adt-audio

# analog Broadcast Mixing Consoles BC4

# BC-MG12

## Broadcast Mono Subgroup Module


**Depending on the version of input modules installed, mono or stereo audio subgroups can be selected in the routing matrix. The installation of the corresponding group master modules is optional. With most of the modules, eight mono or stereo subgroups modules can be installed. The BC-MG12 is a mono subgroup module that includes a compressor limiter dynamic section, a full set of auxiliaries and an additional stereo line level input.**

- **Mono subgroup master section**
- **Separate level controls for routing and group outputs**
- **compressor/limiter dynamics section**
- **Additional stereo line level input**
- **Ten auxiliaries, 6 mono and 2 stereo with level and pan**
- **Routing section allows group to group routing to arrange ‚deep' subgroups arrays**
- **Balanced, switched, insert, pre or post fader**
- **The sends can be driven from the group channel or the stereo input alternatively**
- **100 mm conductive plastic VCA fader**
- **Six VCA groups**
- **Additional routing into program masters for stereo input**
- **Extensive PFL/AFL system**

The BC-MG12 mono sub group module combines a mono subgroup master chain with a rich feature set and a stereo line level input.

The **STEREO INPUT** has electronically balanced inputs. A mono switch adds both the stereo inputs pre the level control. The PFL switch routs the pre fader signal in stereo into the PFL bus. This switch operates always in non-latched mode, is not affected by the setting of rotary fader, and causes no reset of other PFL's in single operation mode. The rotary level control has a maximum gain of 6 dB. The pan pot, which is actually a stereo balance pot with 0 dB center attenuation, feeds the post fader signal to the program master routing switches that allow the selection of any program master busses. In addition, a CUT switch mutes the entire stereo input.

The ‚SENDS TO STEREO IN' switch reroutes all sends, which are normally assigned to the group section of the module, to the stereo input in pre fader and post fader mode as well. Using this mode, the aux sends are driven in mono, using separate pre and post fader mono matrix stages, while the two stereo sends are driven in stereo.

**The Group Chain**

**The group chain of the BC-MG12 module contains an ultra low noise bus amp, a fully parametric compressor limiter section, a balanced, switched insert section, VCA group master fader, a full set of auxiliaries, a group output amplifier with an additional switch and level control section and a routing matrix.**

The **INSERT** section is electronically balanced. The insert output is always available on the connector panel while the insert return input is switched into the group chain with the insert switch. The insert output and input operate on nominal level. The default position of the entire insert section is pre fader, pre dynamics section. The switch POST FADER places the insert section post the fader. This feature offers the choice to use the internal dynamics processor as compressor, while an external device is used as an additional brick-wall limiter.

The integrated **Dynamics Unit** is a VCA controlled, forward regulated compressor/limiter with a full set of controls that allow the modification of all parameters. The ac-dc converter is a RMS converter that is adjusted to a very fast integration time constant. This principle combines the advantage of RMS based control voltage generation with the speed of a standard peak rectifier circuit. The feed forward regulation makes possible to implement a very fast reaction time if the unit is set to minimum attack time. The Threshold control covers the range from -24 dB to +12 dB, referred to nominal level. The Attack control ranges from faster than 0.1 ms to 20 ms. This range covers any application of a compressor or limiter, from a fast brick-wall type peak limiter to a very soft leveling. The Release control from 0.1 seconds to 3 seconds includes also very fast release times. The range of the ratio control is from 1:1, which is actually ‚compressor off' to ‚Limit', which sets the unit into limiter mode. An additional gain control can compensate the drop in level with compressor settings using low threshold levels. A 10 LED bar graph displays the actual gain reduction with a range of 20 dB. The DYN switch inserts the circuit into the signal chain.

The default position of the dynamics unit is pre fader; however, the POST switch reroutes the entire section post group fader.

The BC-MG12 audio subgroup module is equipped with a total of **10 sends** that are divided into 6 mono auxiliaries, AUX1 to AUX6 and two stereo auxiliaries, CUE1 and CUE2. Each of the six mono sends has its own level control and PRE fader switch. The stereo sends have level and pan controls. In difference to the mono sends, these sends are defaulting pre fader. A POST fader switch and a CUT switch are assigned to each stereo send. This default setting can be changed to customers requirements; please ask for details. As mentioned above, it is possible to assign the sends to the stereo input alternatively.

The **group FADER** is a conductive plastic, VCA law fader with 100 mm stroke that offers a maximum gain of 10 dB. Faders with 126.5mm stroke and +15 dB gain are optionally available, please ask. The audio path of the fader section uses high quality VCA's, brand THAT. The scale accuracy is better than 1 dB from + 10 to - 20 dB. The zero point is internally calibrated to pinpoint accuracy. The Group On switch controls the VCA's and an additional relay mute circuit. Both, fader and switch can control the start system in different ways. It is possible to reverse the function of the Group On switch to CUT, therefore from ‚default off' to ‚default on'. However, this version has to be installed with all group modules of the particular console to maintain proper operation of the different master control functions.

