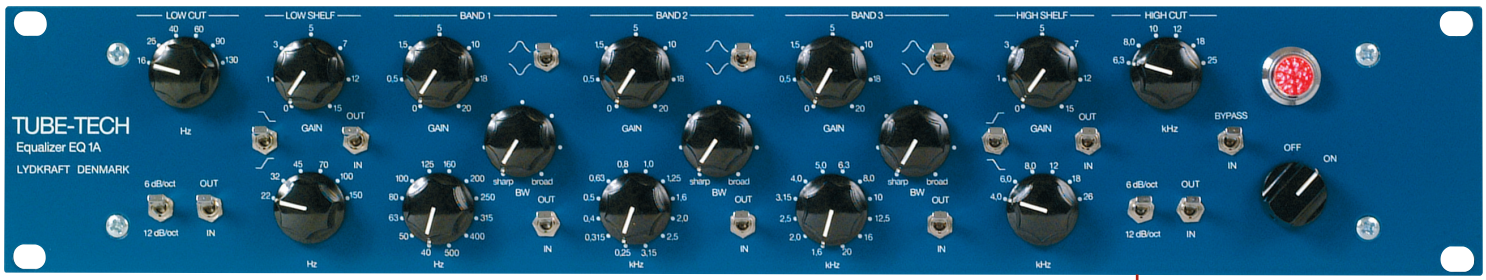
TUBE-TECH
sound engineering

# FULL RANGE EQUALIZER

*smooth valve equalization*




## EQ 1A(M)

**The TUBE-TECH EQ 1A is a full range one channel unit, featuring low and high cut, low and high shelving as well as three overlapping bands of equalization.**

### Product Description

The TUBE-TECH EQ 1A is a full range one channel unit, featuring low & high cut, low & high shelving and three overlapping bands. The cut filters are designed around unity gain amplifiers and the shelving and the bell filters are designed around two tube operational amplifiers.

The unit is all tube based except for the power supply. Input and output have fully floating transformers.

All DC voltages are stabilized, except the anode voltage for the output stage.

Optional **Master Version** available**:**
The EQ 1A Equalizer can be fitted with 12 position rotary switches instead of pots for even more precise settings.

Please specify EQ 1A**M** when ordering.

### Product Features

- Low cut @ 16, 25, 40, 90 or 130 Hz
  6 dB or 12 dB/octave slope
- Low shelving @ 22, 32, 45, 70, 100 or 150 Hz
  +/- 15 dB gain
- Bandfilter w. +/- 20 dB gain & variable bandwidth
  Band 1: 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400 or 500 Hz
  Band 2: 0.315, 0.5, 0.5, 0.63, 0.8, 1, 1.25, 1.6, 2, 2.5 or 3.15 kHz
  Band 3: 1.6, 2, 2.5, 3.15, 4, 5, 6.3, 8, 10, 12.5, 16 or 20 kHz
- High cut @ 6.3, 8, 10, 12, 18 or 25 kHz
  6 dB or 12 dB/octave slope
- High shelving @ 4, 6, 8, 12, 18 or 20 kHz
  +/- 15 dB gain
- All switches gold plated
- Conductive plastic potentiometers
- Frequency response: 5 Hz to 60 kHz
- Very low noise: < -85 dBu
- Master bypass with clickless relay
- All 7 sections with separate in/out switch

# EQ 1A(M) *technical specifications*


**Impedance**

| | |
|---|---|
| Input: | > 600 ohm |
| Output: | < 60 ohm |

**Frequency response** @ -3 dB: 5 Hz to 80 kHz

**Distortion** THD+N @ 40 Hz

| | | |
|---|---|---|
| | 0 dBu | < 0,10 % |
| | +10 dBu | < 0,10 % |
| Max. output: | +26 dBu | < 1 % |
| Max. input: | +21 dBu | < 1 % |

**Noise** Rg=200 ohm

| | |
|---|---|
| 22 Hz-22 kHz: | < -85 dBu |
| CCIR-468-4: | < -75 dBu |

**CMRR** @ 10 kHz: < -60 dB

**Gain** 0 dB

**Tubes**

| | |
|---|---|
| ECC 81 | 3 pcs |
| ECC 82 | 1 pcs |
| ECC 83 | 3 pcs |

**Dimensions**

| | | |
|---|---|---|
| Height: 2 units | 88 mm | 3,5" |
| Width: | 483 mm | 19,0" |
| Depth: | 205 mm | 8,1" |

