Content

Data sheet
102/1 Norm Frame with Power Supply
Description, Features

The 19 inch, three heigth unit Frame can be rack mounted or left standalone. Two power supplies are built in, one for the digital electronics, one for the analog electronics such as A/D and D/A converters. The Norm Frame accomodates up to fourteen 30mm (1 1/5 inch) modules. The backpanel PCB holds 14 connectors for the modules as well as a power-up reset circuit which resets some of the modules to a know state at power-up. The back plate holds the mains connector, the mains switch with fuse and on older models the mains voltage selector. In addition there is the 7 pin REMOTE connector to connect the Remote Desk or the Penguin System.

Also see the "Basic information on the Weiss 102 Series modular signal processing system."

Operation

Before plugging in the mains cord make shure that on older models the voltage selector is set to the proper mains voltage. On new models there is no voltage selector, because the power supplies are self switching. Also check for the proper fuse rating which should be 3.15A slow blow at 100 / 110 Volts and 1.6A slow blow at 230 Volts.

How to plug in the modules:

The signal always flows from left to right assuming that one is looking at the front of the frame. For this reason, all the INPUT modules have to be plugged into slots on the left. The SIGNAL PROCESSING modules follow and the OUTPUT modules terminate the chain. In fact, the OUTPUT and the SIGNAL PROCESSING modules can be mixed as to obtain different signal processing on different outputs.

The backpanel bus is interrupted at each slot. This allows the SIGNAL PROCESSING modules to take the signal at their left side bus, process it and output it to their right side to the next module(s).

One frame may accommodate more than one signal chain. To accomplish this, simply leave one slot between the two chains free. This has the effect, that the back panel will be interrupted at this unused slot, resulting in two separate backpanels. More than two chains are possible, of course.

ALWAYS SWITCH POWER OFF WHEN PLUGGING OR UNPLUGGING MODULES !

Data sheet
102/1L Large Frame with Power Supply
Description, Features

The 19 inch, six heigth unit Frame can be rack mounted or left standalone. Two power supplies are built in, one for the digital electronics, one for the nalog electronics such as A/D and D/A converters. The Large Frame accomodates up to twenty-eight 30mm (1 1/5 inch) modules. The backpanel PCB holds 28 connectors for the modules as well as a power-up reset circuit which resets some of the modules to a know state at power-up. The back plate holds the mains connector, the mains switch with fuse and the mains voltage selector. In addition there is the 7 pin REMOTE connector to connect the Remote Desk or the Penguin System.

Also see the "Basic information on the Weiss 102 Series modular signal processing system."

Operation

Before plugging in the mains cord make shure that the voltage selector is set to the proper mains voltage. Also check for the proper fuse rating which should be 3.15A slow blow at 100 / 110 Volts and 1.6A slow blow at 230 Volts.

How to plug in the modules:

The signal always flows from left to right assuming that one is looking at the front of the frame. For this reason, all the INPUT modules have to be plugged into slots on the left. The SIGNAL PROCESSING modules follow and the OUTPUT modules terminate the chain. In fact, the OUTPUT and the SIGNAL PROCESSING modules can be mixed as to obtain different signal processing on different outputs.

The backpanel bus is interrupted at each slot. This allows the SIGNAL PROCESSING modules to take the signal at their left side bus, process it and output it to their right side to the next module(s).

One frame may accommodate more than one signal chain. To accomplish this, simply leave one slot between the two chains free. This has the effect, that the back panel will be interrupted at this unused slot, resulting in two separate backpanels. More than two chains are possible, of course. Note that the bus is continued from the upper right to the lower left.

ALWAYS SWITCH POWER OFF WHEN PLUGGING OR UNPLUGGING MODULES!

Data sheet
102/30 Bus Link V1
Description, Features

The Bus Link is a passive module which links the backpanel signals in a slot. It can be used to fill an empty slot as to make shure the audio and remote control data are fed to the next module.

