TSE Analgesia Meter Tail Flick
Advanced
For small laboratory animals

– Specifications subject to change without notice –

◆ TSE Analgesia Meter Tail Flick
Advanced

General information

The **TSE Analgesia Meter Tail Flick *Advanced*** is an automatic measuring system for the rapid screening of rats or mice for analgesic drug effects. Measuring parameter is the so-called "tail-flick" reaction which is an indicator of the sensitivity of the animal to pain.

The heart of the system is a special lamp, which directs a focused light beam with a high proportion of infrared radiation, i.e. heat, onto the animal's tail.

The light intensity of the radiation lamp and therefore the achievable temperature as well as the maximum permitted irradiation time can be set by the operator before the start of the experiment.

TSE TailFlick unit

The time which elapses between switching the lamp on and the animal's first clear pain reaction (visible tail movement = "tail-flick") is measured.

The application of analgesically effective substances leads to an increase in this reaction time, i.e. an increase in the pain threshold when compared with untreated control animals.

If the optional Tail Flick software is used then during the measurement data can be transferred to a PC, stored on the hard disk and displayed on the monitor.

System components

The basic system consists of:

◆ Basic Tail Flick unit with halogen lamp

◆ Control unit

◆ Foot switch

◆ Cable set

◆ Calibrator

The instrument can be used in a voltage range from 115 V to 230 V AC. No adjustments need to be made to the instrument.

The computerized version has the following additional components:

◆ Tail Flick software for Windows

◆ RS 232 cable

Excel must be installed on the computer. The individual measuring data can then be transferred directly to an Excel worksheet. These files can then be used for further statistical evaluations.

Holding the animal

Before carrying out a run you should practice holding the animal and positioning its tail above the IR window. The animal should be held firmly but without causing it to feel any inconvenience so that the tail is not flicked away by the animal becoming agitated.

The control unit

The control unit has the following control keys:

START	Start button
OK	Key for confirming the set temperature and for increasing the intensity by 1%
SET	Key for activating the setting mode and for decreasing the intensity by 1%
MEM	Key for storing the set intensity value
RESET	Reboot

Control unit

Display of result

- The measured time is shown on the display in steps of 0.1sec together with the set lamp intensity.

The duration of the experiment is limited to 60 seconds, after which time the lamp is switched off automatically and a warning message is displayed.

Measuring with the Basic Unit

- Switch the basic unit and the control unit on.
- Select the required lamp intensity on the control unit (1-100% in 1% steps).
- The system is now in the READY mode.

Instrument ready for measurement

- Place the animal on the plate, hold it firmly with the hand and position the tail above the IR window through which the light beam passes.
- Press the start button on the control unit or the foot switch and keep it pressed down. The lamp is switched on and the animal's tail is exposed to the light beam. The display shows that the measurement is taking place - time measurement starts.
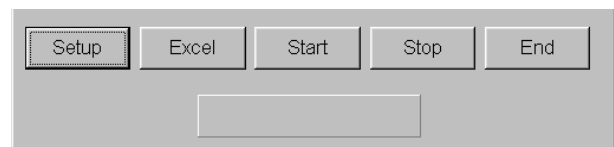

Display during the measurement

- The light beam heats up the animal's skin.
- When the pain threshold has been reached the animal flicks its tail out of the light beam.
- Release the button/switch at this moment - the lamp goes out.

Measuring with the TSE Tail Flick software

The following buttons are available in the Tail Flick software:

Setup	Opens the setup window for entering parameters
Excel	Creates a link to Excel, if this has not already been started
Start	Starts data transfer
Stop	Stops data transfer
End	Ends the program

In the display below the buttons the measuring time is shown during the measurement.
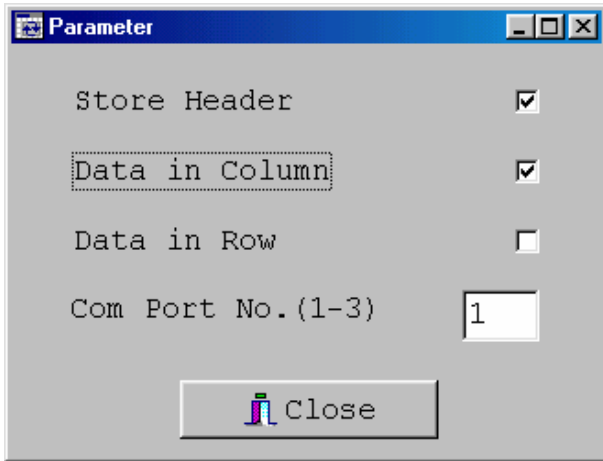
The setup

The settings made in the setup must be checked after the installation of the system and before each series of measurements and, if necessary, altered.

The following control parameters are available:
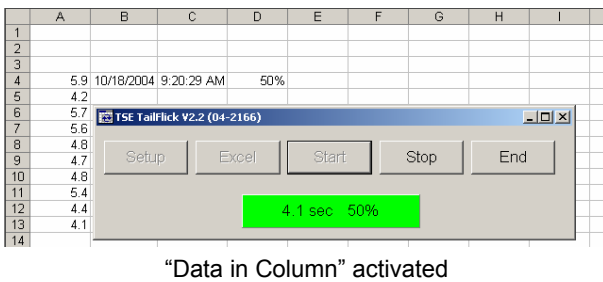
"Store Header" activated / deactivated

If this function is activated then the date, time and intensity set at the TailFlick control unit will be transferred.

