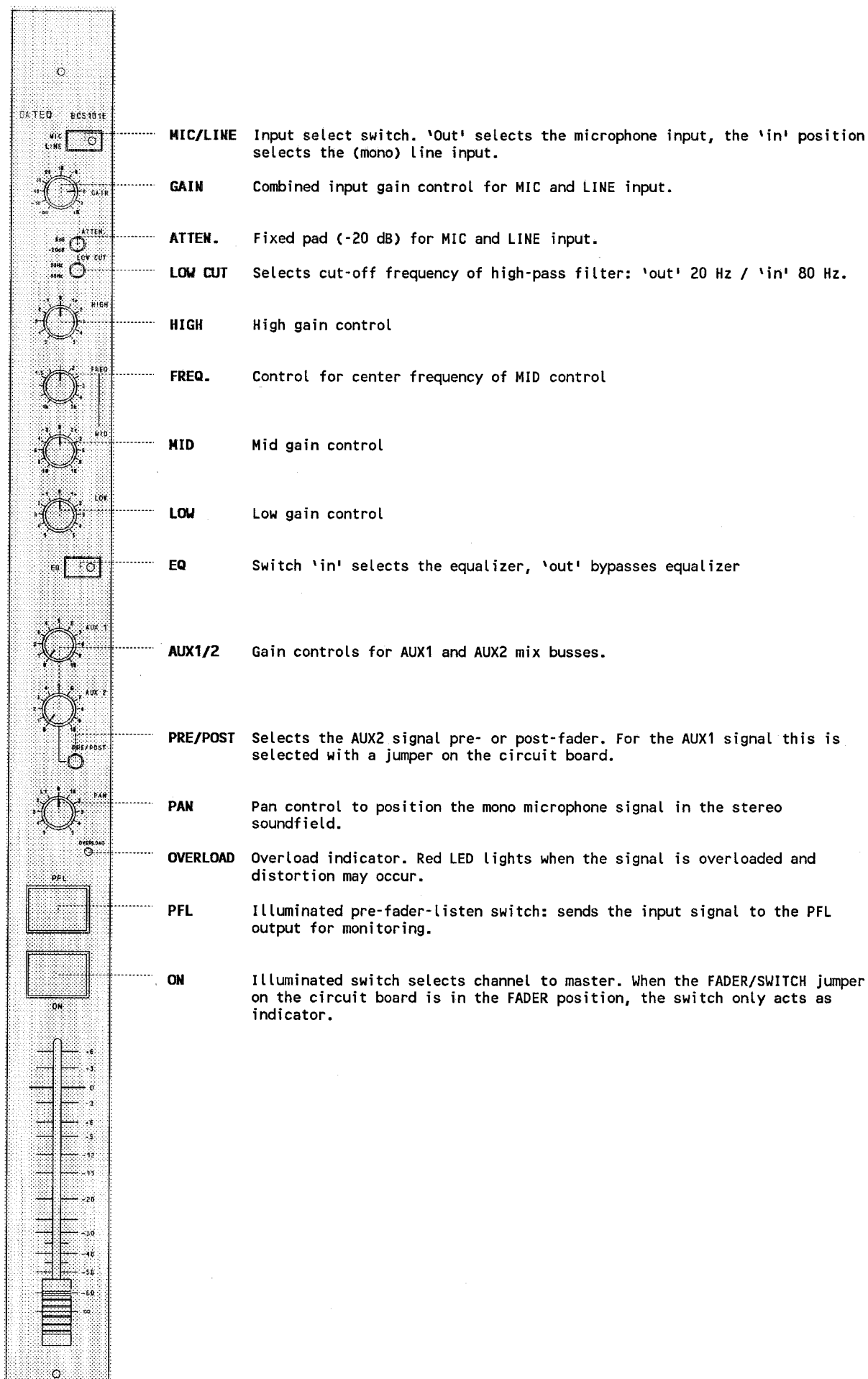
POWER

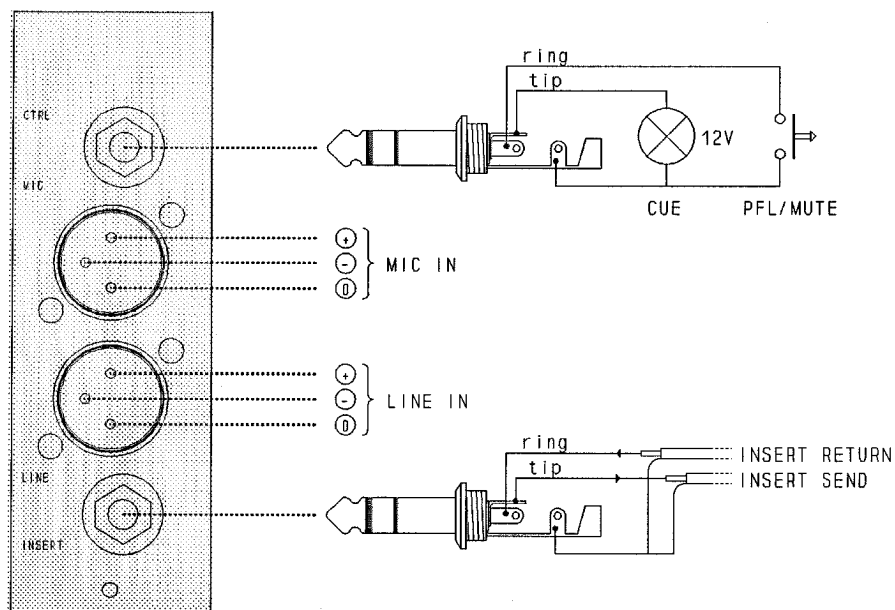
Input for the BCS120 power supply module.

DCF ANT

Input for the active antenna which is used when the BCS121 Timer/Clock is installed.





CONNECTIONS**TECHNICAL DESCRIPTION****Inputs:**

Inputs	Type	Level	Impedance	Connector
MIC	balanced	-60...-14 dBm	300 Ω	XLR3-F
LINE	balanced	-14...+26 dBm	10 k Ω	XLR3-F
INSERT	unbalanced	0 dBm	10 k Ω	JACK
CTRL	pull down	12 V, 10 mA		JACK

Switchable phantom power MIC input: 48 V, 8 mA.

S/N ratio microphone preamplifier: >127 dB.

Outputs	Type	Level	Impedance	Connector
INSERT	unbalanced	0 dBm	600 Ω	JACK
CTRL	voltage	12 VDC, 1 W		JACK

Filters:

LOW CUT: 12 dB/octave,
-3 dB at 20 Hz or 80 Hz (switchable)

Equalizers (BCS101E only)

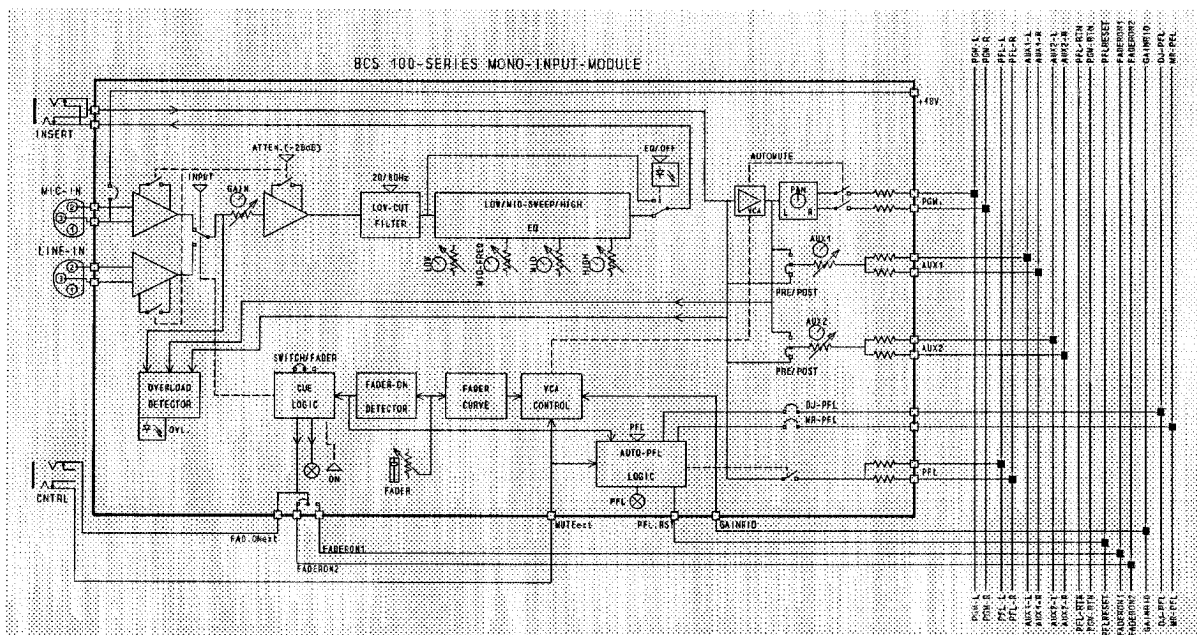
HIGH :Shelving, ± 12 dB, corner frequency 6 kHz
MID :Bell, ± 12 dB, center frequency 300 Hz to 3 kHz (variable)
LOW :Shelving, ± 12 dB, corner frequency 250 Hz

