



TC01 / TC02

Operating Manual

SAFETY INSTRUCTIONS

CAUTION: To reduce the risk of electrical shock, do not remove the cover or rear panel of this unit. Do not expose this appliance to rain or moisture. No user serviceable parts inside. Please refer servicing to qualified personnel only.

Retain Instructions:

Please retain all safety and operating instructions for future reference.

Ventilation:

Do not impede the flow of air through the ventilation openings. Take care when selecting appropriate installation locations so obstacles do not obscure proper ventilation.

Heat:

This product should be situated away from other heat sources such as fire, high heat emitting devices, heaters, etc.

Power Source:

Make sure the product is set to the correct voltage for the location in which it is being used.

Grounding and Polarization:

Never defeat the products power grounding means.

Power-Cord Protection:

Power supply cords should be connected or placed in a fashion that could allow possible exposure to damage. Take care to avoid wear and tear, rubbing, squashing, etc.

Cleaning:

The product should be cleaned only with a soft cloth. Do not use any corrosive products on the unit.

Inactivity:

The power cord of the product should be unplugged from the outlet when left unused for a long period of time.

Service requirement:

Service by qualified service personnel when:

- The power supply cable has been damaged in any way
- Liquid has been spilled onto or into the product
- The product has been exposed to rain
- The product exhibits faults or obvious performance degradation
- The product has been damaged in a way that exposes components

The user should not attempt to service this product beyond what is described in this operating manual.

TC01 / TC02 Main Features

Professional, multi-purpose pre-amplifier channel strip and DI box

- High quality microphone/instrument pre-amplifier
- hand tested 12AX7 tubes used
- Switchable Phantom Power per channel
- Switchable Phase reversal per channel
- High quality Optical Compressors with adjustable attack and release
- Input gain control per channel
- -20dB pad per channel
- Low cut filter per channel
- Master Volume control

Foreword

Dear Customer,

Thank you very much for expressing your confidence in SM ProAudio products by purchasing this unit. The TC01/TC02 units have been designed to be used as a standard tool for home/pro studios. With much experience in the audio industry over a long period of time, and along with valuable suggestions from our customers, our engineers have developed a product we know you will be satisfied with. We guarantee you uncompromising quality (manufactured under ISO9000 certified management system) as well as excellent technical and audio properties at an extremely affordable price.

Regards,

SM ProAudio

** It should be pointed out, that extreme output volumes may damage your ears and/or your head-phone units. Turn down the LEVEL controls before you switch on the unit.*

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1. Introduction

In purchasing the new SM Pro Audio TC01/TC02, you have acquired a tube microphone pre-amplifier channel strip of high class that meets many of the demands of the home/pro studio.

For your reference in this manual, the TC01 and TC02 units are either single or dual channel designs of the same circuitry. The TC01 is the single channel unit that is half rack size, whereas the TC02 is a dual channel unit, just like 2 x TC01's side by side.

The market size for digital audio interfaces and computer based digital editing has increased in a massive way. With systems available at very low prices, more and more users are utilizing this technology. One of the main problems with many of these systems is the input stage only consisting of unbalanced line inputs or very low (or no mic pre) gain structure for the balanced input stage and the unavailability of Phantom power.

The TC01/TC02 comes to the rescue with either one or two channels (TC01 or TC02) of balanced input with a tube microphone preamplifier, optical compression, Phantom power, phase reverse switch, low cut, and for output volume for each channel. Both the TC01 or TC02 units can now solve many of the connectivity issues which are raised in a large range of situations, whether in the home or professional studio.

2. The Design Concept

2.1 High quality components and design

The philosophy behind SM ProAudio products guarantees a no-compromise circuit design and employs the best choice of components. The components used in the TC01/TC02, are exceptional. They boast extreme linearity and very low distortion characteristics. The tubes used are hand selected and tested for optimum performance.

2.2 Inputs and outputs

All inputs and outputs are secured firmly to the exterior chassis housing. This ensures robust quality and confidence in performance under all conditions.

3. Installation

Your SM ProAudio TC01/TC02 was carefully packed in the factory and the packaging was designed to protect the unit from rough handling. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred in transit.

If the unit is damaged, please do not return it to us, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted. Shipping claims must be made by the consignee.

3.1 What's in the box

- the TC01 or TC02 tube microphone pre-amplifier
- a power supply
- this manual

3.2 Desktop TC01 or rack mounted TC02

The TC01 is a compact half rack-mount sized unit perfect for environments with limited space. Perfect for sitting on the desktop, the TC01 is suitable for just about any installation.

