



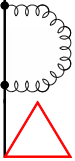
# *Demonstration of a Compact TCT System*

Particulars Ltd. ([www.particulars.si](http://www.particulars.si))

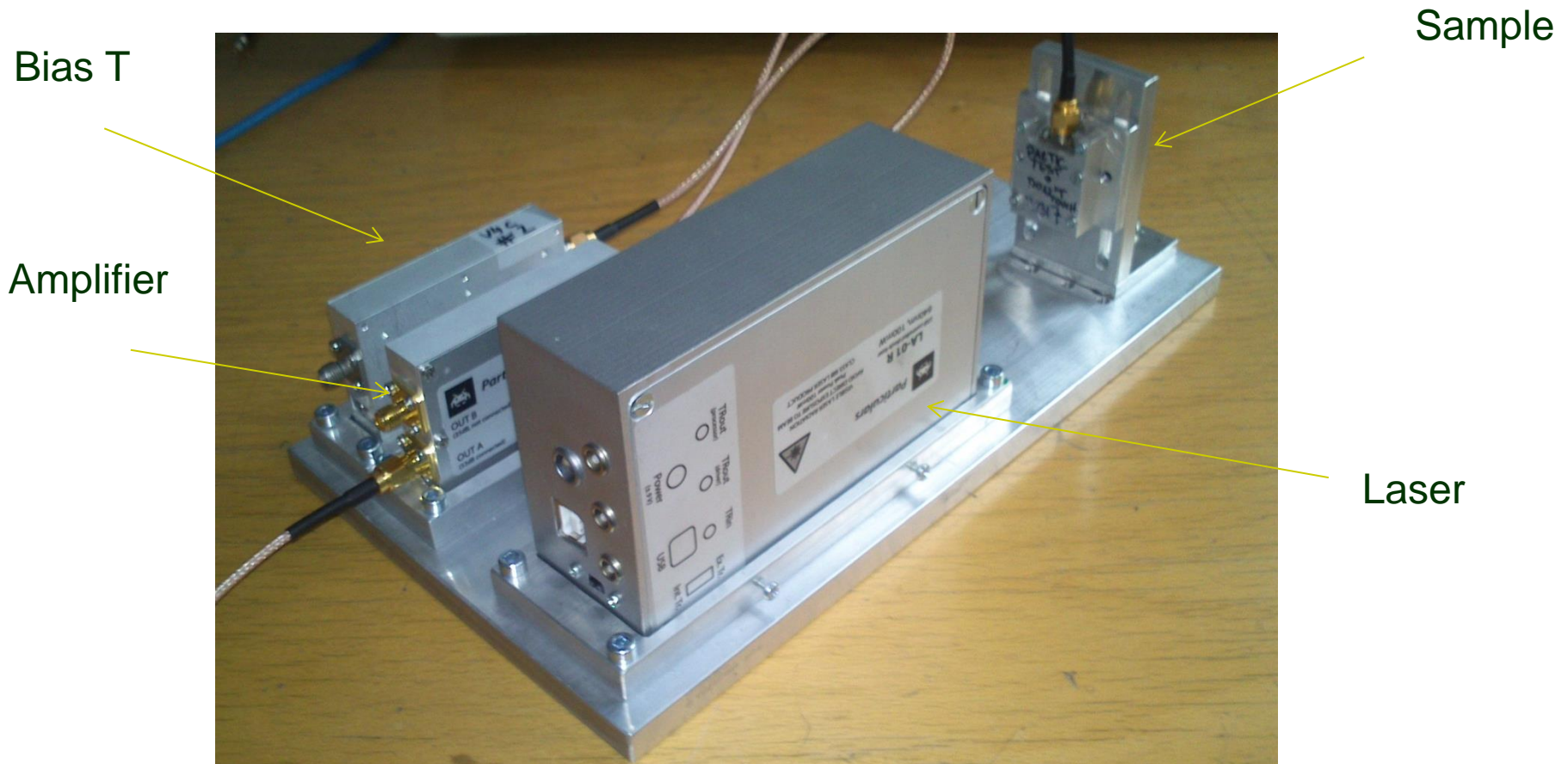
For any additional information

contact: [gregor.kramberger@particulars.si](mailto:gregor.kramberger@particulars.si)

# Compact TCT setup



Very light, portable with state of the art performance. Suitable for material studies and educational purposes. It comes with full data acquisition to a PC.