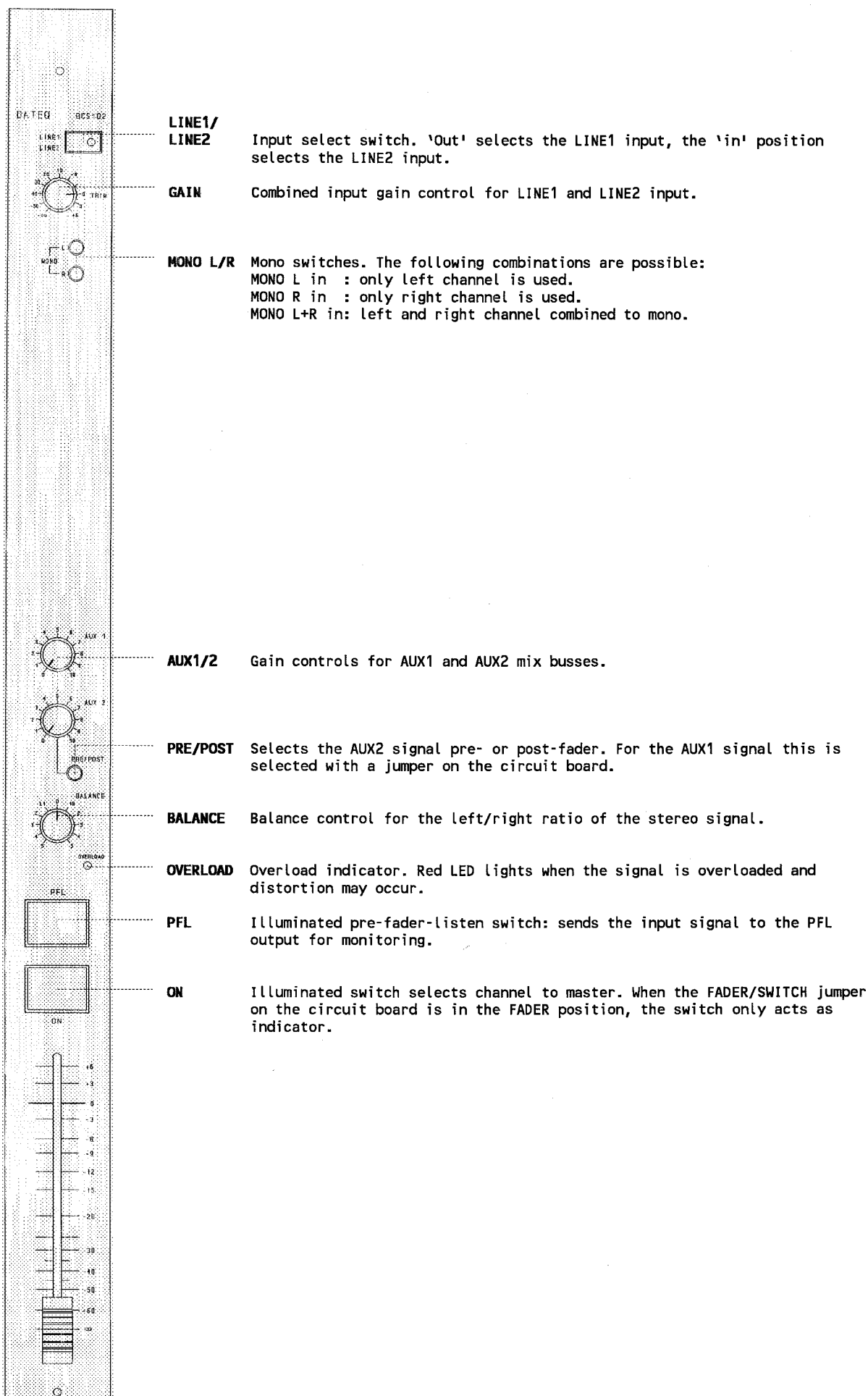
Jumpers

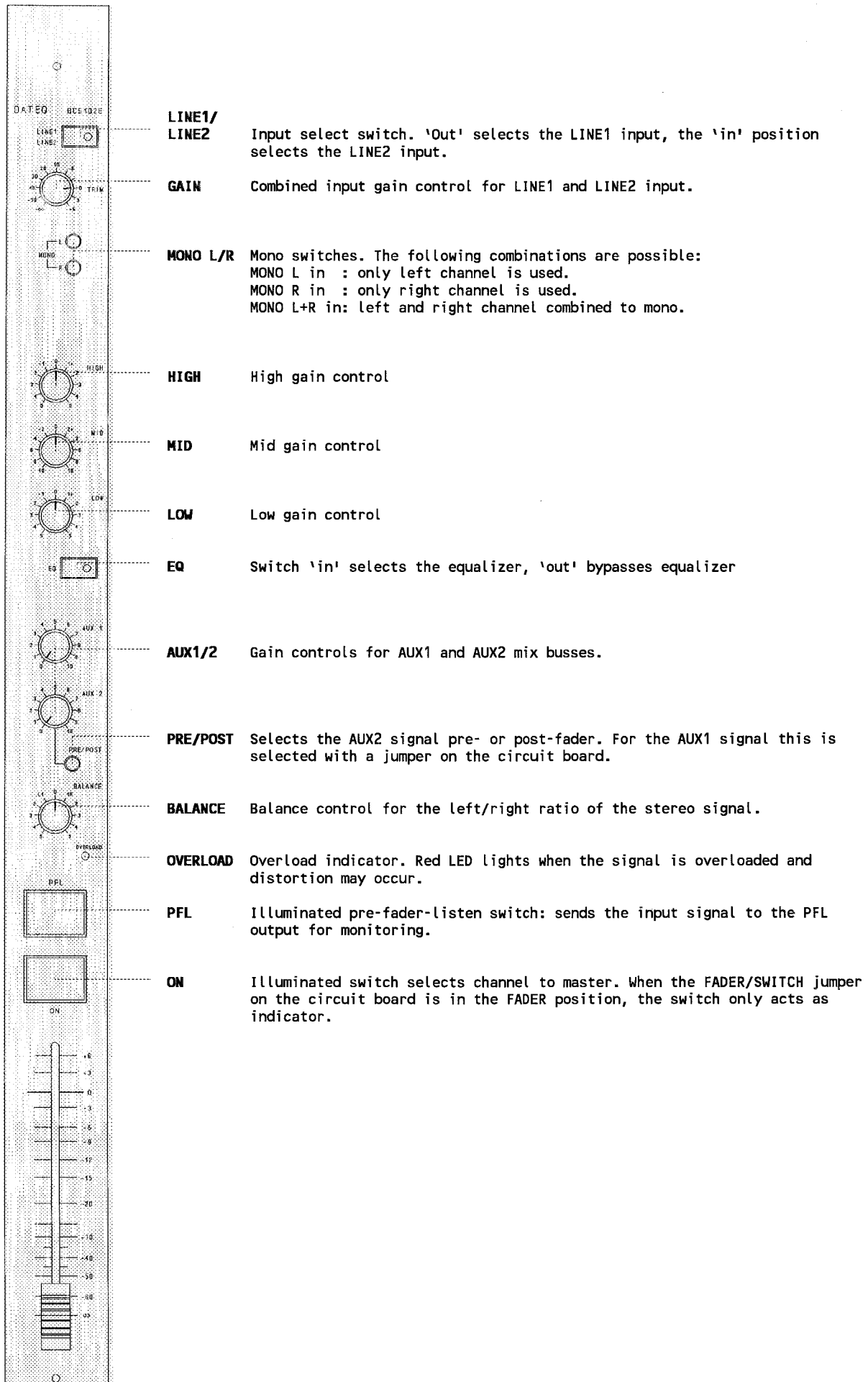
The jumpers of the BCS101/101E are positioned on the component side of the circuit board. Each jumper has two positions: left-mid or mid-right. Only the ON AIR jumper has three positions.