**Weight**

| | | |
|---|---|---|
| Net: | 5,5 kg | 12,1 lbs. |
| Shipping: | 6,9 kg | 15,2 lbs. |

**Power requirements**

| | |
|---|---|
| @ 115 V/230 V, 50-60 Hz: | 30-45 W |

**Notes**

All specifications @ $R_L$=600 ohm
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**Dealer**

ersgard & laursen

# TUBE-TECH EQ 1A, EQ 1AM
# Equalizer

**Description:**

The TUBE-TECH EQ 1A is a full range one channel unit, featuring low and high cut filters with a slope of 6 dB/octave or 12 dB/octave, low and high shelving filters and three overlapping bell type bands with variable bandwidth.
The cut filters are designed around unity gain tube amplifiers (cathode follower) and the shelving and the bell filters are designed around two tube operational amplifiers.
All seven sections have a separate in/out switch.
An all bypass switch is also provided.

The unit is all tube based except for the power supply.

Input and output have fully floating transformers.

All DC voltages are stabilized, except the anode voltage for the output stage.

The TUBE-TECH EQ 1AM has the same features as the EQ 1A and in addition, all pots on the front panel has been substituted with 12 positions rotary switches, to give better precision and repeatable settings.

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## CONTROLS:

**LOW CUT:** The low cut section includes a frequency switch, a slope switch and an in/out switch.

FREQUENCY: The -3 dB point at which the frequency response starts to decline. There are a choice of six frequencies: 16, 25, 40, 60, 90, 130 Hz.

SLOPE: The slope can be switched between either 6 dB/oct. or 12 dB/oct.

IN/OUT: Switches the frequency dependent network in and out.

### LOW SHELVING:

GAIN: EQ 1A: The gain control is continuously variable from 0 dB to 15 dB.
EQ 1AM: The gain control has 12 steps and is variable from 0 dB to 15 dB.
Steps: 0, 1, 2, 3, 4, 5, 6, 7, 9, 11, 13, 15 dB

FREQUENCY: There are a choice of six frequencies: 22, 32, 45, 70, 100, 150 Hz.
The frequency where the boost or cut is 12 dB when the gain is at max.

BOOST/CUT: Determines whether the gain control shall be boosting or cutting.

IN/OUT: Switches the frequency dependent network in and out.

### BAND 1-3:

GAIN: EQ 1A: The gain control is continuously variable from 0 dB to 20 dB.
EQ 1AM: The gain control has 12 steps and is variable from 0 dB to 20 dB.
Steps: 0, 1, 2, 3, 4, 6, 8, 10, 12, 14, 17, 20 dB

FREQUENCY: There is a choice of twelve frequencies:

Band 1: 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500 Hz.
Band 2: 0.25, 0.315, 0.4, 0.5, 0.63, 0.8, 1, 1.25, 1.6, 2, 2.5, 3.15 kHz
Band 3: 1.6, 2, 2.5, 3.15, 4, 5, 6.3, 8, 10, 12.5, 16, 20 kHz

BW: EQ 1A: The bandwidth control is continuously variable from 0.5 to 2.0.
EQ 1AM: The bandwidth control has 12 steps and is variable from 0.5 to 2.0.
Steps: 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2, 1.4, 1.6, 1.8, 2.0

BOOST/CUT: Determines whether the gain control shall be boosting or cutting.

IN/OUT: Switches the frequency dependent network in and out.

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**HIGH SHELVING:**

GAIN: EQ 1A: The gain control is continuously variable from 0 dB to 15 dB.
EQ 1AM: The gain control has 12 steps and is variable from 0 dB to 15 dB.
Steps: 0, 1, 2, 3, 4, 5, 6, 7, 9, 11, 13, 15 dB

FREQUENCY: There are a choice of six frequencies: 4, 6, 8, 12, 18, 26 kHz.
The frequency where the boost or cut is 12 dB when the gain is at max.

BOOST/CUT: Determines whether the gain control shall be boosting or cutting.

IN/OUT: Switches the frequency dependent network in and out.

**HIGH CUT:** The low cut section includes a frequency switch, an slope switch and an in/out switch.

FREQUENCY: The -3 dB point at which the frequency response starts to decline.
There are a choice of six frequencies: 6.3, 8, 10, 12, 18, 25 kHz.

SLOPE: The slope can be switched between either 6 dB/oct. or 12 dB/oct.

IN/OUT: Switches the frequency dependent network in and out.

**BYPASS:** This switch bypasses the whole unit by a click less relay.
This means that in case of power failures, the input is connected to the output.

