

## **TSL LIMITER**

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## TSL LIMITER (*Timetable Sound Limiter*) - APPLICATIONS AND FUNCTIONS

- \* Automatic Control of the Sound Level in all sorts of closed premises with musical environment: "Live" or "Discotheque".
- \* Specially designed in compliance with City Laws controlling the Regulations on Acoustic Exposure in Public Premises in General.
- \* It includes three timetables with the possibility of independant Attenuation and built-in power supply through rechargeable battery (Autonomy >1 year).
- \* It may optionally include a Microphone Controller of Environmental Noise, S.L.O., which acts directly upon the Input Signal adjusting it proportionally to the actual acoustic reading at all times. Inviolable.
- \* *The TSL does not allow Boycotts. That is why it does not have an "Incident Register" because there CANNOT be any. Any breach of the Operation Regulations is Responsibility of the Owner of the Premises —where the breach has taken place— before the corresponding Authorities.*
- \* LIMITER of the Maximum Level of the authorized Acoustic Pressure. NO risk of involuntary Penalizations.
- \* TRIPLE Timetable programming with independant Attenuation for each option: DAY, NIGHT and MUTE.
- \* Sealable Front CONTROLS with INDICATORS for each function. These indicators can be easily Adjusted and Read.
- \* EXTERNAL INDICATOR ("traffic lights") with pre-warning of Penalization for the D.J.
- \* S.L.O. SPL Control through optional SENSOR MICROPHONE. It guarantees the accurate self-control of the Environmental Level, even with Live music, with gradual attenuation WITHOUT sudden CUTS.
- \* PENALIZATIONS: three possible penalizations are foreseen:
  - (a) For improper use: Excess input Signal.
  - (b) For disconnection or Boycott of the Sensor microphone.
  - (c) For continuously exceeding the Level adjusted in the environmental Sensor.
- \* **PINK NOISE:** included to ease maximum Accuracy in Adjustments.

*The TSL will not allow unexpected starts. The DJ or the professional Musician will be able to concentrate on his job and forget the fact that a Controller is actually controlling him. Its operation is imperceptible, except if Voluntary excesses are produced.*

**TSL LIMITER --- Adjustment Mode**

- \* Connect the Mixer or Previous Sound source to the INPUT Signal (it allows from 250 mV up to 9 V. **without saturation** ). Connect the S.L.O. (the SPL Control Microphone, if it is going to be used), locating it at an intermediate area of the space to be Controlled. It must not be too close or too far away from the loudspeakers. Its sensitivity is very high and it may not be blocked under any circumstances. It has been adjusted in factory at a standard sensitivity value. If necessary, this adjustment may be accessed internally according to the distance and sound pressure that are going to be controlled.
- \* With the MICRO function de-activated (Led off), connect the power amplifier and place the Volume controls to **minimum**.
- \* Adjust the OUTPUT Level Control to **MINIMUM**.
- \* Activate the Pink-Noise function included in the **TSL** and place the amplifier volume controls to **Maximum** power.
- \* Proceed to the first acoustic measuring by using a accurate Sound-meter, acting upon the **TSL's** Output Signal Level Attenuator. The result should be a pressure level slightly above the value authorized by the Regulations (an excess of about 6 dB should be enough). Be sure that the amplifier volume controls are at **maximum**.
- \* Select the DAY function (by pressing the **MODE** button of the Clock) and use the **THRESHOLD DAY** control (turning it to the left) until obtaining the desired Pressure Level registered by the Sound-meter (Led indicating the activation of the Limiter – **Limiter active**–).
- \* Select the NIGHT function (by pressing the **MODE** button of the Clock) and proceed to the adjustment of the same **THRESHOLD NIGHT** control, following the same procedure as in the previous paragraph.

## TSL LIMITER - Adjustments (cont. II)

- \* Go back to the DAY function (by repeatedly pressing on the MODE button) and connect the MICRO option (Led On).
- \* Adjust the Microphone Control (turning **Adjust** to the left) until the yellow Led **Threshold** starts blinking. This will be the point where the Microphone will automatically start controlling the Sound Pressure Level in the premises, gradually attenuating the musical level when the environmental noise exceeds the adjustment carried out. **Under no circumstances should the music exceed this Level.**
- \* Check the adjustments carried out by using the **Bypass** selector. Re-adjust any offsets. Check the indicator Led for the **Bypass** situation.
- \* Now, connect the Sound Source and check the results by playing the actual musical programme. Check the Accuracy of the **TSL** Control in its response to the presence of the Peaks considered normal in Musical Dynamics. There should be overall Control. Place all the Level Controls of the Mixer at their maximum gain and check that the Sound-meter has not registered any appreciable increase.

