ORTEC®

Detective-X-TS

DETECTIVE-X “TRANS-SPEC EDITION”

The Premium Portable High Resolution Gamma Spectrometer
for In-Situ Measurements

AMETEK®
ADVANCED MEASUREMENT TECHNOLOGY

PEO B.V.
info@gotopeo.com
www.gotopeo.com

The Netherlands
Havenweg 16, 6603 AS Wijchen
+31 (0)24 648 86 88

Belgium
Watermolenstraat 2, B-2910 Essen
+32 (0)3 309 32 09

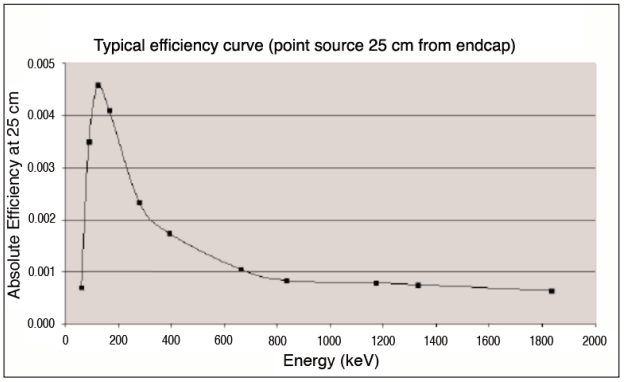
CoC 34107894
VAT NL807859151B01

IBAN NL29 RABO 0356 1960 46
BIC RABONL2U

Detective-X-TS

The DETECTIVE-X-TS is a portable, all-inclusive, high resolution gamma spectrometer for in-situ measurements. It can be used as a stand-alone instrument to collect spectra in the field or controlled by a computer connected via USB, Ethernet, or Wi-Fi using applications such as MAESTRO-Pro (included), GammaVision, Isotopic, and others.

The DETECTIVE-X-TS is physically identical to the popular DETECTIVE-X Radioisotope Identifier which is considered the "Gold Standard" for Mission Critical Detection and Identification. Similar to ORTEC's legacy TRANS-SPEC-100T and MICRO-TRANS-SPEC instruments, the DETECTIVE-X-TS is specifically intended for use as a more economical portable high resolution gamma spectrometer for field measurements rather than an automatic isotopic identifier. The DETECTIVE-X-TS model includes warranted resolution performance and MCA Emulation software, but excludes the Isotopic Identification applications included with the other DETECTIVE-X models (Detective X, RAPiD, and Sleuth). The DETECTIVE-X-TS can be upgraded to the DETECTIVE-X 3 MeV and 8 MeV models along with a current Dose Rate calibration.



Why DETECTIVE-X-TS?

- Large P-Type High Purity Germanium Detector (65 x 50 mm) >40% Relative Efficiency
- High Reliability Stirling-Cycle Cooler with Hardened Cryostat
- Digital Signal Processing and active low frequency noise reduction (LFR)
- Rugged design for harsh environments (IP65 compliant)
- Compact and Light-Weight (15.4 lbs / 6.98 kg)
- Long Battery Life (8 hours) with two hot swappable batteries
- Large (4.3 inch) High Resolution touch screen easily readable in sunlight
- Internal and Removable File Storage (>100,000 spectra)
- Computer Control via USB, Ethernet, and Wi-Fi compatible with ORTEC Applications
- Mobile Phone, Tablet, and Computer application mirroring on iOS, Android, and Windows platforms

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APPLICATION FEATURES

Main Spectrum Display: Log/Lin, Zoom, Region of Interest, Start, Stop, Clear Acquisition, and Save Spectrum.

Peak/ROI Data: Centroid, FWHM, Start/End Channel, Gross and Net Area and Count Rate.

Configurable Spectrum Marker Data: Energy, Channel, Counts.

Configurable Status Lines: Two of any of the following: Live Time, Real Time, Live Time Remaining, Real Time Remaining, Battery Time Remaining, Count Rate, Count Rate in ROI.

MCA Controls: ADC Conversion Gain with Upper and Lower Level Discriminators, Coarse and Fine Amplifier Gain, Base Line Restore (Auto, Fast, Slow), Gain and Zero Stabilizers, High Voltage On/Off.