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**ADJUSTMENT PROCEDURE:**

**CAUTION:**
**Before making any adjustment let the unit heat-up at least 30 min.**

**Always check the DC voltages at the power supply.**

**ADJUSTMENT OF PSU:**

1) The DC voltage in TP3 shall be + 150,0V.
   Adjust with P202.

2) The DC voltage in TP1 shall be - 150,0V.
   Adjust with P201.

**ADJUSTMENT OFFSET IN TUBE-OP-AMPS:**

1) The DC voltage in TP6 shall be <+/- 50mV.
   Adjust with P1.

2) The DC voltage in TP7 shall be <+/- 50mV.
   Adjust with P2.

**ADJUSTMENT OF BASIC GAIN:**

1) Apply a signal of 1 kHz, 0,0 dBU to the input of the equalizer.

2) Turn all gain controls at **"0"** and switches on **"OUT"** (except BYPASS).

3) Adjust the preset **GAIN** P3 (located on amp/psu PCB) to an output reading of 0,0 dBU.

**ADJUSTMENT GAIN CONTROLS IN LOW/HIGH SHELVING AND BAND 1-3:**

LOW SHELVING:

1) Apply a signal of 20 Hz, 0,0 dBU to the input of the equalizer.

2) Turn the **GAIN**-control a "0". Turn the freq. switch to "150Hz".

3) When switching between boost and cut, observe that the level is exactly the same (<+/- 0,1dB).
   Adjust with P2 located on the front PCB.

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**HIGH SHELVING:**

1) Apply a signal of 20 kHz, 0,0 dBU to the input of the equalizer.

2) Turn the GAIN-control a "0". Turn the freq. switch to "4 kHz".

3) When switching between boost and cut, observe that the level is exactly the same (<+/- 0,1dB).
Adjust with P13 located on the front PCB.

**ADJUSTMENT GAIN CONTROLS IN BAND 1-3:**
**(THIS IS NOT VALID FOR EQ 1AM)**

BAND 1, (2), >3<:

1) Apply a signal of 100Hz, (1kHz), >5kHz<, 0,0 dBU to the input of the equalizer.

2) Turn the **GAIN**-control a "0". Turn the freq. switch to 100Hz, (1kHz), >5kHz<.

3) When switching between boost and cut, observe that the level is exactly the same (<+/- 0,1dB).
Adjust with P4, (P7), >P10< located on the front PCB.

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## SPECIFICATIONS:

### EQ 1A, EQ 1AM

| | |
|---|---|
| **Gain:** | 0dB |
| **Input impedance:** | > 600Ω |
| **Output impedance:** | < 60Ω |
| **Distortion** (THD+n @ 40 Hz): | |
| 0 dBU: | < 0,10 % |
| 10 dBU: | < 0,15 % |
| max output (1% THD+n): | > +26 dBU |
| **Noise** (Rg=200Ω): | |
| 22Hz-22kHz: | < -85 dBU |
| CCIR-468-4: | < -75 dBU |
| **Frequency response** (-3dB): | 5 Hz - 80 kHz |
| **CMRR** (@ 10kHz): | < -60dB |

### FILTERS:

| | |
|---|---|
| Low cut: | 16, 25, 40, 60, 90, 130Hz |
| Slope: | 6dB or 12dB/octave |
| Low shelving: | 22, 32, 45, 70, 100, 150Hz |
| Gain: | +/- 15dB |
| Band 1: | 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500Hz, |
| Band 2: | 0.315, 0.40, 0.50, 0.63, 0.80, 1.0, 1.25, 1.6, 2.0, 2.5, 3.15kHz |
| Band 3: | 1.6, 2.0, 2.5, 3.15, 4.0, 5.0, 6.3, 8.0, 10, 12, 16, 20kHz |
| Gain: | +/- 20dB (BW= sharp). |
| (band 1-3) | +/- 12dB (BW= broad). |
| High shelving: | 4.0, 6.0, 8.0, 12, 18, 26kHz |
| Gain: | +/-15dB |
| High cut: | 6.3, 8.0, 10, 12, 18, 25kHz |
| Slope: | 6dB or 12dB/octave |
| **Tubes:** | 3x ECC81, 1x ECC82, 3x ECC83 |
| **Dimensions:** | H: 2 units, W: 19", D: 205 mm |
| **Weight:** | 5,5kg |
| **Power requirements:** | 115V/230V, 50-60Hz, 35W |

All specifications at RL=600Ω
Lydkraft reserves the right to alter specifications without prior notice


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