Operation

The module may be plugged in anywhere in the frame.

Data sheet
102/31 Resampler
Description, Features

The 102/31 Resampler (formerly called DAE Coprocessor) module digitally resamples a signal on the 102 Series internal bus with an externally fed Wordclock. This is useful for systems where the wordclock signals at the input and the output of the 102 Series system MUST have the same phase. Due to the various processing modules in the 102 series system, the wordclock signal will be delayed / inverted etc. By reclocking the audio and wordclock signal just before the output module (with the input wordclock) it is possible to have the same phase at the input amd the output of the 102 Series system.

Operation

There are two jumpers on the Resampler PCB. One is for connecting a termination resistor at the BNC input connector. The BNC wordclock input has to be terminated if there is no other termination on the signal connected to this input.

The other jumper is to set the power-up default to „Resampler on or off".

The Resampler is switched on automatically if an SDIF Input module is activated, and it is switched off automatically, if an AES Input module is activated. This because the Resampler usually is required in SDIF input / output based systems.

Typically the configuration with the Resampler looks as follows (modules from left to right in the 102 Series frame):

SDIF Input (Wordclock input signal also connected to the Resampler with the help of a T-Piece).

Various signal processing modules.

Output modules (except SDIF output).

Resampler

SDIF Output

Data sheet

102/43 Masterclock
Description, Features

The 102/43 Masterclock module generates the three most used sampling frequencies: 32.0kHz, 44.1kHz and 48.0kHz. The frequencies are generated by a phase locked loop containing a voltage controlled crystal oscillator, which guarantees for very low intrinsic jitter and high jitter suppression on external sync signals. The reference for this PLL is an internal crystal reference or an external sync pulse. The external sync pulse can have a frequency of 32.0kHz, 44.1kHz or 48.0kHz. The module measures the input frequency and automatically adopts for the proper PLL setting. The outputs are brought to three pairs of BNC connectors. The two connectors of a pair have the same frequency. Each of the three pairs can be set individually to one of the three possible output frequencies.

Operation

The three output connector pairs have to be set to the proper output frequencies. This can be done by three jumpers on the PCB. Each jumper has three positions corresponding to the three different sampling frequencies. Position of the jumpers: On the PCB there are three jumpers with three positions each. Each jumper controls the output pair next to it. The top position of a jumper gives 32kHz sampling frequency at the output, the middle position 44.1kHz and the bottom position 48 kHz.

When using the external sync input the sampling frequency LEDs have to show the proper sync frequency. If the "invalid" LED is on, then the reference sync may be either off frequency or too jittery. When using the internal sync generator the "48 kHz" LED will light. Do not confuse it with the output frequency.

Data sheet
102/44 DSP32 Interface
Description, Features

The 102/44 DSP32 Interface converts the 102 internal data format (24 bit fixed point) to the AT&T DSP32C signal processor serial input/output format (32 bit floating point) and vice versa. With this interface it is possible to connect the 102 system to most of the DSP32 boards available on the market.

The /44 is mainly used for the interfacing of the 102 system to the CAC DSP32C card used for the Sampler, the FFT display and the Level Meter in the Penguin system.

Operation

There are two jumpers on the second PCB of the /44.

One jumper sits on a single row of four pins. In the upper position (uppermost two pins connected) the module is not activated after power up, in the lower position the module is activated after power up.

The other jumper selects either "I/O" or "DSP". Select "DSP" if the module is used to insert a DSP function into the signal path in the 102 system. Select "I/O" if there is another input module to the right of the /44, i.e. the /44 gets used similar to an ordinary input module. The "I/O" position enables the activating / deactivating of the input modules to the right of the /44.

The over LEDs on the frontpanel indicate overs occuring when converting from the DSP32C floating point fromat back to the 24 bit fixed point format. Due to the huge dynamic range of the floating point format overs may occur.

The "on" switch is used to activate the input portion of the /44, i.e. the DSP32C to 102 path. Works similar to the on switch on an input interface.