### ***VERY IMPORTANT ADVICE*** for the Technician responsible for the installation:

*It is not necessary, under any circumstances, to carry out the Adjustment Tests by placing the Mixer Controls (Gain, Tones and Volume) to maximum power. If this is done, the only result obtained is a new physical element, "the distortion of the Mixer itself", which greatly hampers the normal, accurate procedure of the Adjustments and Measurements. Once the system has been well calibrated, starting from the Levels and the disposition of the controls at their normal state (maximum 0 dB), it will be totally impossible to exceed the adjustments carried out, while the maximum fidelity of the musical programme will be respected at all times. This fact can be perfectly demonstrated once all the corresponding Adjustments have been finished.*

## TSL - Adjustments of the Clock (cont. III)

- \* ADJUSTMENT OF THE TIMETABLE FUNCTIONS: DAY, NIGHT and MUTE (Night Stop).
- \* The adjustment of the timetable shifts will be carried out following the instructions of the Time Adjustment of the Clock. The START-UP time for the Attenuation foreseen for this shift (Press DAY **ON** button) and later the CLOSE-DOWN time (from 1 minute later **OFF** ).
- \* Examples: 09:00 is tuned to indicate that the Attenuation corresponding to DAY/**ON** will be activated at nine o'clock in the morning. 22:00 is tuned using NIGHT/**ON** to indicate when the start-up should begin for the night. Finally, 03:00 is tuned to determine the CLOSING-DOWN (**MUTE**) of the sound equipment, which will not start up automatically again until nine o'clock in the following morning. Fridays and Saturdays allow independant timetables.
- \* IMPORTANT: After selecting the ON time for each shift, it is necessary to complete the Cycle by indicating an imaginary OFF time. This OFF time may be any time from one minute after the Start-up (ON) time of the Cycle. The time selected for the Start-up (ON) of the DAY, NIGHT and MUTE Cycles will always prevail over the OFF time.
- \* TIME CHANGING: The Advancing or Retarding of the Time according to the Official Summer Ordinances should be carried out Manually according to the corresponding regulations determined by each City Council. It will be necessary to remove the Seal protecting the Clock.
- \* When one of the timetable shifts is required to be eliminated (for example, MUTE), this CLOSING-DOWN position must be tuned anyhow, but at a time not used for working (for example, at 8 o'clock in the morning and with a duration of only one minute). The same procedure may be followed if the NIGHT shift is to be eliminated.

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### SEALING of the ADJUSTMENTS and CONTROLS

*The TSL offers the possibility of easily and safely Sealing all its Controls:*

- *At the front part, this is done with a simple movement of the sliding Covers that hide all the adjustable areas of the System. Then a wire may be passed through the Pivots foreseen for this purpose and the definite sealing may be done using lead or any other method of sealing. The Clock's independant Cover/Seal gives access to the Bypass position ("liberating" Official timetables and Attenuation Levels) without modifying the preset Adjustments, whenever the authorities allow this modification. Local Holidays, New Year's Eve, and so on.*
- *At the back part, the Input and Output connections go directly to the printed Circuit and are totally inaccessible. The Cover giving access to the internal controls also include two Sealing points using the same Wire and Seal system as above.*

## TSL - Programming of the Clock:

### Three timetable shifts: DAY, NIGHT and MUTE

- \* The clock has THREE possible weekly programmes:
  - a): From Monday through Sunday: 7 days with the same programme.
  - b): From Monday through Friday and from Saturday to Sunday: 2 programmes.
  - c): From Monday through Saturday and Sunday independantly: 2 programmes.
  
- \* The **b)** option allows the programming of the DAY, NIGHT and MUTE timetables at times different from the rest of the week. For instance: retarding the MUTE timing on Friday and Saturday evenings; or advancing the DAY timing. The same may be done in the **c)** option, but only for Sunday.  
**NOTE: In all cases, the MUTE timing corresponds to the early morning of the same day.**
  
- \* The option chosen is activated by continuously pressing the PROG/DAY button until the screen displays the days desired for the programming of the first block and, later on, of the second block.
  
