

TR-22 Ultra Fast Transient Recorder

<https://www.gigahertz-optik.com/en-us/product/tr-22-transient-recorder/>

Product tags:



Description

Ultra fast Digital Data Sampler (Transient Recorder) for Light Pulse for Analysis

The TR-22 optometers are designed for pulse analysis of frequency modulated and single pulse flashing light sources down to the ns regime. Especially this very short pulses are a challenging measurement due to limitations of rise time, amplification and noise. Standard signal amplifiers are usually not able to allow such measurements time resolved. With the TR-22 series and its accessories like the CA-22 amplifier this door is now open!



Complete Analysis of Pulse Shape and Pulse Parameters down to the ns Time Regime

- pulse locus shape
- peak power in a radiometric quantity
- pulse width
- single pulse energy
- pulse repetition rate

3 ns Rise Time Voltage Amplifier

The TR-22 voltage amplifier offers a rise time of 3 ns. The voltage amplifier combined with the CA-2x series accessory signal amplifiers, see specifications.

250 MS/s and 14 bit ADC

A high speed analog to digital converter (ADC) with 14 bit and 250 MSamples/s (MS/s), which are 4 ns sampling time digitizes the analog signal for ultra high time resolution measurements.

Trigger and Remote Interface by USB-C, Ethernet or RS485

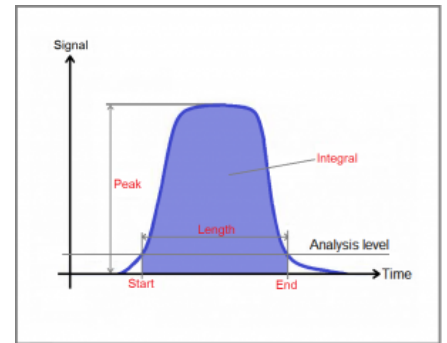
The digital data is stored in a high-speed storage in the device which is designed as transient recorder. This allows pre-trigger and post-trigger evaluations since the transient recorder enables measurement data to be stored before the triggered event and after. Different trigger possibilities like edge, level, etc. are available. 8MSamples can be stored in memory.

The TR-22 offers remote operation via USB-C, Ethernet or RS485. SMA connectors are available for trigger input and trigger output or for use with external devices with TTL signal capability.

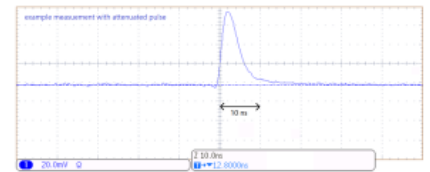
S-TR22 Software

A software is supplied with the TR-22 which provides all necessary functions to do remote control pulse-shape measurements and analysis.

TR-22



Pulse analysis of ns pulses with the TR-22



example measurement of an attenuated pulse

Specifications

Product

Sampling rate	max. 250 MSamples/s □4 ns
ADC	14 bit
Rise time	TR-22 voltage amplifier: 3 ns
Signal input	SMA jack (50 Ohm), voltage 2.2 Vpp <i>(e.g. signal amplifier from CA-2x series, see own specification)</i>

Trigger	Signal or trigger input (level, edge, pre/post trigger). Trigger input: SMA jack (50 Ohms) Trigger output: SMA jack (50 Ohms)
Logger memory	8 MSamples divisible into max. 1000 segments (enables the acquisition of pulses with large time intervals, each segment is triggered separately) Dead time between segments: <ul style="list-style-type: none"> • with timeout definition: 3 μs • with abort by command: 15 μs
Miscellaneous	
Interface	USB 2.0 (full speed, USB-C-Buchse), Ethernet (100 Mbit), RS485
Info	red LED: Error green LED: Communication
Power Supply	5.0V / 0.5 A, direct supply via USB possible Power supply via Phoenix socket 3 pole

Accessories

Signal amplifier

CA-22-xx Series (Single-stage amplifier, user-specific configurable):

- Power supply: 5.0 V / 100 mA
- Bias voltage of the photodiode: +4.2 V, other bias voltages possible on request
- Integrated calibration data in the amplifier

Example Setups:

Vers ion	Gain A/V	Rise Time (10-90)%	Noise (p-p ADC digits Detector 0pF)
01	2.2·10 ⁻³	10 ns (typ. depending on the photodiode capacity)	17
02	1·10 ⁻³	10 ns (typ. depending on the photodiode capacity)	17
03	1·10 ⁻⁴	10 ns (typ. depending on the photodiode capacity)	18
04	4.55·10 ⁻⁵	15 ns (typ. depending on the photodiode capacity)	25
05	2.13·10 ⁻⁵	35 ns (typ. depending on the photodiode capacity)	30

Example: ISD-xP-SP Series: Photodiode Rise Time 10 ns, Noise P-P (ADC TR-22) 18 Counts

CA-23 Series (Five-stage amplifier, wide range, slightly slower):

- Power supply: 5.0 V / 100 mA
- Switchable bias voltage: +3.3 V / -3.3 V (or other external values using accessories)

- Integrated calibration data in the amplifier

Gain A/V	Range #	Range max.
$1 \cdot 10^{-3}$	0	$\pm 2 \text{ mA}$
$3.33 \cdot 10^{-3}$	1	$\pm 600 \mu\text{A}$
$1 \cdot 10^{-4}$	2	$\pm 200 \mu\text{A}$
$3.33 \cdot 10^{-4}$	3	$\pm 60 \mu\text{A}$
$1 \cdot 10^{-5}$	4	$\pm 10 \mu\text{A}$

CA-24 Series (two-stage amplifier, fast):

- Power supply: 5.0 V / 100 mA
- Switchable bias voltage: +3.3V (or other external values using accessories)
- Integrated calibration data in the amplifier

Gain A/V	Range #	Range max.
$1 \cdot 10^{-3}$	0	$\pm 2 \text{ mA}$
$1 \cdot 10^{-4}$	1	$\pm 200 \mu\text{A}$

Configurable with

Product Name

VL-37xx Series

Product Image




Description

Detector series for measuring illuminance in lux

Go to product

<https://www.gigahertz-optik.com/en-us/product/vl-37xx/>

Product Name	Product Image	Description	Go to product
VL-3708		Class L Detector head for the measurement of photopic illuminance in Lux	https://www.gigahertz-optik.com/en-us/product/vl-3708/

Purchasing information

Article-Nr	Modell	Description
Product		
15316776	TR-22	TR-22 Ultra Fast Transient Recorder
Accessories		
15316777	CA-22-xx	CA-22-xx signal amplifier (specific article number will be created on request)
	CA-23	CA-23 five-stage amplifier
	CA-24	CA-24 two-stage amplifier

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