*The lid covering the setup is not shown.*

# Laser

- laser diodes (free or coupled to optical fibre)  
from 405 nm to 1064 nm, power few-hundred mW (DC)
- pulse lengths from 350 ps to 4000 ps
  - operation modes:
    - single pulses, 50 Hz to 1 MHz
    - pattern mode: 1024 bit deep sequence (repetition mHz to 100 kHz)
    - full control over USB

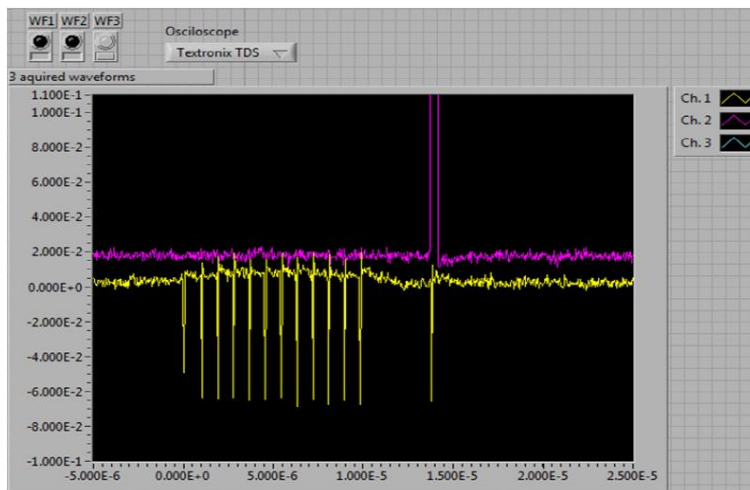
Pulse, 400 ps FWHM



Lasers (free and fiber coupled)

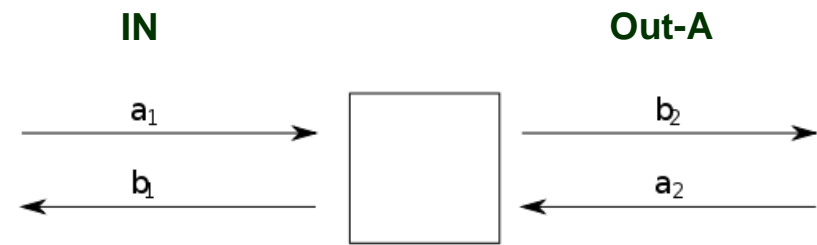
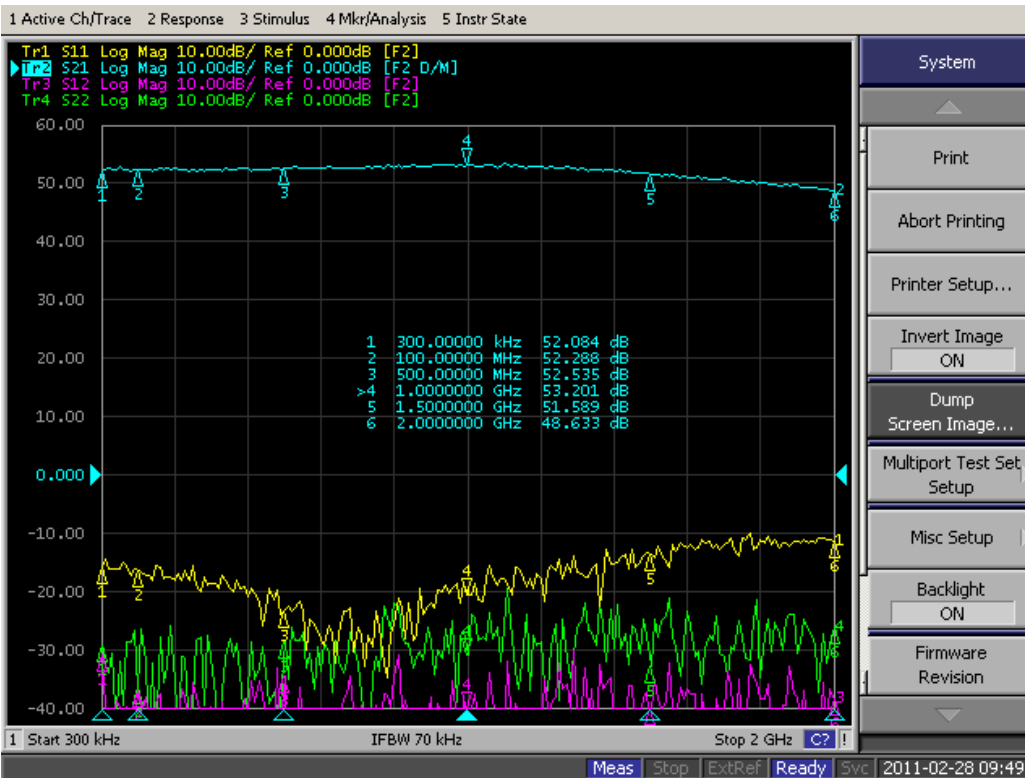