- \* Each programming cycle passes through two mandatory steps:  
One starting time (TIMER ON) and one ending time (TIMER OFF). This ending time may be programmed at just one minute later from the starting time chosen. It has no other effect than that of closing the Cycle.
  
- \* The programming of the three timetable Cycles in option **a)** passes through six sequences. Two sequences (TIMER ON, TIMER OFF) per Cycle.
  
- \* None of the sequences should finish (TIMER OFF) at 00,00 (the minimum value is 00,01).
  
- \* Once all the sequences have been completed, press CLOCK to close the programming cycles.
  
- \* To start the timetable Cycle in its Actual Time, the **MODE** button must be repeatedly pressed (twice per shift – **timer on/off** –) to select the time shift in which we are placed in that moment, according to the timetable programming selected. (See if the MUTE, NIGHT and DAY leds are on). In the timing screen the message **Timer OFF** should be displayed to be sure all the programmings have been completed and to start the working cycle.

## TSL - Penalizations

- \* **S.L.O.** (Sound Level Optimizer) SENSOR MICROPHONE:
  - Its disconnection will automatically interrupt the general signal.
  - The "input-output" comparison device will not allow the Sensor Microphone to be blocked. On detecting an "abnormal" difference in level, it will interrupt the general signal.
  - Any environmental noise generated by the Sound equipment itself or by any other separate Sound source –environmental murmuring– surpassing the Limits set in the S.L.O. will cause the general and proportional attenuation of the Equipment's working Level or its INTERRUPTION if the excess sound is produced repeatedly and at a level much higher than the level authorized. Occasional whistling or shouting will cause an immediate proportional attenuation, but not a penalization.
  
- \* The penalization time is internally **adjustable** between 5 and 60 minutes (only technicians).
  
- \* **SIGNAL EXCESS:** The TSL foresees a **single** situation of "punishment", once the Limitation circuits have been activated (Orange  **Limiter active** led on), whenever there is a **continuous** and **repeated** detection of Signal Excess coming from the Mixer (>3V), thus activating the **SIGNAL EXCESS** circuit (**Fixed Red** led indicator ON) and this situation is maintained for over **ten minutes** . In this case, a total INTERRUPTION of the Signal will be produced during a penalization time foreseen by the Regulations. To re-establish normality, you only need to decrease the signal level (volume) of the Mixer to the point or Area set as maximum authorized power (**Limiter active** led blinking).
  - This function has been especially designed to prevent the musical Operator from unnecessarily introducing Level Excesses coming from the Mixer Controls (Gain, Tones and Master), which will only allow the possibility of saturation and distortion on the Musical Programme on the air without any options of surpassing the Limits established.
  - This penalization must be understood as a **guarantee** for the DJ, which will allow him to get a perfect auditive response even with the Limiter active permanently (blinking), that is, when working upon the limits without danger of falling in the **sad** situation of Public Punishment before his audience.

## TSL - OBSERVATIONS of the Manufacturer

- \* The **TSL** must not introduce any anomalous situation regarding operation or that may result in detriment of the good quality of music within the chain of sound, nor should it cause any type of auditive sound distortion, even when working with the Limiter active device permanently on.
- \* Whenever there is an intention of manipulating or "forcing" the parameters adjusted, the Penalization function will be activated. This will force an immediate return to Normality. Therefore, **the TSL does not include any "intelligent" device for the Registration of Incidents because there CANNOT be any incidents.** In case any of its foreseen Penalizations is activated, other "Punishing" Control formulas will not be necessary since these would only cause a considerable increase of the Cost of the equipment for the user, a complicated mechanism of supervision for the Inspection Authorities and the theoretical information of the incidents registered, which would doubtfully be reliable and thus have a scanty Regulation value.
- \* The **TSL** allows the compliance with all the Regulations of Transmission and Noise Control foreseen in National and International Municipal Ordinances, with the only exception of those that have been written under "Conditionings" that have little to do with the **Control** of Environmental Acoustic Contamination.
- \* **EXTERNAL INDICATOR (Traffic Lights):** For its connection, a standard cable suitable for a (balanced) microphone is needed, with STEREO 1/4" Jack connectors and with the length necessary for each application. By using a Contactor, a Triak or a Dimmer, this output may be used to activate higher-powered light indicators. The level is from 0-15 V.