The 25 pin DSUB connector connects through a special cable (enclosed in the /44) to the DSP32C card in the PC. There are two different cables available, a 2m version and on special request a 10m version.

Data sheet
102/52 Bus Link V2
Description, Features

The Bus Link is a passive module which links the backpanel signals in a slot. It can be used to fill an empty slot as to make sure the audio and remote control data are fed to the next module.

In addition there is a wordclock output on the frontpanel (BNC connector) which is fed via a driver from the internal wordclock signal on the backpanel bus.

Operation

The module may be plugged in anywhere in the frame.

If using the wordclock output, make sure it is terminated with a 75 Ohm impedance.

Data sheet
102/67 Fractional Delay V1
Description, Features

The Fractional Delay allows to insert a constant delay between the two stereo channels. This is useful for azimuth corrections or for timing corrections of stereo samples, misaligned due to alternate sampling A/D converters etc.

The delay between the two channels can be varied from -7/8th to +7/8th of a sampling period in increments of 1/8th of a sampling period.

The user must find some way to determine the proper phase alignment, e.g. by feeding a test tone or by watching a correlation meter or display with source program containing only very high audio frequencies.

Operation

Before plugging in the module, set the power up default to be "on" or "off". This can be set on the printed circuit board with a jumper.

On / off: The on/off switch on the frontpanel bypasses the Fractional Delay fully when off, i.e. 24 bits transparency, same delay on both channels.

The rotary switch allows to set the proper interchannel delay between -7/8th and +7/8th of a sampling period in steps of 1/8th of a sampling period.

Data sheet
102/69 NoOver V1 (Over Eliminator)
Description, Features

The NoOver V1 lowers any positive or negative full scale samples in amplitude by a single LSB count. This manipulation is not audible because the error introduced is very small and the distortion introduced by any clipping is of much greater amplitude. In addition to lower the full scale samples a soft clipping function can be applied which works with three or more consecutive full scale samples.

Operation

The two functions, over elimination and soft clipping, can be switched on and off independently. Only when the soft clipping is engaged the over elimination is also automatically engaged. With both functions off, the module is fully bypassed.

Status LEDs for each channel show when a full scale sample has been detected or when the soft clipping function is active.

An onboard jumper determines the power-up status as follows:

Lower position: Both functions off

Middle position: Over elimination on / soft clipping off

Upper position: Both functions on.

The on LEDs on the frontpanel reflect the selected status after power-up.

Data sheet
102/76 Sine Generator V2C
102/D22 Sine Generator V2C Remote Control
Description, Features

The 102/76 Sine Generator generates 63 discrete frequencies between 16 Hz and 20 kHz. The output amplitude can be chosen out of a set of 121 different amplitudes. The Sine Generator operates with 44.1 kHz or 48.0 kHz sampling frequency and has a 24 Bit output wordlength. The sampling frequency is measured and the sine generator coefficients are adjusted accordingly to generate the proper sine frequency. The output can be selected to go to channel 1 or channel 2 or both.

After power-up the last selected settings are restored. Snapshots are not supported.

Operation

With the soft switches on the Remote Control highlight the parameter you wish to change and then turn the knob to do the change. If the Remote Control is set to „safe" none of the parameters can be changed. The „reset" switch resets all parameters to their default values. The „on" switch switches both channels on and off. The „CH#" switch selects the active channel(s). Press it three times to toggle through CH1 only, CH2 only, both channels.

The wordclock for the Sine generator is fed through the 4 pin Socket on the frontpanel.

Data sheet
102/D1 Small Remote Desk
102/D2 Large Remote Desk
102/D2R 19 inch Remote Desk
Description, Features

The Remote Desk consists of a flat frame housing several remote control modules. These modules control different functions of the processing modules in the Main Frame. The desk can be filled with modules depending on the customer's needs.

The Remote Desk is powered from the Main Frame.

Also see the "Basic information on the Weiss 102 Series modular signal processing system."