Pulse sequence (yellow), trigger pulse (pink)



# Wide band current amplifier

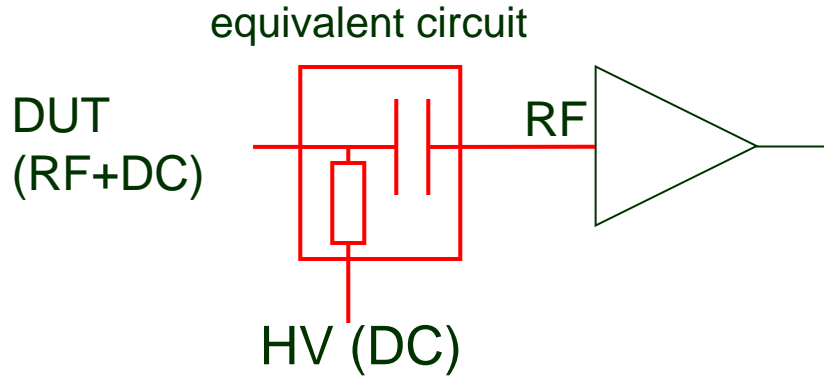
- bandwidth <0.3 kHz - >2 GHz
- possibility of high gain or low gain outputs



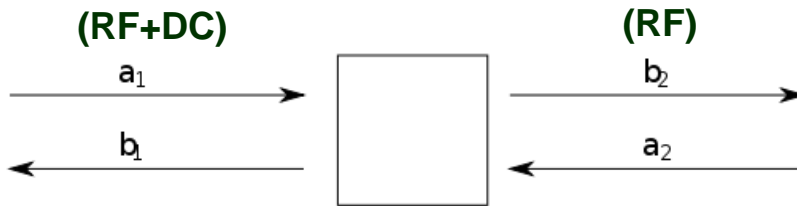
$$\begin{pmatrix} b_1 \\ b_2 \end{pmatrix} = \begin{pmatrix} S_{11} & S_{12} \\ S_{21} & S_{22} \end{pmatrix} \begin{pmatrix} a_1 \\ a_2 \end{pmatrix}$$

Gain of the amplifier

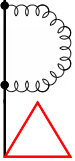
# Bias - T



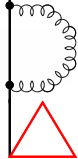
- max. voltage >1000 V
- large bandwidth



$$\begin{pmatrix} b_1 \\ b_2 \end{pmatrix} = \begin{pmatrix} S_{11} & S_{12} \\ S_{21} & S_{22} \end{pmatrix} \begin{pmatrix} a_1 \\ a_2 \end{pmatrix}$$







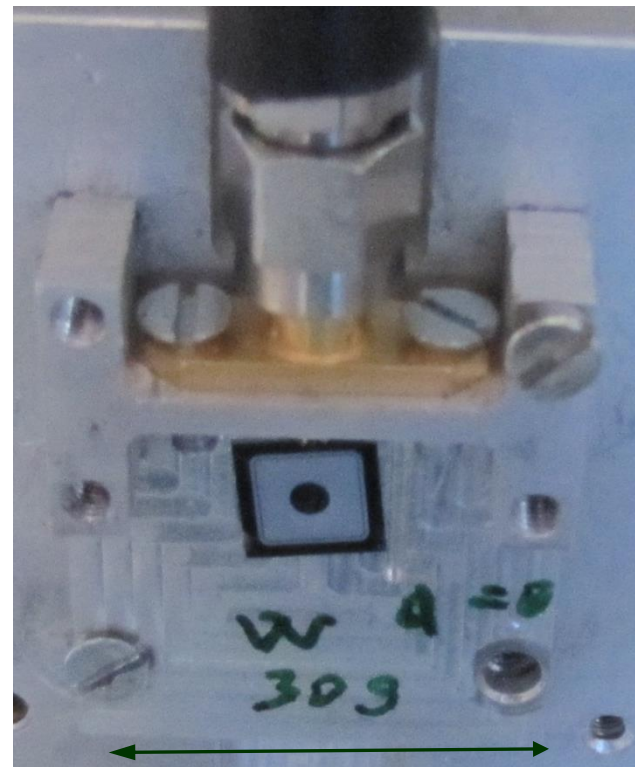
# Detector mounts

Different detector mounts are available:

- Standard RD50 pad detectors
- Strip detectors Edge-TCT (to be used with our full Scanning-TCT)
- Strip detectors (to be used with our full Scanning-TCT)

Detector mounts can be connected to our Peltier coolers:

- air cooled (to around 0°C)
- Water cooled (to around -20°C)
- Multi stage water cooled (to around -50°C)



~ 2 cm