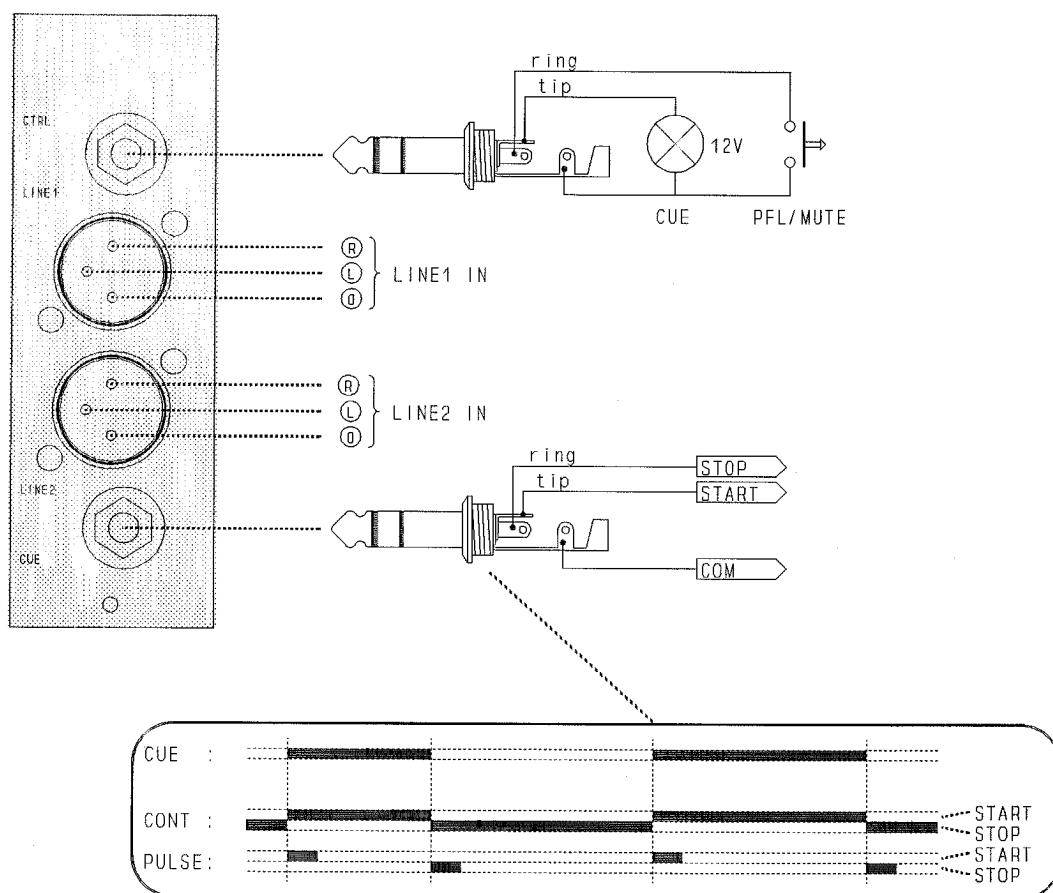
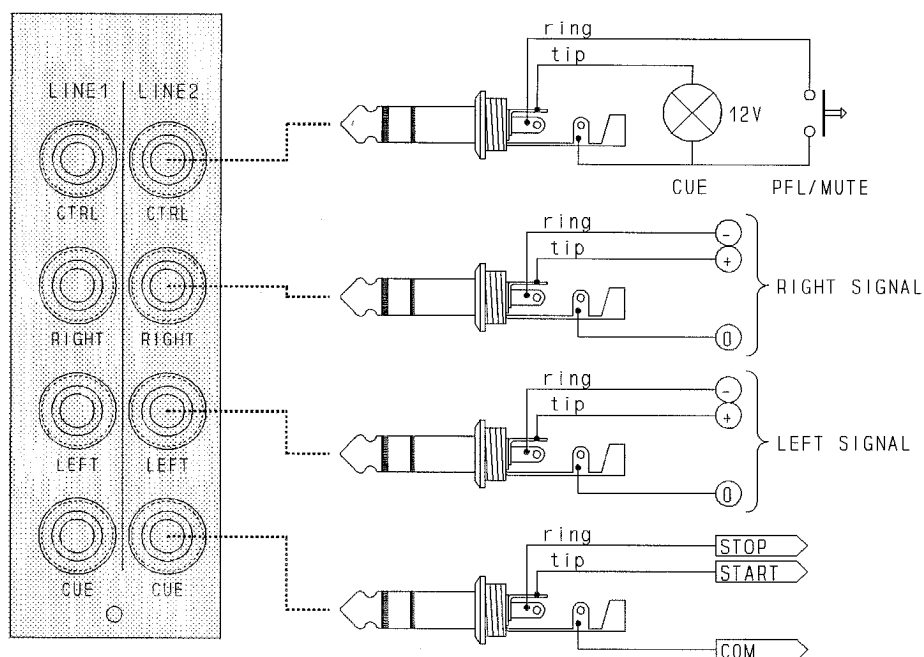
CUE	SWITCH	Channel can be switched on and off with yellow ON switch.
	FADER	Channel can be switched on and off with fader. The yellow ON switch only acts as indicator.
ON-AIR	OFF	None of the ON-AIR outputs changes when the channel is activated.
	ON-AIR1	ON-AIR1 output is active when the channel is activated.
	ON-AIR2	ON-AIR2 output is active when the channel is activated.
MSTR-PFL	ON	When the PFL switch of the channel is pressed, the C.R. output automatically selects the PFL bus signal.
	OFF	The channel is selected to the PFL bus, but the C.R. output does not automatically select the PFL bus signal.
DJ-PFL	ON	As soon as the channel fader is opened, all PFL switches are reset and the operating DJ will only hear the master output signal in the headphones.
	OFF	PFL switches are not reset.
PHANTOM	ON	Microphone input has 48 V phantom power.
	OFF	Microphone input does not have 48 V phantom power.

SIGNAL FLOW DIAGRAM







CONNECTIONS (BCS102/BCS102E)**CONNECTIONS (BCS102S/BCS102SE)****RIAA MD PREAMPLIFIERS**

An optional module is available. The LINE1 input is then changed to an input for MD cartridges (BCS102S/BCS102SE: LINE2-input) so turntables without built-in preamplifiers can be used. Note that the RIAA-input of the BCS102S/BCS102SE is unbalanced, and a normal mono-jack can be used.

TECHNICAL DESCRIPTION

Inputs	Type	Level	Impedance	Connector
LINE (BCS102)	unbalanced stereo	-14...+20 dBm	10 k Ω	XLR3-F
LINE (BCS102S)	balanced stereo	-14...+20 dBm	10 k Ω	JACK
CTRL	pull down	12 V, 10 mA		JACK

Outputs	Type	Level	Connector
CTRL-light	voltage	12 VDC, 1 W	JACK
CUE	opto-coupler	24 VDC, 10 mA	JACK

FILTERS

LOW CUT: 12 dB/octave, -3 dB point at 20 Hz

EQUALIZER (BCS102E ONLY)