The **GROUP CHANNEL OUTPUT** is always post master fader. The output is electronically balanced and at nominal level. The source impedance is below 60 Ohms in the transmission band. Depending on the load resistor, the output can drive levels of up to + 30 dBu. Transformer balanced outputs are possible; please ask.

The output of the fader drives also the routing section that makes possible to mix the particular group into a program master bus. In addition, eight group switches make ‚deep group arrays' possible. A group can be routed to another group to form an array, where some groups are used as masters for the groups that are routed to this particular group. However, this possibility includes the risk of feedback loops, when a group output is routed to its own input inadvertently. A set of jumpers make possible to disable this possibility per module. An additional rotary fader with a maximum gain of 6 dB can be inserted into the routing feed by the FDR switch. This fader makes possible to set different levels for the group to program master and group to group routing and the group output. The routing feed defaults to post fader. It can be set to pre fader by the PRE switch. The pan-pot is a standard mono to stereo, panoramic control with 3 dB center attenuation. While the pan-pot outputs always feed the program master rails, the group routing is directly driven from the fader output. The PAN switch makes possible to use the groups in stereo mode. In this case, the odd numbered groups are assigned to the left channel and the even numbered groups are assigned to the right channel.

Six **VCA-GROUPS** can be selected in parallel by six switches. A LED indicates that one or more VCA groups are assigned to the particular channel fader. The VCA group master faders are installed in the master section. The VCA grouping controls the vca level setting and the Group On function. If the VCA group master is not in ON mode, all groups that are assigned to this master are also in OFF mode. This additional features offers the choice to use any number of group masters as mute group, just by setting the VCA group master fader to the 0 dB position. An additional important feature of the VCA grouping system is, to build audio group ‚grand masters'.

The **PFL system** of the BC4 broadcast console system is a stereo system that can be operated in different modes. With the BC-MG12, mono group module, the default function is ‚pre fader listen'. The input signal of the fader is routed to both the left and right PFL audio busses in stereo when PFL is active. The master status function AFL FLIP changes the PFL system into an AFL/Solo system. With this function, the output of the fader feeds the PFL bus. The AFL SAFE switch disconnects the particular channel from the master status bus. There are two main PFL modes, add and single. In adding mode, any number of channels are mixed into the PFL bus. In single mode, only one PFL can be active at a time. If PFL is active in a particular channel, the activation of another PFL automatically resets the PFL that was previously active. In addition, a central PFL Reset switch clears all PFL's. The local status of PFL can be controlled by the fader position and/or the channel on switch. The default setting is, that PFL is in latch mode, as long as the channel is off. When the channel is on, the fader position determines if PFL is in latch mode or not. Opening the fader or switching on the channel while the fader position is above threshold resets PFL automatically. With channel on and fader positions above threshold, it is still possible to activate PFL by pressing and holding the PFL button. Each of these functions has a corresponding jumper that makes it possible to modify the behavior of the PFL system in any desired way. Of course, it is possible to set the PFL mode of the group modules differently from the mode of the input modules. As far as AFL is concerned, it is also possible to reverse the assignment of PFL and AFL. With this setting, the system defaults to AFL and operates in PFL mode when the AFL master function is active. This setting is possible with the groups modules only.

In addition to the PFL/AFL system, the output of the groups is included with the control room source selection. Besides the default setting which includes four switches that are assigned to 8 subgroups in stereo pairs, the extensive source select unit with a total of 32 stereo inputs make possible to assign additional switches to sub group outputs in any desired way.

The **START control section** is not implemented with the group modules; however, the basic function is included and generates the fader open and channel on signals. The three ‚fader open' busses can be assigned to the group faders as well. In addition, it is possible to use the control section of the group modules to implement additional master functions that are required by some customers. Function like this can disable the microphone ‚on-Air' control, when the group master fader is closed. Since the use of these systems is different from customer to customer, please get in touch with us and let us know what functions you like to have implemented.

The standard consoles include an external PPM type, high resolution, meter that is installed in the meter bridge. adt-audio LED meters are used with all standard consoles setups. Plasma bar graph meters can be installed alternatively.

The connector panel of the group modules uses single XLR connectors for all inputs and outputs.

**The BC4 Broadcast Console System by adt-audio in Germany covers the range of medium to large format on-air and production consoles for any kind of applications. The rich feature set includes all special functions for broadcasting.**

**The BC4 console system combines high reliability, long lifespan, and professional technical qualities in combination with excellent sound performance,**

**In addition to a couple of standard input, group, and master modules, BC4 is a versatile base for custom build broadcast consoles at affordable prices. The system limits offer the choice to makes custom modules that use up to 36 bus rails, which can be used as main masters, group masters and sends in many different ways.**


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