Operation

The modules in the Desk are interconnected with a 26 pin flat ribbon cable. It is possible to make a large chain of modules. The last (rightmost) module in the chain must have a "dummy" connector in its 26 pin socket. The first modules in the row must be a /D3 Programmer module. The connectors and the potentiometer on the back of the Desk are connected to the top connector of the Programmer.

The connectors on the back of the desk are: MIDI input / output, Remote (connected to the Main Frame), Tape input / output (connected to play / record lines of a tape recorder). In addition there is a potentiometer for setting the display brightness on the Remote modules. See the /D3 Programmer description for additional information on the Programmer module and the associated connectors.

ALWAYS SWITCH POWER OFF WHEN PLUGGING OR UNPLUGGING MODULES!

Technical Data

Small Remote Desk:

Space for modules (width): 390mm

Large Remote Desk:

Space for modules (width): 690mm

19 inch Remote Desk:

Space for modules (width): 420mm

Width of the various Remote modules:

/D3 Programmer: 60mm

/D3A *Power Conditioner 30mm

/D4 Level Master: 90mm

/D5 Level Slave: 60mm

/D6 EQ Master: 120mm

/D7 EQ Slave 120mm

/D8 Rehearsal 60mm

/D9 Dynamics 120mm

/D10 Level Meter 120mm

/D13 Broadcast Master 60mm

/D14 Broadcast Slave 60mm

/D15 Deesser 90mm

/D16 IBIS Channels 120mm

/D17 IBIS Master 120mm

Data sheet
102/D3 Programmer
Description, Features

The Programmer module is needed for the Remote Desk for any combination of modules. It serves as an interface between the Main Frame and the Remote Control modules. It also provides the link to MIDI and to analog tape tracks for storage and retrieval of the memory settings of all modules in the Remote Desk (snapshots). The Programmer displays some signal conditions, such as overload. All the parameter settings of each Remote Control module are stored in the local memory of each Remote Control module. The Programmer sends an address to all Remote Control modules which reflects the snapshot number to be recalled or stored from / to the local memory. Up to 60 snapshots can be stored. All 60 snapshots can be offloaded to analog tape and reloaded again.

Operation

* Power on switch switches the power of the whole Remote Desk. The Programmer also serves as a power conditioner for all Remote Control modules.

* Overload Indicators: CH1, CH2 LEDs light up at any overload in the signal path. This overload indication is different to most other indication in that a single sample of overload suffices to light the LEDs. There is no threshold in terms of number of full scale samples setable.

* Hold: Occasional overloads are captured and displayed continuously.

* Warning: An acoustical warning is activated at overload conditions.

* Display: Shows selected snapshot number, associated safe condition, any error messages, MIDI parameters.

* Keypad: 0 trough 9 used to enter snapshot numbers 0..59.

* Return: Resets the snapshot number to the last one recalled with the "recall" button.

* Step: Advances the snapshot number one step and makes a recall of the newly selected snapshot.

* Safe/Unsafe: Its toggle action sets any snapshot number to either safe or normal status. sfae is indicated by a minus sign in the display. while safe, the memory content can not be changed by a store command.

* Store: This push-button operates in conjunction with the numeric keypad. Press "store" and then a two digit number (e.g. "0", "7") to store a snapshot in the appropriate memory location. This causes all Remote Control modules in the Remote Desk to store the current data in the selected snapshot location. This function does not work if the selected snapshot number is set safe.

* Recall: Operates in conjunction with the numeric keypad. Press "recall" and then a two digit number (e.g. "0", "7") to recall a snapshot from the appropriate memory location. This causes all Remote Control modules in the Remote Desk to recall the selected snapshot location to the current workspace.

* MIDI on/off: Enables the transfer of control to a device equipped with MIDI. MIDI program recalls correspond to snapshot recalls. A sequencer may record and play MIDI program recalls locked to SMPTE timecode.