The number of the serial connection to which the Tail Flick unit is connected to the PC must be entered here.

☞ **NOTE – Altering the intensity**

If the intensity setting is altered on the instrument – possible after pressing the "**Reset**" button or a renewed start of the TailFlick unit (on/off switch on rear panel of instrument) – an updated header will be automatically inserted in the following measurement.

The Excel link ("Excel" button)

Activating the "**Excel**" button automatically opens Excel. The following message appears:

This link is required for transferring and storing measuring data.

Creating an Excel worksheet

In order to provide the measurements with their own information the data is transferred to Excel without any further entries.

An Excel worksheet containing all the necessary information such as type of animal, operator, control parameters, etc. can be created.

Excel worksheet - template

- Open a new table and define the required test description information.
- Select the required numerical format for the corresponding cell, i.e. the cell for the date must be set to "Date" in the menu Format/Cells/ file card "Number", etc.

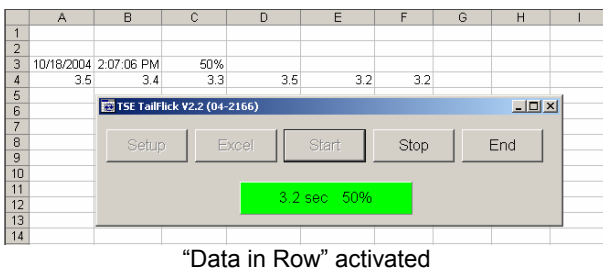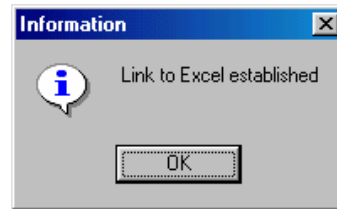## **"Data in Column" activated / deactivated**

This option refers to the arrangement of the data in Excel:

"Data in Column" *activated*: after each measurement a switch is made to the next line, if "Store Header" is activated then the additional information will appear as an extension to the first line. All time measurements are shown in a single column.

"Data in Column" activated

"Data in Row" activated*: after each measurement a switch is made to the next column of a table, if "Store Header" is activated then this information will appear in the first line. The time measurements follow in the second line and stand one after the other in a line.

"Data in Row" activated

- Save the table. This table can now be used as a template for the subsequent measurements.

- At the start of a test open the previously created Excel template.

- Fill in the given input fields and save the file under a different name.

|	A	B	C	D	E	F
1						
2	Experiment:	1		Trial:	12	
3	User:	Dave		Code:	AB1-2C	
4	Species:	Mouse		Strain:	C57BL/6	
5	Substance:	Saline		Dose:	no	
6	Comment:	Control				
7						
8	Measurement Value	Date	Time	Intensity		
9						
10						

Starting position for Excel worksheet

- Select the starting position. The suitable cell for insertion of the measurement data depends on the settings made in "**Store Header**", "**Data in Column**" and "**Data in Row**". Check whether your selected settings are suitable for the Excel worksheet.

Activating the data transfer mode

- The transfer mode is activated with the "Start"" button. The "Setup", "Excel" and "Start" buttons can no longer be selected. Activation can be recognized from the green display area.

- The system now waits for the start signal.

Measuring

- Make all the preparatory settings as described above.

- Start the measurement with the control unit start button or with the foot switch - "Time Measure Running" is shown on the control unit display.

- When the pain threshold has been reached and the animal flicks away its tail release the start button / foot switch.

- The measurement time and the set intensity are shown on the control unit display.

- The value is transferred to the computer and appear in the green display field. It remains there until the next measurement has been completed.
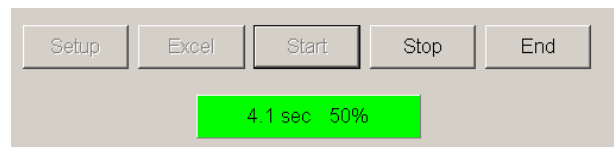
Display of current measured value

- At the same time the value is read into Excel and the cursor then jumps automatically to the next line/column.

- Between the measurements the cursor in Excel can be moved to the required position if automatic positioning does not take place as required.

Recording measurement data

◆ Ordering Information

Cat-No.	Description
602000-TF-MR-1B	**Analgesia Meter Tail Flick *Advanced*, 1-Place, for Mice and Rats** For testing the efficacy of analgesic drugs Complete and consisting of: • measuring unit • process control unit • foot switch • calibrator Option: • PC Communication Package
602000-TF-MR-1B/PC	**PC Communication Package** for Analgesia Meter Tail Flick *Advanced* Measuring data is transferred to a PC via the serial interface (RS232) of the computer Output for each measurement: • reaction time in 0.1 sec steps • I.R. intensity in % (optional) • Date (optional) • Time (optional) Complete and consisting of (for connecting to PC RS232 interface): • special data cable • Tail Flick software package for WINDOWS *Requires: MS Excel software*
602000-TF-AD-MR-01/RL	**Replacement Halogen Lamp** for Analgesia Meter Tail Flick *Advanced*

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