

Pendulum Instruments is a high-quality global supplier of solutions for calibration, measurement and analysis of time and frequency related parameters.

pendulum

## 60+ YEARS OF EXPERIENCE AND EXPERTISE

The company roots date back to the 1950's, when Pendulum was the Swedish branch of Philips Test & Measurement division. Pendulum Instruments was a spin-off in 1998. The company currently has offices in Poland, Sweden, China and USA.

Pendulum products have been awarded "Best-in-Test" honorable mention from T&M World magazine several times, and Pendulum Instruments was awarded "Electronic Company of the Year" in the Swedish "Elektronik i Norden" magazine. Our reputation has created strategic alliances with a.o. Fluke and other global T&M companies. Pendulum was the first company to launch traceable frequency standards in 2000 and Graphical timer / counters in 2004 and multi-channel frequency analyzers in 2022.



# NEW FTR-210R

## TRACEABLE

- GNSS disciplined Rubidium Frequency Standard
- Ultra-high frequency stability and time accuracy
- The independent internal calibration system enables traceability to UTC
- Generates traceable calibration reports
- Seven standard outputs; 5x10 MHz, 1x5 MHz, 1x1 pps
- Four extra optional frequency outputs plus programmable pulse output to 100 MHz
- Optional measurement input to 400 MHz for one-box frequency calibration
- Remote control and monitoring via integrated web server
- Graphical, easy-to-use User Interface

## GNSS disciplined Frequency & Time Reference



\*Available from Q1 2025

[www.pendulum-instruments.com](http://www.pendulum-instruments.com)

# FREQUENCY COUNTERS



## CNT-104S

2023 **Military•Aerospace  
Electronics**  
Innovators Awards  
**GOLD HONOREE**

- Four channel 400 MHz Frequency Analyzer - plus optional RF-channel to 24 GHz
- Ultra-high resolution: 7 ps (Time), 12-13 digits/s (Frequency)
- Ultra-high measurement speed: up to 20 Millions of Samples per second
- Phase comparison of up to 4 independent signals
- Gap-free continuous timestamping measurements
- Remote control from PC/Tablet/Mobile Phone
- Graphical, color touch screen



## CNT-102

- Dual-channel 400 MHz Frequency Analyzer - plus optional RF-channel up to 24 GHz
- Very-high resolution: 14 ps (Time), 12-13 digits/s (Frequency)
- Very high meas. speed: 1M meas./s to internal memory
- 2 parallel counter/analyzers in one box
- Remote control from PC/Tablet/Mobile Phone
- Graphical, color touch screen



## CNT-90

- Frequency range: 400 MHz standard; 3, 8, 15 and 20 GHz optional
- Resolution: 70 ps (Time), 12 digits/s (Frequency)
- High meas. speed: 250k meas./s to internal memory
- USB and GPIB as standard

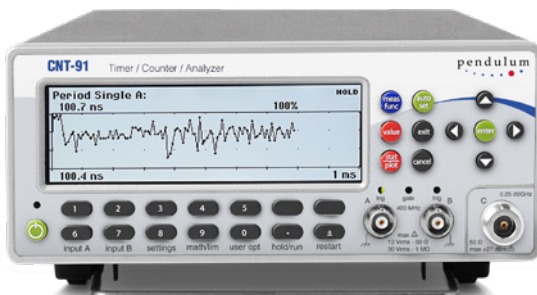
\* compatible with TimeView TM software



## CNT-90XL

- As CNT-90 plus extra microwave input for frequency and power
- CW Frequency Counter to 27, 40, 46, or 60 GHz
- CW Power Meter to 27, 40, 46, or 60 GHz
- Pulsed RF Frequency & Power Analyzer
- Microwave Modulation Domain Analyzer

\* compatible with TimeView TM software



## CNT-91/91R

- As CNT-90 plus higher performance
- Time resolution: 35 ps rms
- Zero dead-time, gap-free measurements
- High speed: 15k meas./s via USB/GPIB
- Continuous data streaming to 10k meas./s

\* compatible with TimeView TM software



# FREQUENCY REFERENCES, FREQUENCY DISTRIBUTION AMPLIFIERS

## GPS12R/HS PORTABLE

- GPS-disciplined Rubidium clock
- Internal battery option for transportation and mains-free field use
- Multi-frequency outputs: 1 pps, 0.1 MHz, 10 MHz, 5 MHz, 1 MHz, 1.544 MHz (T1) or 2.048 MHz (E1)
- Seven standard outputs and four optional
- User friendly front panel operation, with eight languages



## 6688/6689

- Stand-alone frequency reference
- Rubidium (6689) or high stability OCXO (6688)
- 5x10 MHz and 1x5 MHz outputs as standard
- Optional five extra 10 MHz outputs
- 0.001 ppm aging in 10 years (Rubidium)



## FDA-301A

- Distributes sine, pulse, and ToD data signals over fiber and/or coax
- 3 modular output slots provides easy upgradability in the field
- Up to 18 fiber or 12 coax outputs
- Distribute up to 2 km over fiber
- Auto-switch-over when connecting two input sources for input redundancy



