

## **TC1140/2240 PARAMETRIC EQUALIZER/PREAMP**

TC parametric equalizer / preamps are top quality audio devices designed for maximum audio specifications and reliability. They are used by studios, PA companies, radio stations, theaters and musicians to modify or correct the frequency response of the sound system.

Applications of the TC parametric equalizers are:

- stereo master equalizing stereo, group or aux outputs from mixing consoles in order to obtain the desired frequency compensation for the speakers and room and/or sound effect purposes.
- preamplifying / equalizing signals from dynamic or condenser microphones (using the jack input), electric guitars and basses, keyboards and other Instruments before feeding preamp / power amp, mixing console or tape recorder in the studio. The filters in the TC parametric eq. series perform deeper, cleaner and more transparent equalization than the filters in most prof. mixing consoles today.
- eliminating acoustic feedback in monitor systems and resonance frequencies in speaker systems and acoustic instruments in general by suppressing selected frequencies up to 50 dB at a narrow bandwidth.
- eliminating hum and buzz in the same way as suppressing feedback and resonances.
- line driving signals at long distances and equalization of treble-loss.

## **DESCRIPTION OF FRONT PANEL KEYS AND FUNCTIONS**

### **PREAMPLIFIER AND LEVEL CONTROL SECTION**

**ON:** Lights faintly when the unit is powered on and stronger when the equalizer section is switched in.

**INPUT GAIN:** Adjusts the sensitivity to signal at the input by +/-20dB

The TC equalizer / preamp has extremely high input impedance at the jack input and is capable of handling high signal levels at the XLR input. When using the jack input there is an additional gain of 15 dB, allowing guitar signals, instrument-pickup signals and hi-fi equipment level signals to be boosted to professional levels.

**OUTPUT LEVEL:** Determines the volume of the output signal. From +6dB to minus infinity. Unity gain is obtained (all other settings at 0dB) at approx. '4'.

The strong output (low impedance) of the eq's easily drives any power amplifier. Overdriving tube-amps, line driving and eliminating loss of high frequencies on long cable lines are tasks that the eq's perform successfully.

**EQ.MATCH:  
(EQ-DRIVE)** Level control of the equalized signal.

Enables the level of the equalized signal to match that of output level with the eq-section switched off. In this way direct comparison of equalized/unequalized signals can be made. The match control can be used to do the opposite as well to get the effect of specific boostings of the equalized signal.

Note that the EQ-MATCH control affects the input level to the equalizer section, thus enabling a possibility to avoid overload of the equalizer section with multiple boosts at similar frequencies.

**PPM INDICATOR:** Indicates the available headroom before clipping. This monitors input and output levels - whichever is higher.

Note that an appropriate signal level is when occasional peaks of the input signal makes the 0 dB LED light up.

**EQ.BYPASS:** Equalizer bypass.

Electronic in/out switching of the equalizer section. At power on the TC equalizer / preamp defaults to have the equalizer section switched in.

## EQUALIZER SECTION

The equalizer section consists of 4 parametric bands. - The term parametric means that all 3 parameters of a band are adjustable:

Center-frequency, Bandwidth (Q) and the Gain-function (boost/neutral/cut).

**CENTER:** The CENTER control allows one to pick exactly the frequencyband on which a correction is desired. Note the high 'overlapping' of the center•frequencies meaning that all bands can pick centers in the very useful range 200 to 2000 Hz

BAND I : 20- 2000

BAND II : 50- 5000

BAND III: 100- 10000

BAND IV : 200- 20000

The frequency marking is in kilo (1000)-Hertz:

.02 KHz = 20 Hz

.1 KHz = 100 Hz

.5 KHz = 500 Hz etc.

**BANDWIDTH:** The continuously variable bandwidth adjustment controls how broad (clockwise) or narrow (counter•clockwise) a band will be affected by the Gain-Function. Scaling is in the musical term 'octaves' - rather than just narrow or broad.

The bandwidth control is the missing control on a sweep-equalizer as known from most mixing consoles. - These 'sweepers' have fixed bandwidths or they sometimes vary as you adjust the center of the band - These limitations are normally accepted due to price and limited space on such mixing panels.

On the TC eq's the bandwidth range is very flexible - you can pick exactly the group of frequencies to be modified - neither modifying too much nor too little. The setting of 0.1 octaves corresponds to the bandwidth of a single band on a 100 band graphic equalizer. Bands up to 2 octaves can be covered.

**FUNCTION:** Boost, neutral ,cut level control.

Determines the level of the band selected by the CENTER and BANDWIDTH controls. Boosts up to 20dB and typical cuts to - 50dB are performed by each of the 4 bands - Take care in the 200-2000 Hz range where the overlapping of the centers allows you to actually boost 80dB (10000 times) at a particular center.

**OVERLOAD:**

The band-overload indication is helpful in determining which of the function level controls has been set too high with this input level at the equalizer-section. Either reduce that particular FUNCTION-level or EQ-MATCH or reduce the INPUT-GAIN control - preferably in this order.

## DESCRIPTION OF REAR PANEL

### INPUTS AND OUTPUTS

INPUT, XLR:           Balanced (pin 2: +, pin 3: -)  
Input impedance     20 Kohm bal or unbal.  
Nominal gain        0 or -6 dB  
Total available gain 20 dB.  
CMRR 50 to 100 Hz 60 dB min., 80 dB typ.  
1000 Hz             40 dB min., 60 dB typ.

OUTPUT, XLR:        Balanced, ground refering (pin 2: +, pin 3: -)  
Output impedance   50 Ohm  
Max output level  
RL = 10 Kohm        +27 dBm (50Vpp)  
RL = 10 Kohm        +21 dBm (25Vpp)

INPUT, JACK:        Unbalanced  
impedance           1Mohm // 68pF  
Nominal gain        15 dB  
Max input level     +6 dBm.  
Rec.nom. input level -45 to -5 dBm

OUTPUT, JACK:      Unbalanced  
Output impedance   50 Ohm  
Max output level    +21 dBm (25Vpp)  
(RL = 10 Kohm)

REMOTE  
CONTROL:            Remote control in/out switching of the eq is possible using the  
EXT.BYPASS jack-socket. Either a momentary or alternating  
type of switch can be used, provided an internal selector is set  
accordingly. The default factory setting is for a momentary  
switch. A remote indication of the eq on status can be obtained  
by connecting a LED between ring and gnd, using a stereo jack  
plug.

With a stereo eq. use only the upper EXT.BYPASS jack socket  
if you want both eq's to switch in/out simultaneously.

## **TECHNICAL SPECIFICATIONS**

**FREQUENCY**

**RESPONSE:** 10 Hz to 100 kHz, +0, -1 dB

**DYNAMIC RANGE:** 116 dB (120 dB Bypass)

(All settings flat, except output level control at 4-5.)

**DISTORTION:** 0.015% (THD) @ 1KHz, 0dBm

**SIGNAL TO**

**NOISE RATIO:** 100 dB (104 dB Bypass) @ 16dB headroom.

**CHANNEL**

**SEPERATION:** 100 dB (TC 2240) at 1 kHz.

**DIMENSIONS:**

TC 1140: 482 x 44 x 185 mm. (19 x 1.75 x 7.3 inches).

TC 2240: 482 x 89 x 185 mm. (19 x 3.5 x 7.3 inches).

**WEIGHT:**

TC 1140: 2.7 kgs. (5 lbs)

TC 2240: 3.5 kgs. (7.7 lbs)