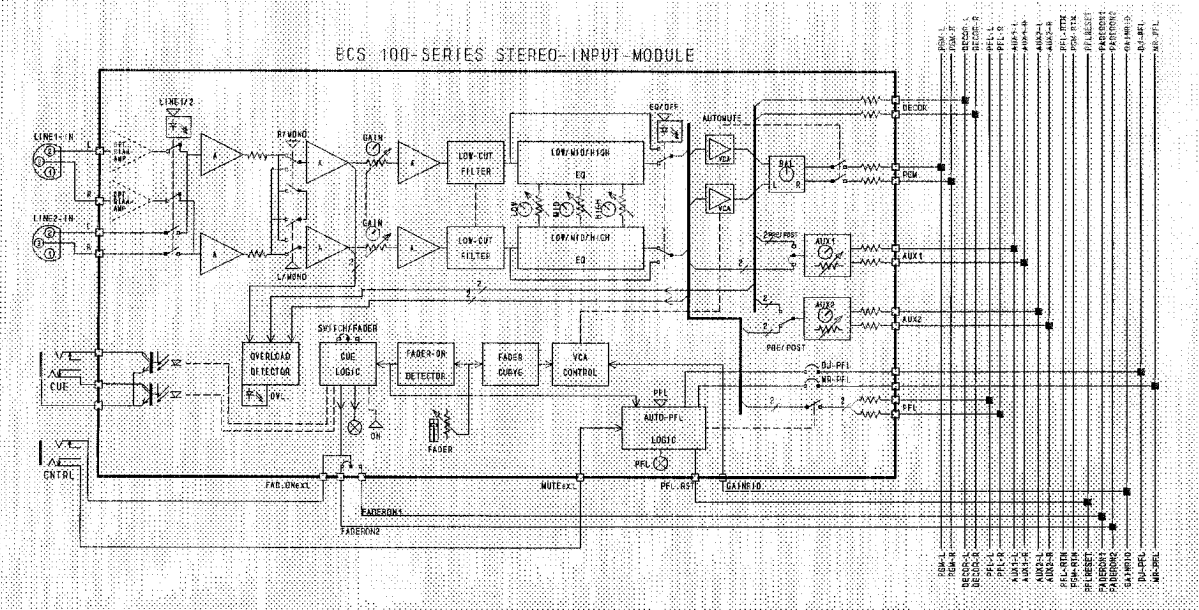
HIGH :Shelving, ± 12 dB, corner frequency 6 kHz
 MID :Bell, ± 12 dB, center frequency 1 kHz
 LOW :Shelving, ± 12 dB, corner frequency 250 Hz

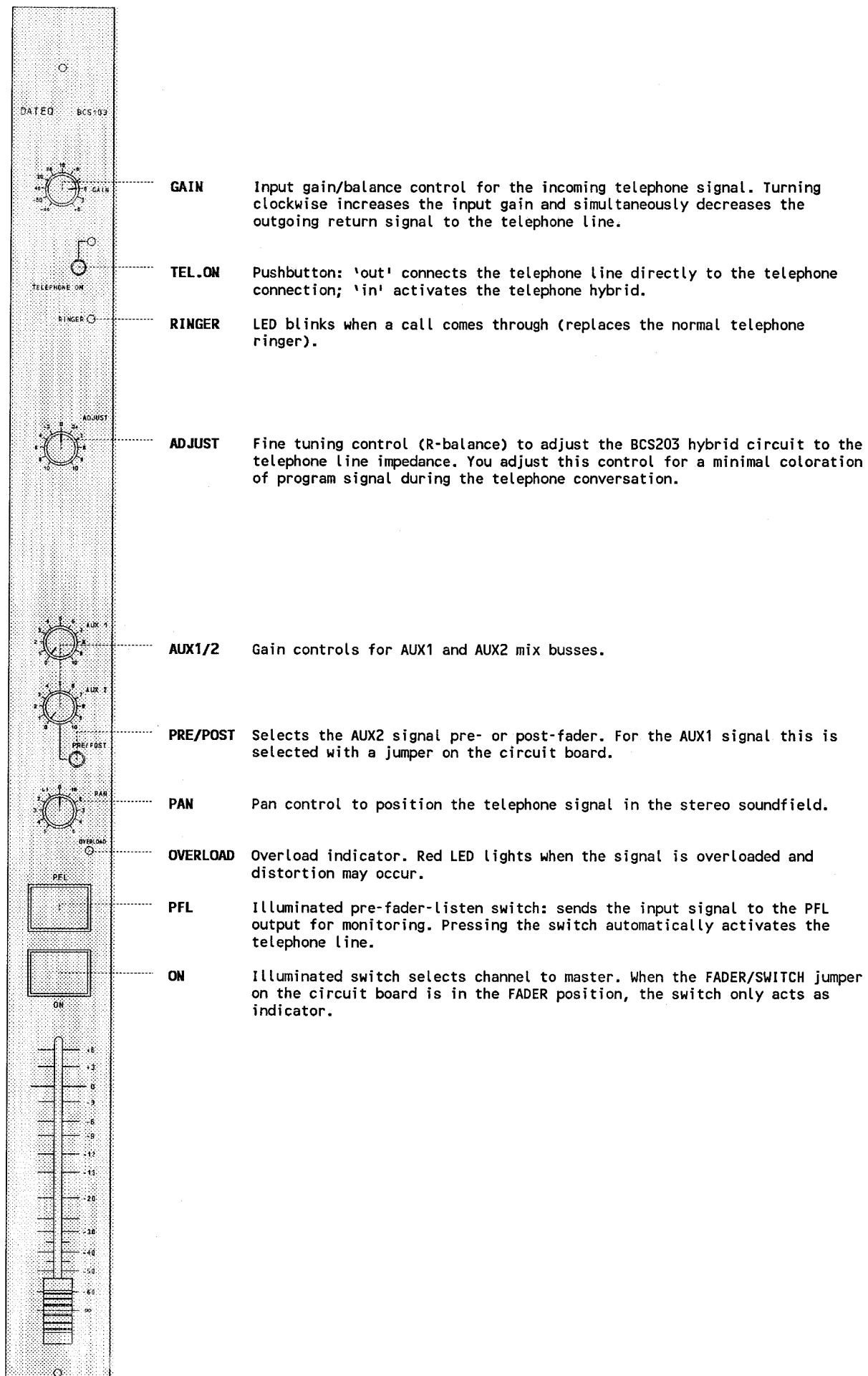
JUMPERS

The jumpers of the BCS102/102E are positioned on the component side of the circuit board. Each jumper has two positions: left-mid or mid-right. Only the ON AIR jumper has three positions. The two AUX1 jumpers are paired (for left and right).

START	CONT	Start en stop outputs are hold contacts.
	PULSE	Start en stop outputs are momentary contacts.
START	SWITCH	Channel can be switched on and off with yellow ON switch.
	FADER	Channel can be switched on and off with fader. The yellow ON switch only acts as indicator.
ON-AIR	OFF	None of the ON-AIR outputs changes when the channel is activated.
	ON-AIR1	ON-AIR1 output is active when the channel is activated.
	ON-AIR2	ON-AIR2 output is active when the channel is activated.
MSTR-PFL	ON	When the PFL switch of the channel is pressed, the C.R. output automatically selects the PFL bus signal.
	OFF	The channel is selected to the PFL bus, but the C.R. output does not automatically select the PFL bus signal.
AUX1	POST	The post-fader (VCA) input signal is mixed to the AUX1 bus.
	PRE	The pre-fader (VCA) input signal is mixed to the AUX1 bus.
RIAA	LINE	Standard setting. No RIAA MD preamplifier installed.
	RIAA	One RIAA MD preamplifier is installed (plug in module).

SIGNAL FLOW DIAGRAM



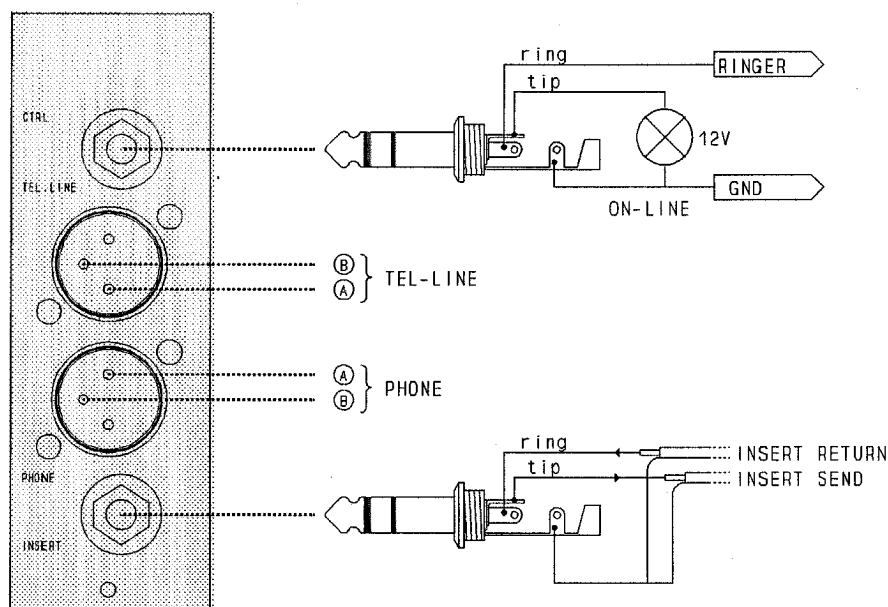


COMMUNICATION

If the PFL switch is in the 'out' position, the telephone return signal uses the program signal. This is the normal situation and telephone interviews, etc. are possible.