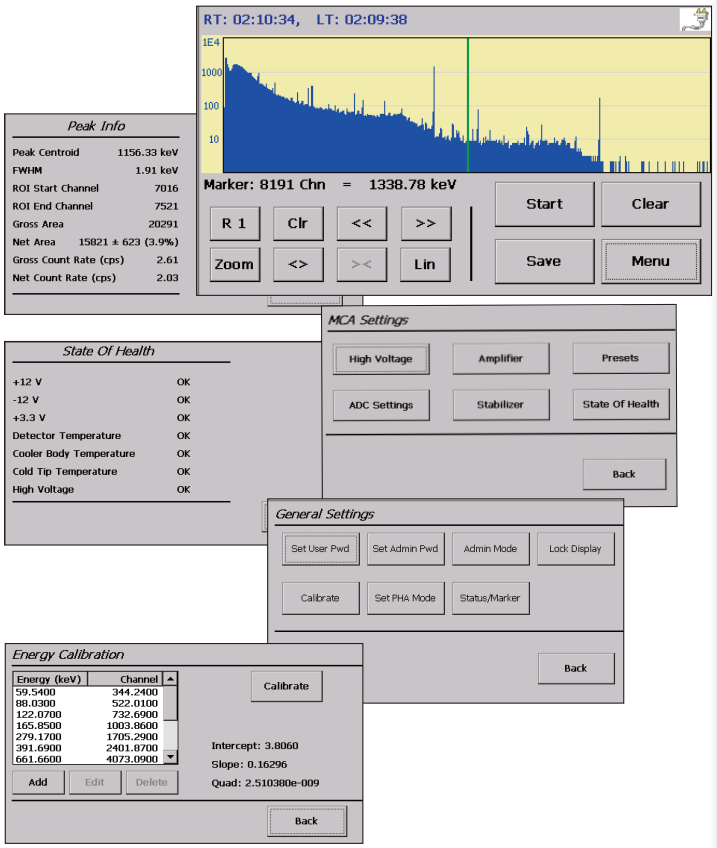
Acquisition Presets: Live Time, Real Time, ROI Peak, and ROI Integral.

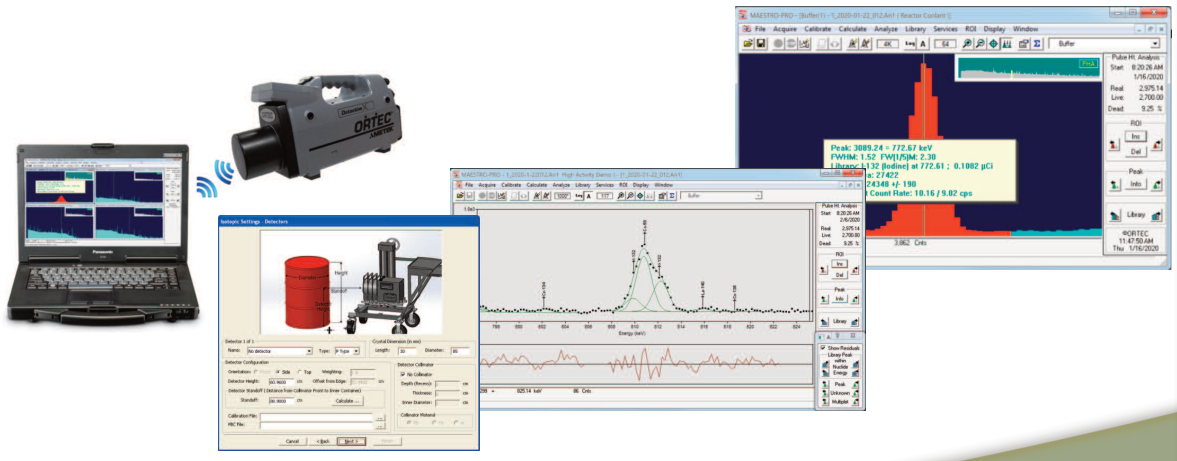
State of Health Status: ±12 V, +3.3 V, Detector Temperature, Cooler Body Temperature, Cold Tip Temperature, High Voltage.

Security: Password protected User/Admin modes, Lock /Hide Spectrum Display during acquisition.

Energy Calibration: Quadratic fit of energy versus channel.

External Applications: Compatible with all ORTEC CONNECTIONS-based applications such as MAESTRO, MAESTRO-Pro, GammaVision, Isotopic, Renaissance, and the A11 Programmer's Toolkit for a broad range of application uses.