The TC02 fits into one standard 19" rack unit of space (1 3/4"). Be sure that there is enough air space around the unit for cooling. As to avoid overheating, please do not place the TC02 on high temperature devices such as power amplifiers.

3.3 Mains Power

The TC01/TC02 ship with a standard external power supply. Connect the power supply to your mains power and to the rear of your TC01/TC02.

3.4 Audio connections

Analog inputs

Front Panel - On the front of the TC01/TC02 you will find the 1/4" jack instrument input/s marked 'instrument'.

Rear Panel - On the rear of the TC01/TC02 you will find the XLR balanced microphone input/s marked 'Mic In' and 1/4" unbalanced line input/s marked 'Line'.

Analog outputs

Rear Panel - On the rear of the TC01/TC02 you will find both XLR balanced and 1/4" Unbalanced jack output/s.

4. Front Panel Controls

The SM TC01/TC02 front panel has a very simple design including input stage, compressor stage, and output level control stage.



The front panel of the TC02

4.1 Input stage

80Hz low-cut (high-pass) filter switch

The low-cut (high-pass) filter switch enables and disables the 80Hz high-pass filter. Engaging this filter effectively removes low frequency “rumble” and other unwanted noise by attenuating the signal dB below 80Hz.

Phase reversal switch

A phase reverse switch is available for reversing the phase of the signal by 180 degrees. This can be desired in situations such as recording a snare drum from above and below the drum simultaneously. By reversing the phase on one of your microphone signals you will achieve a better result, recording full range of signal without a phase cancellation occurring.

-20dB PAD switch

The PAD switch enables or disables the PAD which reduces the input signal by 20dB. Useful if your incoming signal is too powerful and cannot be reduced prior to insertion into the TC01/TC02.

Phantom power switch

You can enable or disable phantom power each channel of input. This is required for condenser microphones without a battery or stand alone power supply.

Rotary input control

The rotary input control sets the input gain level of the incoming signal.

LED clip indicator

The clip indicator LED illuminates when there is too much incoming signal strength.

4.2 Compressor stage

Compression on/off switch & LED Indicator

Turns the compressor stage on or off. The indicator shows the on/off status of the compressor.

Rotary compression control

The rotary compression control sets the compression ratio of the compressor. The compression ratio expresses the difference between the input level change and the output level change. A compression ratio of 6:1, for example, indicates that for every 6dB of level change on the input signal there is only 1dB of level change on the compressed signal. The higher the compression ratio, the smaller the dynamic range.

Rotary attack encoder

The rotary attack control allows for adjustment in milliseconds the time it takes the compressor module to respond to the corresponding input signal before gain reduction occurs. Short attack times quickly bring down the level of the loud, fast transients in the audio signal; long attack times

let more sound through before the compressor engages, resulting in a punchier sound.

Rotary release encoder

The release control sets the time in seconds it takes for the compressor module gain to return to the point of no gain reduction in the absence of audio program material. Short release times create a more exaggerated effect ("breathing"), whereas long release times have a more gradual, natural sound.

4.3 Output stage

Rotary output control

This controls the master output signal level.

VU meter

Indicates the output level.

5. Rear Panel



The rear panel of the TC02

5.1 Input connections

Mic In

XLR balanced microphone input/s

Line

1/4" unbalanced line input/s

5.2 Output connections

Balanced

XLR balanced output/s

Unbalanced

1/4" unbalanced output/s

6. Application

6.1 Using the TC01/TC02

It could not be simpler to use and operate the TC01/TC02.

Step by step:

Make your physical connections ...

Simply make your signal connections by either connecting an instrument (guitar, bass, etc) to the instrument input on the front panel, or connecting a microphone to the XLR mic input on the rear of the unit. Connect the output of the unit to your destination device (sound-card, recorder, mixer, etc).

Do you need phantom power? ... or to change the phase of your input signal?

If you are using a condenser microphone that requires phantom power, select the phantom power switch to the on position. You can also choose to switch the polarity of your signal at this stage if required.

Set your input gain control ...

Set your input level. Adjust the input rotary control to an acceptable level. This is a good time to check the clip indicator to ensure you are not overdriving the tube pre-amp with too much signal. If your signal is too strong, reduce the amount with the rotary control. If you cannot reduce the signal enough to stop the clip indicator constantly illuminating, you can enable the -20dB PAD to assist in reducing the incoming signal gain.

Do you desire compression? ...