When the PFL switch is pressed 'in' (not possible if the channel is 'open'), the telephone return signal uses the PFL signal. The engineer/DJ and the program director can now communicate with the party on the other end by means of the PFL bus and the talkback microphone and/or the director's microphone.

CONNECTIONS



TECHNICAL DESCRIPTION

Inputs	Type	Level	Impedance	Connector
LINE	telephone line	-21..0 dBm	600 Ω	XLR3-M
PHONE	from standard telephone			XLR3-F
INSERT	unbalanced mono	0 dBm	10 k Ω	JACK

Outputs	Type	Level	Impedance	Connector
LINE	telephone line	-21..0 dBm	600 Ω	XLR3-M
PHONE	to standard telephone			XLR3-F
INSERT	unbalanced mono	0 dBm	600 Ω	JACK
ON-LINE (CTRL)	voltage	12 V, 1 W		JACK
RINGER (CTRL)	current	12 V, 10mA*		JACK

* Multiple BCS103-ringer-outputs can be interconnected to provide central signalling.

Filters:

Input filter : 300 Hz to 3 kHz, 18 dB/octave

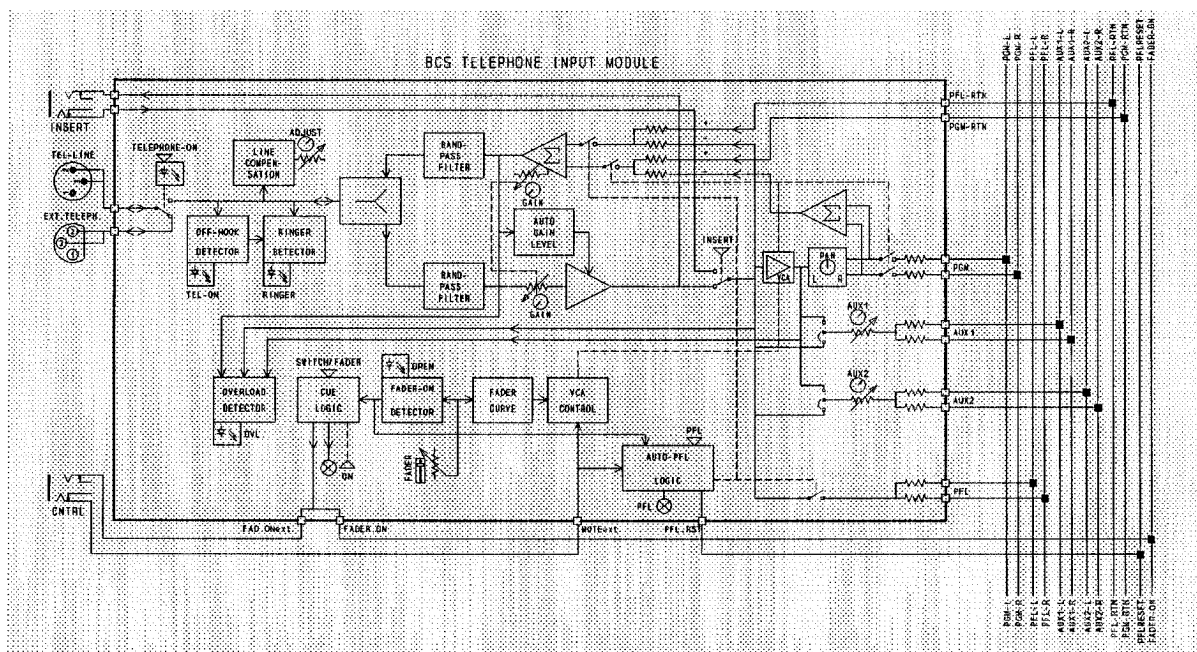
Output filter: 300 Hz to 3 kHz, 18 dB/octave

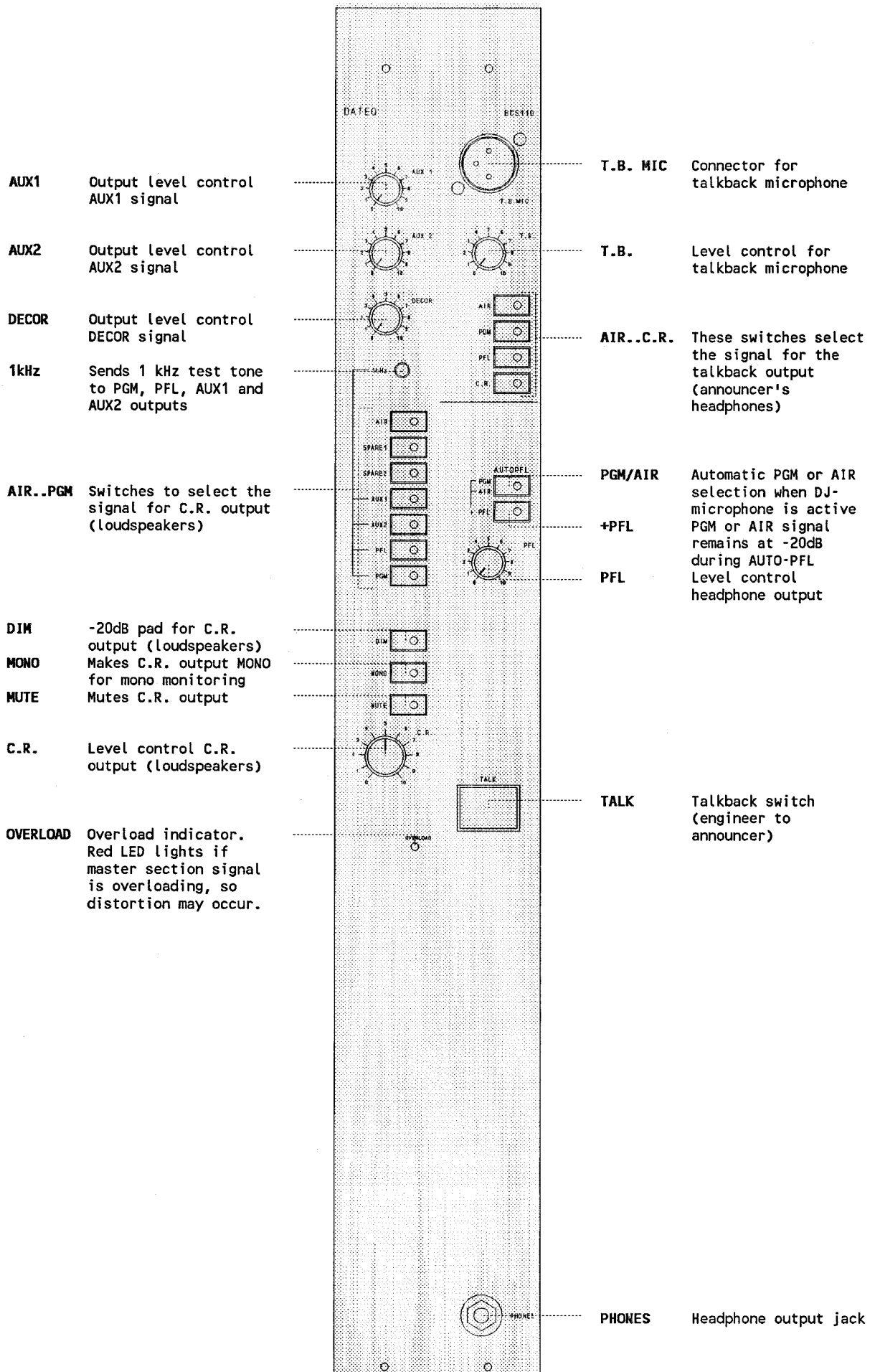
Jumpers

The jumpers of the BCS103 are positioned on the component side of the circuit board. Each jumper has two positions: left-mid or mid-right. Only the ON AIR jumper has three positions.