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TECHNICAL SPECIFICATIONS

DETECTOR / COOLER

Crystal: P-type high-purity germanium (HPGe). Coaxial construction. Nominally 65 mm diameter x 50 mm length.

Relative Efficiency: ≥40% typical (ANSI/IEEE 325-1996).

Resolution: ≤1600 eV @ 122 keV and ≤2.3 keV @ 1332 keV (FWHM Warranted at optimum settings).

Peak Shape: 1.9 typical (FWTM/FWHM).

Cryostat and Cooler: "Hardened" cryostat, with high-reliability, low-power Stirling cooler. The cryostat design is such that the unit may be switched off at any time and power subsequently re-applied without having to wait for a full thermal cycle (full warm up before cool down). This feature greatly increases system availability during measurement campaigns.

Cool Down Time: The high-reliability cooler is designed for continuous operation. Between making measurements the unit is powered from a DC supply, car battery or other device. Initial cool down time depends on ambient temperature, but is typically 6 hours at 25°C.

DIGITAL MCA AND DATA PROCESSOR

Digital Low Frequency Noise Suppression: "LFR Filter".

Conversion Gain: Up to 16k channels.

Display: 4.3" WQVGA (480 x 272 pixels) sunlight readable, touch sensitive, operate with finger or stylus.

Data Processor: FREESCALE I.MX535 operating at 1 GHz.

Data Storage Media: Internal RAM and removable low profile USB Flash drive. The unit is shipped with a USB Flash drive which can store over 100,000 spectra.

File Format: ORTEC CHN and SPC spectrum formats.

Computer and Device Interfacing: USB, Ethernet TCP/IP v4 connections via standard RJ45 Ethernet connection (10/100 Mbps, auto-sensing), Wi-Fi (IEEE 802.11a/b/g/e/i/h/j standards and IEEE 802.11n with protected access protocols including WPA and WPA2). Mobile MCB Server enables remote control through ORTEC CONNECTIONS-based applications, such as MAESTRO, GammaVision, etc.. Wisemo is used for device application mirroring and control.

PHYSICAL

Maximum Overall Dimensions: (including handle and Ge detector endcap) 15.5 in L x 6.25 in W x 8.25 in H (39.5 cm L x 16 cm W x 21 cm H).

Weight: 15.4 lbs (6.98 kg).

Internal Battery: 2 Rechargeable Lithium Ion. 98 Wh each, nominal. Approximately 8 hours of battery life at 25°C when HPGe detector is cold. <4 hour time to charge. Internal battery is easily swapped.

External Battery: Battery lifetime may be extended indefinitely by the use of optional external battery packs. An external military battery (Model 2590) weighs less than 3.25 lbs and extends lifetime to >16 hrs.

Input Power: 12 to 17 V DC from battery or DC power supply (universal mains supply included).

Power Usage: Highest during cool down and charging battery: <100 Watt. Cold with fully charged battery <35 W.

Operation Range: Temperature: –20°C to 50°C. Relative Humidity: 95% non-condensing.

Instrument Enclosure: IP65 Sealed against ingress of dust and water. All perforations are sealed by rubber plugs (connectors, memory cards, etc.).

Ordering Information

Model	Description
DETECTIVE-X-TS	Ultra-Light-Weight, Portable, High Efficiency, Standard HPGe Spectrometer. Includes mains adapter, vehicle power cable, USB flash drive, shoulder strap, MAESTRO-PRO software and wheeled hardsided case. **Does not include** Radioisotopic Identification applications (Detective X, Sleuth, and RAPiD).
DETECTIVE-X-TS-UPG-3	DETECTIVE-X-TS Upgrade to full DETECTIVE-X 3 MeV model including Radioisotopic Identification applications (Detective X, Sleuth, and RAPiD) and Dose Rate Calibration. Requires return to factory.
DETECTIVE-X-TS-UPG-8	DETECTIVE-X-TS Upgrade to full DETECTIVE-X-8 8 MeV model including Radioisotopic Identification applications (Detective X, Sleuth, and RAPiD) and Dose Rate Calibration. Requires return to factory.

Specifications subject to change
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ORTEC®
www.ortec-online.com
Tel. (865) 482-4411 • Fax (865) 483-0396 • ortec.info@ametek.com
801 South Illinois Ave., Oak Ridge, TN 37830 U.S.A.
For International Office Locations, Visit Our Website
AMETEK®