You can now choose to add some optical compression to your signal if desired. You can select the compressor on/off switch to the on position. Set your attack and release encoders to the desired settings, and adjust the compression ratio rotary control until you are satisfied with the result.

Set your output level ...

Adjust your master output level rotary control to the required amount.

7. Specifications

Audio Inputs

Mic input connector	XLR balanced
Impedance	3k Ohms
Mic input gain	10dB to 60dB
Phase reversal	switchable
Phantom power	+ 48V, switchable
Instrument input con.	1/4" jack unbalanced
Instrument input gain	0dB to 45dB

Audio Outputs

Connectors	XLR & 1/4" jack
Type	Balanced & Unbalanced

Amplitude Frequency Response

Line in	6Hz to 20Hz within 1dB
Mic in	8Hz to 20Hz within 2.5dB

Compressor

Photoresistive servo operated	
Ratio	5:1
Attack	1 ms – 100 ms
Release	0,1 s – 3 s

Filter

Shelving filter at 80 Hz
Slope: 16 dB

Meter

VU meter	-20 dBu – + 3 dBu
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Performance

THD (Unweighted)	0.05%
Signal to noise	> 90dB
Power supply rejection	> 98dB

Power Supply

Transformer	External
Input	17v AC

SM ProAudio is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or shown.

8. Warranty

8.1 Warranty card and/or website registration

To be protected by this warranty the purchaser of the product must complete an SM Pro Audio product registration procedure.

Product registration is available via two methods:

- Write a letter or card within 14 days of the date of purchase to SM Pro Audio (see address below).
- Complete an online product registration form at the SM Pro Audio website (www.smproaudio.com).

8.2 Warranty

- SM Pro Audio warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year from the original date of purchase.
- SM Pro Audio will at its sole discretion either repair or replace the product if any defects occur that are not caused by normal wear or inappropriate use within the warranty period.
- This warranty does not apply if the product has been damaged by negligence, non-authorized modifications, accident, abuse, misuse, misapplication, or as a result of unauthorized service other than performed by that of SM Pro Audio's service department.
- All freight charges incurred for transport of justified warranty claims are at the buyer's expense.
- All other warranty claims other than those indicated above are excluded.

8.3 How to request a return authorization number

To obtain warranty service, the purchaser must call SM Pro Audio during normal business hours before returning the product (Tel.: +61 3 9555 8081). An SM Pro Audio representative will discuss any issues with you over the telephone and then issue a return authorization number if deemed appropriate.

Please ship original shipping cartons along with your return authorization number to the following address:

SM Pro Audio
Service Department
Warehouse 25
Roberna Business Park
26-28 Roberna St
Moorabbin 3189
Melbourne, Victoria
Australia

Europe:

tt audio GmbH
SM Pro Audio Service
Alfred-Krupp-Str. 5
48291 Telgte
Germany
Tel: +49 (0) 2504 88 88 78-0
Fax: +49 (0) 2504 88 88 78-7

8.4 Warranty regulations

- Warranty can only be serviced when accompanying proof of purchase is provided. Dealers invoice and date stamp required.
- SM Pro Audio will endeavor to repair or replace any product under the terms of this warranty within 30 days of receipt of the product at SM Pro Audio.
- Modifications performed in order to comply with any applicable technical or safety standards in any country which is not the country for which the product was originally developed and manufactured shall not be considered a defect in materials or workmanship. SM Pro Audio shall not be held responsible for any costs incurred or resulting from any such modification whether performed correctly or not.
- This warranty does not cover defects of parts caused by normal operational wear. These parts are typically switches, knobs, and other similar components.

Product damage caused by the following conditions are not covered by this warranty:

- Operation of the unit in a way that does not comply with the safety regulations applicable in the country where the product is used.
- Damages or defects caused by conditions beyond the control of SM Pro Audio.

8.5 Warranty transferability

This warranty is non transferable and available exclusively to the original purchaser.

8.6 Damage claims

Failure of SM Pro Audio to provide proper warranty service does not entitle the purchaser to claim further damages. SM Pro Audio's liability shall in no way exceed the invoiced value of the product.

8.7 Other warranty rights

This warranty does not exclude or limit any statutory rights provided by national law.

The information contained in this manual is subject to change without notice. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording of any kind, for any purpose, without the express written permission of SM ProAudio.

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SM Pro Audio
Service Department
Warehouse 25
Roberna Business Park
26-28 Roberna St
Moorabbin 3189
Melbourne, Victoria
Australia

PH: +61 3 9555 8081
FAX: +61 3 9555 8083
www.smproaudio.com