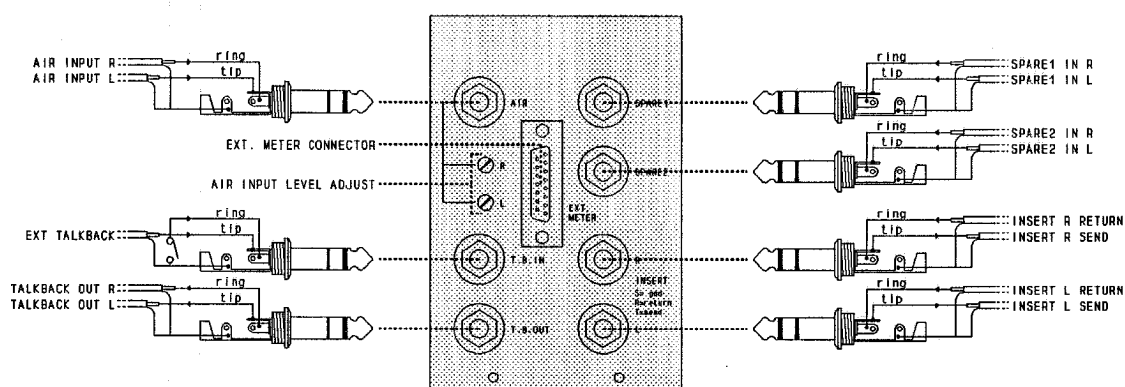
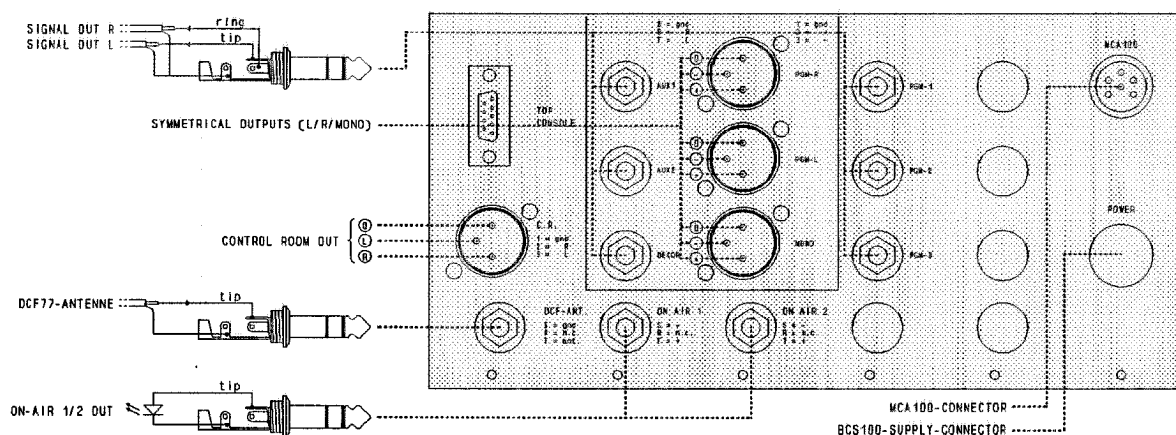
CUE	SWITCH	Channel can be switched on and off with yellow ON switch.
	FADER	Channel can be switched on and off with fader. The yellow ON switch only acts as indicator.
ON-AIR	OFF	None of the ON-AIR outputs changes when the channel is activated.
	ON-AIR1	ON-AIR1 output is active when the channel is activated.
	ON-AIR2	ON-AIR2 output is active when the channel is activated.
MSTR-PFL	ON	When the PFL switch of the channel is pressed, the C.R. output automatically selects the PFL bus signal.
	OFF	The channel is selected to the PFL bus, but the C.R. output does not automatically select the PFL bus signal.
DJ-PFL	ON	As soon as the channel fader is opened, all PFL switches are reset and the operating DJ will only hear the master output signal in the headphones.
	OFF	PFL switches are not reset.

SIGNAL FLOW DIAGRAM





CONNECTIONS



EXT.METER CONNECTOR PINOUT

1	GND		
2	PGM-L	9	PGM-R
3	AIR-L	10	AIR-R
4	SPARE1-L	11	SPARE1-R
5	SPARE2-L	12	SPARE2-R
6	AUX1-L	13	AUX1-R
7	AUX2-L	14	AUX2-R
8	PFL-L	15	PFL-R

MCA-100 CONNECTOR PINOUT

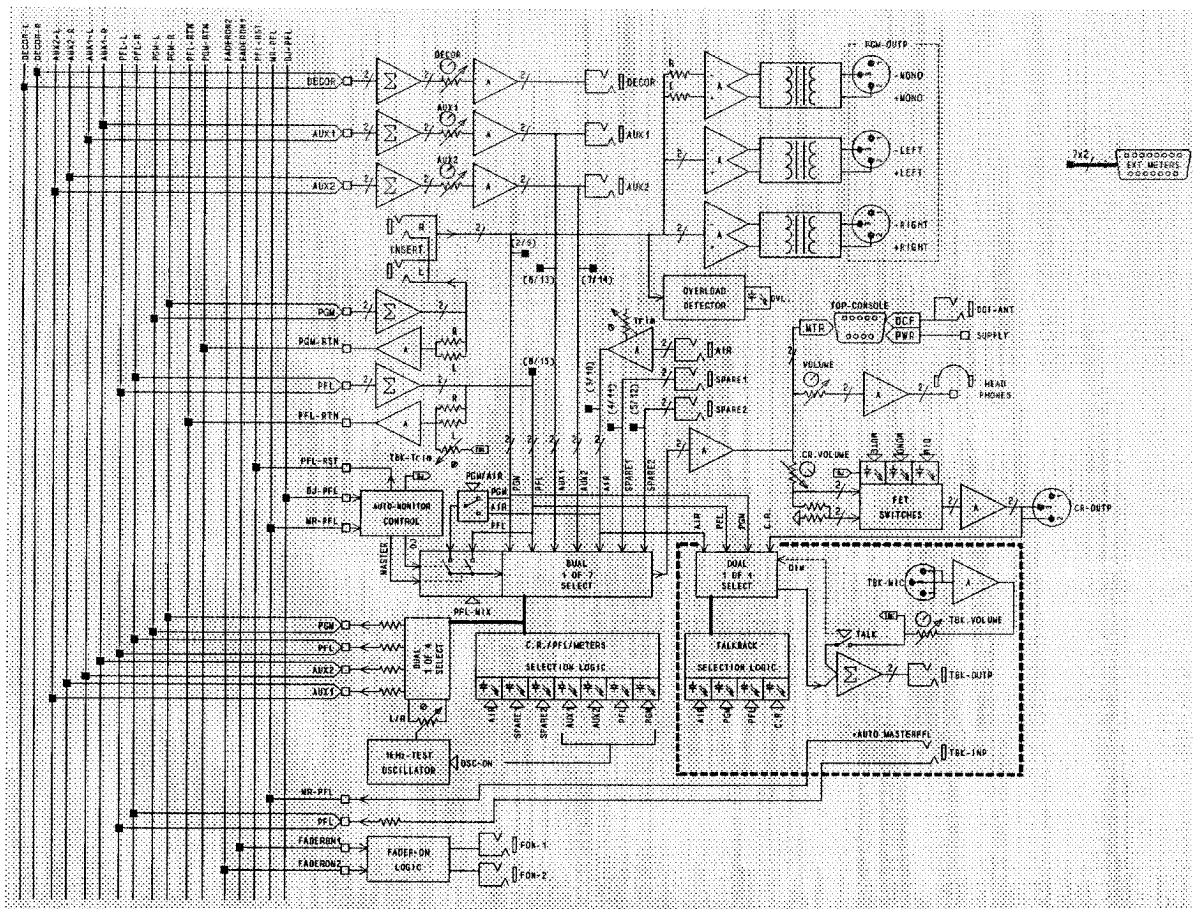
1	TALKBACK-L
2	TALKBACK-R
3	GND
4	PGM-R
5	PGM-L
6	+12

TECHNICAL SPECIFICATIONS:

