

Target F600

Technical Data

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Website

<http://target-sg.com>

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Spectroscopic radiation measurement and UHF RFID tagging combined in a single instrument.

General Description

The Target F600 is a novel handheld instrument able to combine, for the first time, state-of-the-art spectroscopic radiation measurements with scintillation detectors and UHF RFID technology for an easy tracking of the measured items.

Specifically designed for operating in fields as Nuclear Power Plants, Decommissioning & Dismantling, Nuclear Fuel Cycle, Nuclear Waste Management and Radioprotection, the Target F600 helps the operators in fully characterizing and tracking objects, surfaces, radioactive waste bags, drums, large boxes and any type of item that could be produced and measured in these activities.

Target F600 makes the operators able to detect and identify the gamma and optionally neutron radiation on a specific item. As soon as the acquisition is completed, the device stores the data in its internal memory together with the object description and detailed sample information including an image and a operator voice note. It also writes the most important data into rad tolerant, UHF RFID tags able to sustain a radiation dose up to 100 Gy. In addition, the tag permanent ID allows for an easy and reliable identification of the tagged items, being them objects, surfaces to be cleaned up, waste bags, boxes or drums.

The Target F600 is a development for CAEN Sys and will be sold as RadHAND 600 Pro.



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Features

High dose rate capability with a single detector
Spectrometry at 1 million cps and higher
Rugged IP65 rated case
Easy system integration by HTTP REST interface
Remote operation and configuration with standard web browser
Embedded UHF RFID reader for storage of information in rad tolerant UHF RFID tags
Embedded 1D-2D barcode scanner for back compatibility with previous tagging systems
Embedded camera and voice notes for unambiguous description of the measured items
Optional external smart probes for additional capabilities as high resolution gamma spectroscopy and alpha/beta detection

Detectors

Gamma (a)	51 mm x 51 mm (2" x 2") NaI(Tl)
Gamma (b)	76 mm x 25 mm (3"x1") NaI(Tl)
Gamma/Neutron (c)	51 mm x 51 mm (2" x 2") Cs ₂ LiYCl ₆

Performance (a)

Energy range (Gamma)	10 keV - 10 MeV
Linearization	Real-time linearization of gamma energy
Dose rate range (Cs-137, NaI(Tl))	10nSv/h - 10mSv/h (1µrem/h - 1rem/h) / ±30 %
Dose rate range ID Mode (Cs-137, NaI(Tl))	10nSv/h - 250µSv/h (1µrem/h - 25mrem/h)
Dose rate overload range (Cs-137, NaI(Tl))	10mSv/h - 500mSv/h (1rem/h - 50rem/h)
Identification	Detection and nuclide identification performance exceeds all ANSI N42.34 requirements
Nuclide library	per customer requirements
Library categories	SNM, IND, MED, NORM
Typical resolution	6.5 % FWHM at 662 keV with NaI detector at 20 °C
Maximum input count rate in identification mode	1 million cps (Cs-137)
Gamma sensitivity	1,850 cps/µSv/h (Cs-137)



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Physical	Dimensions (a,c) (W x L x H)	108 mm x 168 mm x 310 mm (12.2" x 6.6" x 4.2")
	Dimensions (b) (W x L x H)	117 mm x 175 mm x 335 mm (4.6" x 6.9" x 13.2")
	Weight (a)	< 2,000 g (< 4,4 lbs)
	Housing material	Plastic
Environmental	Operating temperature	-10 °C to 50 °C (-14 °F to 122 °F)
	Relative humidity	85 % at 20 °C and non condensing conditions
	Protection rating	IP65
	Tests according IEC 62706	Drop, vibration, mechanical shock, electrostatic discharge, radio frequency immunity
UHF RFID Reader	Frequency	Multi-Regional
	Standards	ETSI or FCC compliant versions, EPC C1 G2, ISO 18000-6C Compliant
	Output power	up to 500mW (27dBm)
Barcode Scanner	Type	1D-2D imager
	Aiming	528 nm visible green LED
	Symbologies	<p>Linear: UPC/EAN/JAN, GS1 DataBar, Code 39, Code 128, Code 32, Code 93, Codabar/NW7, Interleaved 2 of 5, Code 2 of 5, Matrix 2 of 5, MSI, Telepen, Trioptic, China Post; 2D Stacked: PDF417, MicroPDF417, GS1Composite;</p> <p>2D Matrix: Aztec Code, Data Matrix, QR Code, Micro QR Code, MaxiCode, Han Xin Code;</p> <p>Postal: Intelligent Mail Barcode, Postal-4i, Australian Post, British Post, Canadian Post, Japanese Post, Netherlands (KIX) Post, Postnet, Planet Code;</p> <p>OCR Option: OCR-A, OCR-B, E13B (MICR);</p>
Color Camera	Type	Color-Camera
	Resolution	5 Mpixel; 2592 x 1944 pixel
	Colors	8bit RGB
	Focusing Range	10 cm to infinity



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Battery	Type	Secure Li-Ion battery pack
	Standard operation time	8h in dose rate mode with dimmed display back light and GPS switched off at 20 °C (68 °F)
Display	Type	Blanview TFT-LCD
	Size	69 mm x 41 mm (2.72" x 1.61")
	Resolution	800 pixels x 480 pixels
Input/Output	USB	Class 2.0
	Bluetooth	Class 4.0
	WLAN	WiFi 802.11 g/n
Software	Remote operation	via web-interface
	Functions	Dose, dose rate, identification, RFID read/write, barcode read, record audio description, take color pictures
	File Formats	Download file formats ANSI N42.42 and spc files compatible with third-party analysis software applications such as GADRAS, Cambio, or PeakEasy
	Data Storage	32GB
Service	Warranty	2 years
Miscellaneous	GPS Global positioning	12-channel SiRF III receiver
	Clock	RTC Real Time Clock
External Probes (opt)	CZT for high resolution gamma spectroscopy	
	ZnS for alpha/beta	

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Accessories

Rugged carrying case
Battery charger
Micro-B socket USB cable
Battery adapter
Tripod for fixed measurements
Bluetooth Headset
Up 100 Gy rad tolerant UHF RFID tags