## DA-36

- Distribution of reference frequencies over fiber or coax
- Drive up to 2 km of optical fiber
- Eliminate ground current loop problems
- No noise and interference pick-up, EMP-proof
- Easy to install – flexible, lightweight and small diameter cable



## TIME VIEW™

Modulation Domain Analyzer (MDA) SW to analyze:

- Hopping frequencies to 20 GHz with 20 GHz analysis bandwidth (CNT-90/91)
- Hopping frequencies to 60 GHz with 50 MHz analysis bandwidth (CNT-90XL)
- VCO frequency settling, Frequency sweep
- CW, Doppler, Pulsed or Chirp radar
- Phase locked loops
- Frequency locked loops
- Frequency and pulse modulation (FM, FSK, frequency stability (ADEV))
- FFT and Waveform presentation modes
- Emulation of legacy HP 53310A MDA (TimeView 3)



# DETECTUS EMC SCANNERS

The Pendulum/Detectus series of EMC-Scanners are powerful pre-compliance tools for measurement and analysis of Electro-Magnetic Interference (EMI). The Scanners feature repetitive high-resolution scanning of emission (and optionally also immunity) down to 25  $\mu\text{m}$  steps. You can scan even inside an IC (option)

The frequency range is 3, 6 or 10 GHz with the Pendulum near-field probes kits but can be extended by using third parties' probe kits. The system has no built-in limitation so if your spectrum analyser and probes can handle it, you can measure from DC to daylight.

## Detectus SCN-500 series with 2D or 4D scanning (0.1 mm step size)

SCN-522 – 2D scanner: 200 x 100 mm  
 SCN-524 – 4D scanner: 200 x 100 x 100 mm  
 SCN-534 – 4D scanner: 300 x 200 x 100 mm  
 SCN-564 – 4D scanner: 600 x 400 x 300 mm

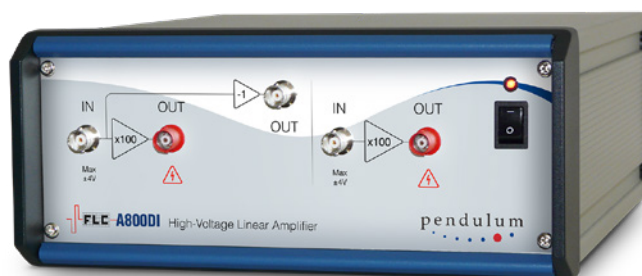
## Detectus HRE series High-resolution Scanners with 3D or 4D scanning (25 $\mu\text{m}$ step size)

HRE-02: 280x180x85 mm  
 HRE-03: 390x290x130 mm  
 HRE-42: HRE-02 plus rotational probe axis for 4D measurements  
 HRE-43: HRE-03 plus rotational probe axis for 4D measurements



# FLC HIGH VOLTAGE LINEAR AMPLIFIERS

High Voltage Linear Amplifiers are general purpose broadband linear amplifiers having a fixed or variable amplification, and capable of bipolar or unipolar output. The amplifiers outputs are linear from DC up to Megahertz range, and exist in Single-Channel and Dual-Channel versions. They are valuable tools, for research institutes, R&D labs and component manufacturing industries, in a wide range of applications. Common examples are driving piezo actuators, MEMS, OLEDs, liquid crystals, etc. The amplifiers are designed to drive resistive and/or small capacitive loads. The output is equipped with a current limiting circuit that withstands accidental short-circuits.



## Single-Channel High-Voltage Linear Amplifiers

Model	Output Voltage	Output Current	Bandwidth	Gain
F10A	-100 to +100V	185 mA	1 MHz	x10, fixed
F20A	-150 to +150V	150 mA	1 MHz	x20, fixed
A400	-200 to +200V	150 mA	500 kHz	x20, fixed
A600	-300 to +300V	75 mA	350 kHz	x100, fixed
A800	-400 to +400V	60 mA	300 kHz	x100, fixed
P100	-50 to +50V	2 A	100 kHz	x10, fixed
P150	0 to +150V	1 A	60 kHz	x20, fixed
P200	-100 to +100V	1 A	80 kHz	x20, fixed
F30PV	-35 to +35V	2 A	5 MHz	x20, variable
F70PV	0 to +70V	1 A	5 MHz	x20, variable

## Dual-Channel High-Voltage Linear Amplifiers

Model	Output Voltage	Output Current	Bandwidth	Gain
F10AD	-100 to +100V	185 mA	1 MHz	x10, fixed
F20AD	-150 to +150V	150 mA	1 MHz	x20, fixed
A400D	-200 to +200V	150 mA	500 kHz	x20, fixed
A400DI	-200 to +200V or -400 to +400V	150 mA	500 kHz	x20, fixed
A600D	-300 to +300V	75 mA	350 kHz	x100, fixed
A800D	-400 to +400V	60 mA	300 kHz	x100, fixed
A800DI	-400 to +400V or -800 to +800V	60 mA	300 kHz	x100, fixed

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Specifications subject to change or improvements without notice.

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