Inputs	Type	Level	Impedance	Connector
AIR	unbalanced stereo	-15...+6 dBm adjustable	10 kΩ	JACK
SPARE1	unbalanced stereo	0 dBm	10 kΩ	JACK
SPARE2				
TALKBACK	unbalanced mono	0 dBm	10 kΩ	JACK
	PFL control	pull down, 12 V		
TALKBACK-MIC	balanced mono	-60 dBm	300 Ω	XLR3-F
PGM-INSERT-L	unbalanced mono	0 dBm	10 kΩ	JACK
PGM-INSERT-R	unbalanced mono	0 dBm	10 kΩ	JACK

Outputs	Type	Level	Impedance	Connector
PGM-L	transformer balanced mono	+6 dBm	600 Ω	XLR3-M
PGM-R				
PGM-MONO				
PGM-1	unbalanced stereo	0 dBm	600 Ω	JACK
PGM-2				
PGM-3				
AUX1				
AUX2				
DECOR				
TALKBACK				
CONTROL ROOM	unbalanced stereo	0 dBm	600 Ω	XLR3-M
ON-AIR 1	opto-coupler open collector or voltage	24 VDC, 10 mA (opto) or 12 VDC, 1 k Ω		JACK
ON-AIR 2				
Ext. Meters	unbalanced stereo	0 dBm	1 k Ω	SUB-D-15
INSERT-L	unbalanced stereo	0 dBm	600 Ω	JACK
INSERT-R				

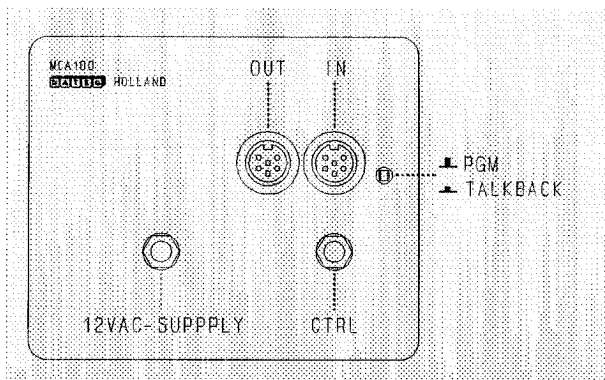
SIGNAL FLOW DIAGRAM



MCA100

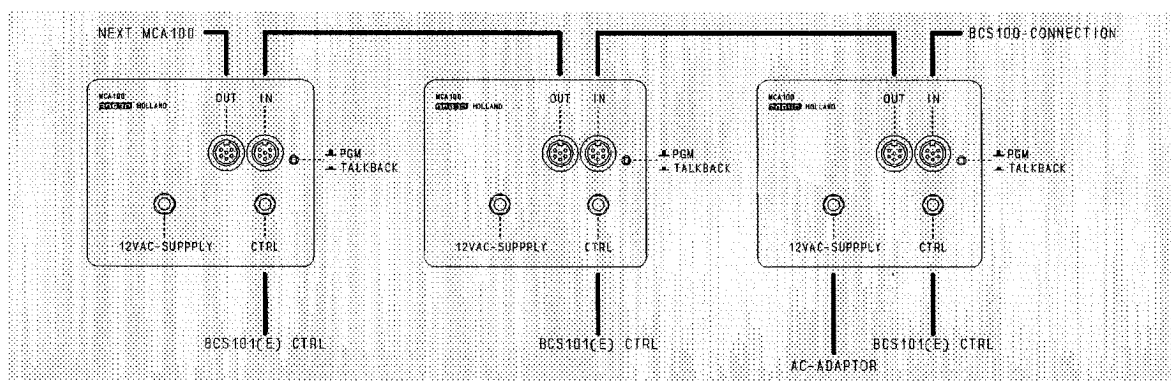
Using the MCA100 makes it easy to provide headphone-connections for the BCS100 broadcast-console in the presenter room. Besides volume control each MCA100 possesses a communication/mute (cough)-button and individual "mic-open" indication. These functions are obtainable by connecting the MCA100 to standard BCS101(E)-CTRL-connections.

CONNECTIONS



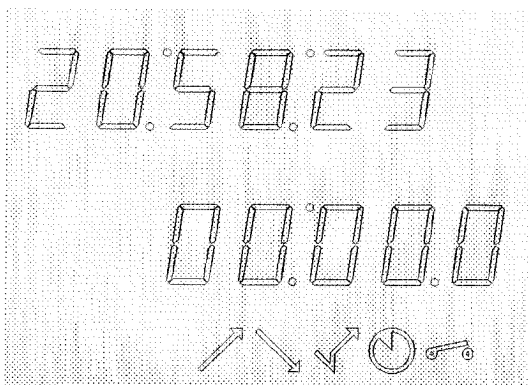
With the supplied DIN-cables it is easy to connect MCA100's to the BCS100. The first MCA100 is connected to the BCS100, additional MCA100's can be connected via the loop-through-outputs on the already connected MCA100's.

- IN** DIN-input for audio-signals and power-supply. Connect this input to the BCS100 mixing console, or the loop-through-output of an already connected MCA100, with the supplied DIN-cable.
- OUT** Loop-through-output for audio-signals and power-supply. Connect an additional MCA100 to this output.
- 12VAC SUPPLY** Connector for an external power-supply-adaptor (optional). Each adaptor is able to supply 5 MCA100's. Connect the adaptor (12Volt, AC, 5 Watt) to the first MCA100 to be supplied. It will supply all MCA100's up to the next MCA100 where an adaptor is installed. Without (a) connected adaptor(s) the MCA100('s) will be supplied by the BCS100 mixing console (up to 5 MCA100's).
- CTRL** This is the connector of the COM/MUTE-button on the MCA100. Meant for the CTRL-input/output on BCS101/BCS101E-mic-channels: TIP=+12V-lamp, RING=switch and SLEEVE=gnd.



SETTING

Each MCA100 can be separately switched between the BCS100-PGM-signal or the BCS100-talkback-signal (both supplied via the DIN-cable), by means of the switch on the rear of the MCA100. It is advisable to set the MCA100's meant for guests to the PGM-signal, so they will not be confused by talkback from the program-director or engineer.



The BCS121 clock/timer-module receives its time-of-day-information from the German DCF77-transmitter at Mainflingen (near Frankfurt). The range of this transmitter is approximately 1000 miles. Besides extreme accuracy, the BCS121 keeps track of daylight-saving-time etc.

TIMER

The timer can be used counting up or down. The [MODE]-key selects the desired mode.

↗ TIMER COUNTING UP

In the initial mode the BCS121 counts upwards from 0:00.0. This mode can be useful for keeping track of the elapsed time since the last record, jingle or other item was started. Triggering the timer with a microphone-channel can be useful to monitor the length of the "spoken" parts of a radio-program.

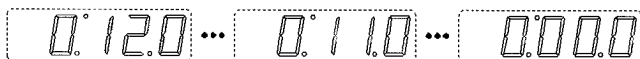


↘ TIMER COUNTING DOWN

To indicate the (approaching) end of a pre-recorded item, for example, the BCS121 can be set in the countdown-mode. The timer will count down from a set point to 0:00.0. This time can be set with the remote control, for example:

[1] [2] [ENTER]

The timer will start counting down from 0:12.0.

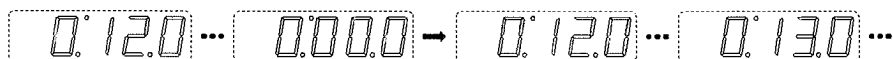


↕ TIMER COUNTING UP/DOWN

During an intro of a (music-) item the timer will count down to indicate the (approaching) end of the intro. When 0:00:0 is reached, the timer switches to indicating the elapsed time from the point where the timer was triggered. The intro-time can be set from the remote control the same way, for example:

[1] [2] [ENTER]

The timer will start counting down from 0:12:0 to 0:00:0, then counting up from 0:12:0



TIMER COUNTING DOWN TO A SET TIME

In this mode the timer indicates the remaining time until a set time is reached, for example the starting-time of commercials and/or news. Enter this time from the remote control unit, for example:

[5] [5] [7] [3] [4] [MODE] [ENTER]

...to count down to om af te tellen to 5:57:34 PM (the [MODE]-key toggles AM/PM). There is an important distinction between this mode and the other modes. This mode can be run in "background", independent from the other timer-modes. Once the set-time is programmed, the timer can be started, stopped and reset in all other modes, while the timer in this mode keeps running. Each time the BCS121 is switched back to this mode, the remaining time will be displayed again.