Depress the MIDI push-button on the Programmer frontpanel. Now the display will show two MIDI specific parameters for a few seconds:

- On the left side of the display there is either a O or a L sign indicating omni on (O) or omni off (L). Toggle between O and L by pressing the safe/unsafe switch during the period in which the O or L is displayed. Omni is only effective while receiving MIDI data from the external MIDI equipment. If omni=off the Programmer reacts only to program change commands sent in the selected MIDI channel. If omni=on the Programmer reacts to program change commands on any MIDI channel (1..16).

- On the right side of the display the MIDI channel number is displayed. All MIDI program change commands are *sent* on this channel. Depending on the omni status (see above) the MIDI program change commands are *received* on this channel or on all channels. The channel number can be changed by pressing the MIDI on/off button during the period in which the MIDI channel number is displayed.

After a few seconds the normal Snapshot number display is active again. Now you can press MIDI on/off again to switch MIDI control off again.

Note: While MIDI is active the tape input and output are disabled. All other front panel controls work as usual.

* Tape: The Programmer module has an input/output interface to an analog tape. This feature is useful to store and recall the content of 60 snapshots of the entire Remote Desk. Storage of the parameter settings is done for two different purposes:

1. Archive storage: Here the *contents* of the snapshot memories are stored on analog tape in digital FSK form.

2. Snapshot storage: This mode stores *snapshot numbers* coincident with specific events during the passage of the digital audio signal. This mode was useful at the time when the video based PCM processors where en vogue. Those processors had beside the digital tracks also analog tracks which could be used for storing this snapshot recall control information. Today this feature is of limited use.

Archive storage, store to tape:

Start the tape in record mode. Depress the tape switch, the green LED will light. (Note MIDI mode must be off). Depress the store switch, now the content of all 60 snapshots is stored on the analog tape. The duration of the store process depends on the number of modules installed in the Remote Desk. Progress can be monitored in the display. It indicates which snapshot is currently transferred to tape. Stop the tape after the tape and store LEDs go off.

Archive storage, recall from tape:

First depress the tape switch, then the recall switch. (Note: MIDI has to be off). Both tape and store LEDs will be on. Start the section of the tape in play mode wher the snapshots have been stored previously. The programmer will now read from the tape

and store the data into the snapshots, thereby overwriting all currently stored data, **including those set safe**. Stop the tape after the tape and recall LEDs go off.

Both the store to tape and recall from tape functions can be stopped by pressing either the tape or store/recall switches. In case of a defective recording, the display of the letter "E" means that a data read error occured. Data read errors are extremely uncommon when using professional analog tape.

Snapshot storage, recording mode:

During this step a marker is recorded on the analog track each time a snapshot recall (recall or step) was issued on the Programmer.

Set the analog tape to record mode. Recall the desired snapshot(s) using the recall or step switches. The recall switch allows random selection of the snapshots, the step switch permits rapid and convenient changes of program settings.

Snapshot storage, replay mode:

After sthe steps outlines in the previous paragraphs have been performed, the system is ready for the automatic recall of all stored parameter settings in real time. Activate the tape switch on the programmer. The green LED will come on. Start the tape in replay mode. As soon as the first marker is read from the analog tape, the corresponding snapshot will be recalled automatically. To exit the replay mode deactivate the tape switch.

* Remote on/off

When off (LED off), the Remote Desk has no influence on the Main Frame anymore. This feature can be used to set a certain setting in advance while the Remote is off. When time has come to activate the new settings, just press the Remote on/off button again. Now the new settings become immediately active and the Remote Desk operates as usual.

*Master Reset for the Remote Desk

This feature resets all Snapshots to an empty default value. Also all Snapshots are set to unsafe. Note: On earlier Programmers this feature is not built in.

Turn the power to the Remote Desk off. Depress simultaneously four push button keys on the front panel: store, recall, Tape, Remote on/off. Hold those four keys for about ten seconds. Release the keys and turn power back on. Now the Snapshots are cleared to default values.