In case the set time is approaching with the timer in another mode, a small blinking dot is displayed left of the timer-display the last 30 seconds, to draw the users attention.

 ...  ... 

INPUT-MASK-MODE

For external triggering of the timer 8 switch-signals can be connected to the BCS121. Since it is not always desired to trigger the timer with all connected channels, each channel can be individually blocked out with the mask-option. In the initial situation the display will show "1234/ 5678". With the [1] .. [8] - keys of the remote control unit each channel can be disabled or enabled. For example by pressing

[1] [5] [6]

the display will show "-234 / --78". This means channels 1, 5 and 6 are disabled; 2, 3, 4, 7 and 8 are enabled.

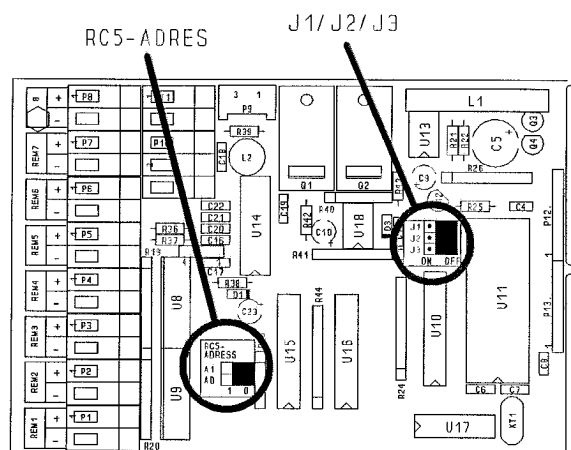
SETTING THE TIME

During normal reception-conditions the clock will be synchronised within 2 minutes, and the right time will appear on the display. It is also possible to use the clock "free running" (with the antenna not connected). In this case setting the clock to the right time can be done by entering the right time from the remote control unit, by pressing [0] [0] [0] when in input mask mode. When this is done, " / SET " will appear. For example:

[5] [2] [8] [0] [0] [MODE] [ENTER]

The clock starts running from 5:28:00 PM (the [MODE] key toggles AM/PM) as soon as the [ENTER] key is pressed.

JUMPERS



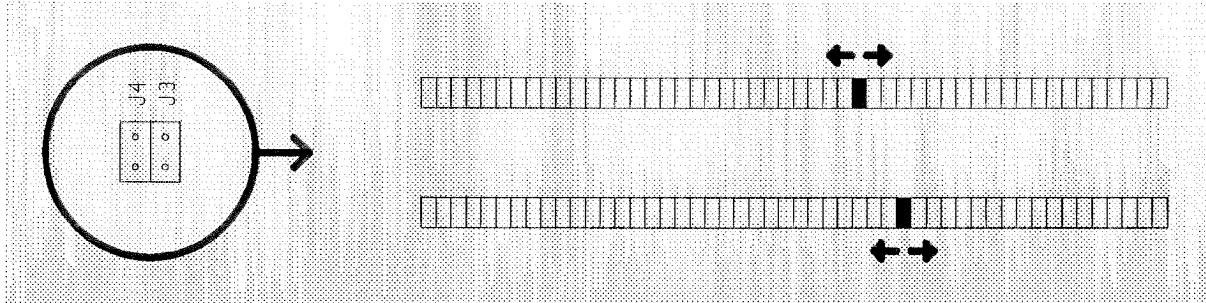
J1	ON	BCS121 configured as slave (using another BCS61/BCS121/BCS226 as master)
	OFF	BCS121 configured as master (default)
J2	ON	12-hour time-format with AM/PM (default in the USA)
	OFF	24-hour time-format (default in Europa)
J3		(not used)
RC5- ADDRESS	A0=0 A1=0	Adress 0 remote control (default)
	A0=1 A1=0	Adress 1 remote control (When using multiple BCS61/BCS121/BCS226-units in one room, it is recommendable to use different remote control addresses)
	A0=0 A1=1	Adress 2 remote control
	A0=1 A1=1	Adress 3 remote control

ANTENNA

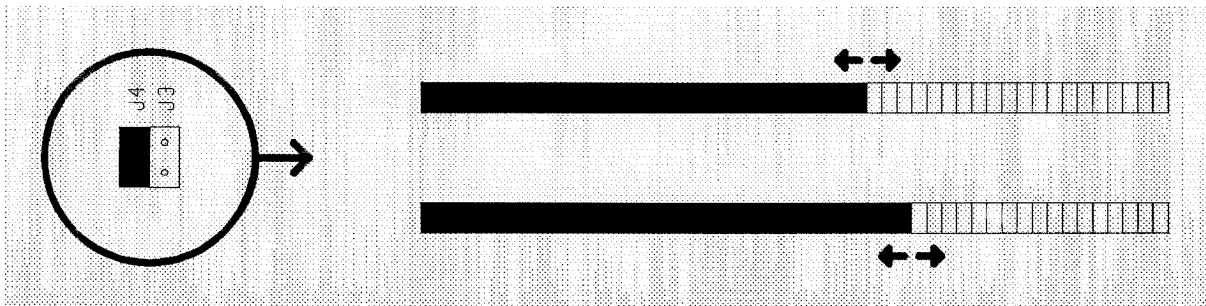
The cable of the supplied DCF77-antenna can be made longer without any problem (max. 100 meter, 300 feet). Mount the antenne in a position where reception quality of the DCF77-transmitter is good. Be aware of the fact that the direction of the antenna is important. If the reception of the transmitter is good, the LED on the antenne will blink on a regular basis (every second). If the LED doesn't blink, or blinks irregularly, the reception is not good. The cause for a bad reception can often be found in computer-equipment nearby, or steel constructions in the building, blocking the long-wave signal of the transmitter. **Caution:** the supplied antenna is not suitable for outside-mounting. The antenna is not waterproof, and the built-in electronic circuit will not operate properly below the freezing point and above 50 degrees Celcius.

50 SEGMENT LED-PEAK-METER

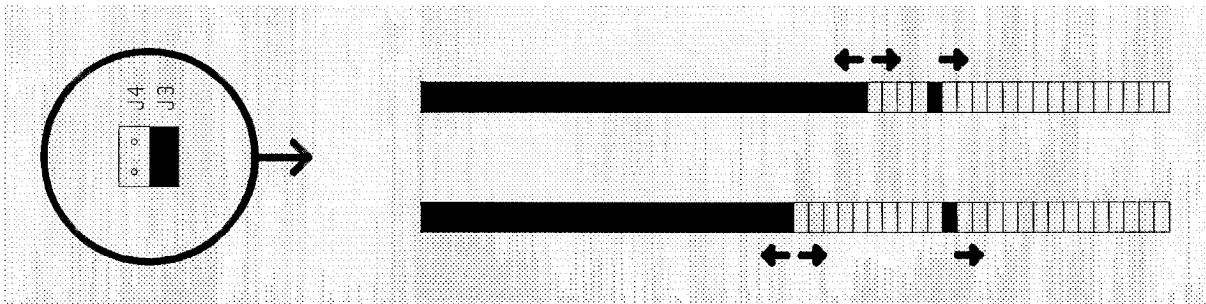
The BCS122 peak-program-meter module uses a LED-bar with 50 segments. The BCS122 is jumper-configurable into 4 different display-modes. The jumpers are situated just behind the LED-bars, reachable by removing the rear panel of the meter-bridge.



Afb 1: "flying spot"-mode



Afb 2: No PEAK-indication



Afb 3: LED-bar with peak-hold-dot



Afb 4: LED-bar with slowly dropping peak-hold-dot

EC-DECLARATION OF CONFORMITY

acc.to art.10.1 EMC directive 89/336/EEC

We, **DATEQ Audio Technologies B.V.**
De Steiger 193
1351 AV ALMERE
THE NETHERLANDS

hereby declare, exclusively to our responsibility, that this product

Type: BCS100 SerialNrs.: 78-XXXX

to which this declaration applies, is in accordance with the following harmonized European norms

EN 50081-1 and EN 50082-1

According to the regulations of the EMC-directive 89/336/EEG, amended by directive 91/263/EEG, 92/31/EEG and 93/68/EEG.

Almere, march 24th 1995

J.H. Kloppenburg, managing director

stamp:

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