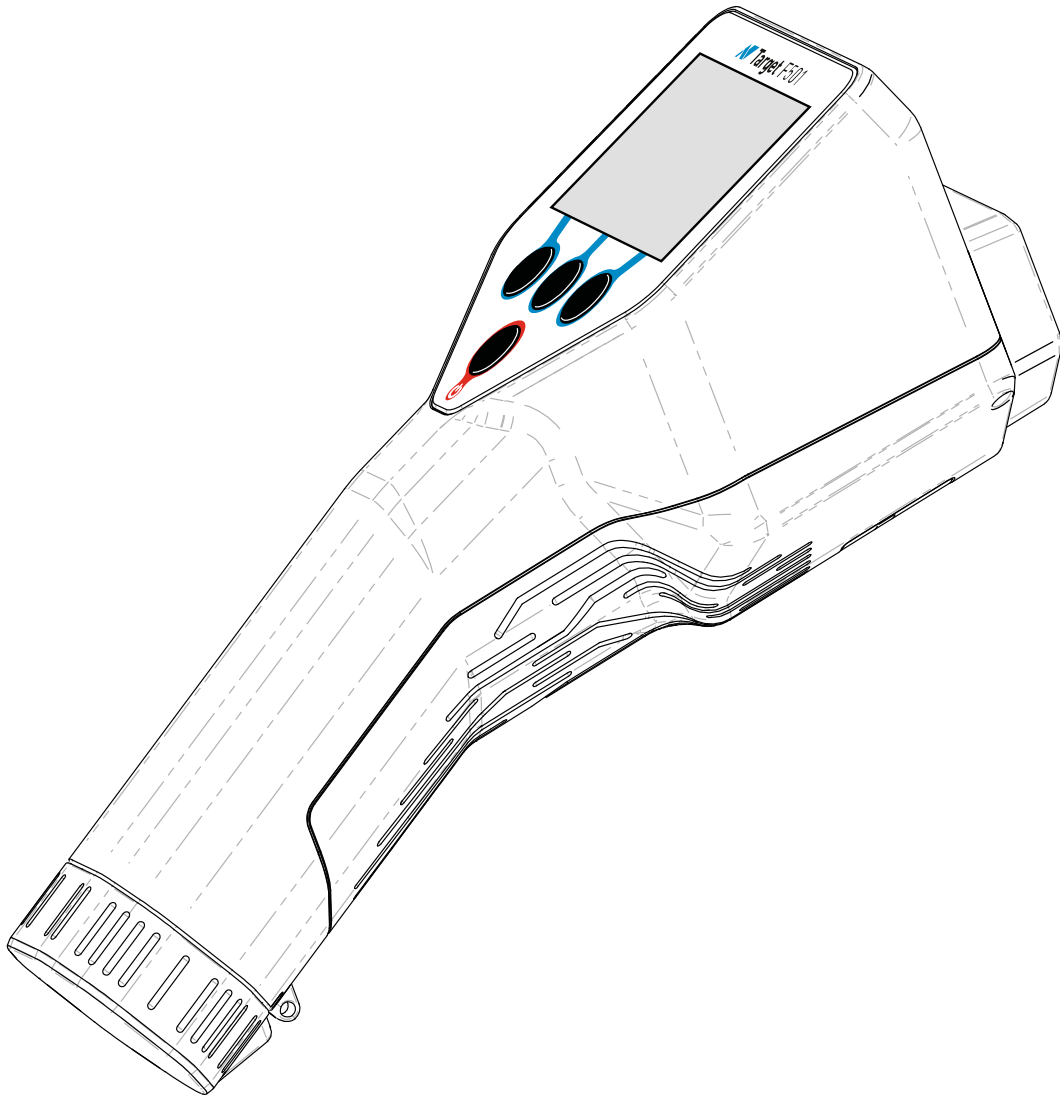




Target Systemelektronik



Target F501 BGO

Data Sheet

20.23.4 (20231207-3902)

TECHNICAL DATA

Technical Data Table

Technology	Radionuclide Identification Device (RID)
Scope	Detection of gamma, beta, cosmic radiation and neutrons (only with the appropriate detectors) emitted from natural and man-made sources. Identification of special nuclear material, industrial, medical, and natural radioactive sources. Measurement of x-ray and gamma exposure rate or ambient dose equivalent.

BGO Detector

Operating Range	Gamma and thermal neutron detection
Material	$\text{Bi}_4\text{Ge}_3\text{O}_{12}$ (Gd_2O_3)
Size	51 \emptyset x 25 mm ³ (2" x 1")
PHR	9.0 \pm 1.5 % @ 662 keV
Energy range	10 keV _{ee} – 1000 MeV _{ee} (Total) 10 keV – 10 MeV (Gamma and X-rays) 10 MeV _{ee} – 1000 MeV _{ee} (cosmic radiation, muons, charged particles)
Dose rate range total (Cs-137)	10 nSv/h - 500 mSv/h (1 μ rem/h - 50 rem/h) \pm 30 %
Dose rate range ID mode (Cs-137)	10 nSv/h - 200 μ Sv/h (1 μ rem/h - 20 mrem/h)
Dose rate range current-variance mode (Cs-137)	200 μ Sv/h - 500 mSv/h (0,02 rem/h - 50 rem/h)
Dose rate overload range (Cs-137)	> 500 mSv/h (50 rem/h)
Energy response (60 keV - 3000 keV)	< +/- 30%
Maximum input count rate in ID mode	1 million cps (Cs-137)
Gamma sensitivity	1,850 cps/ μ Sv/h (Cs-137)
Neutrons	According to ANSI N42.34
Neutron sensitivity	~5 cps/nv

Performance

Power-up time	Operative in less than one minute
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Technical Data Table

Identification time	Identification of 1 μCi Cs-137 in 3 s (5 cm to crystal center)
Linearization	Real-time linearization of gamma energy
User-interface update frequency	0.5 s
Nuclide library	> 70 nuclides (exceeding IEC 62327, ANSI N42.34)

Physical

Weight	950 - 1,250 g (2.1 - 2.75 lbs) depending on detector type
Dimensions (L x H x W) equipped with PM18650	232 mm x 88 mm x 92 mm (9.13" x 3.46" x 3.62")
Dimensions (L x H x W) equipped with PM18650+	307 mm x 88 mm x 92 mm (12.08" x 3.46" x 3.62")
Housing material	Machined aluminum

Operating Conditions

Operating temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Operating humidity	Up to 93 % at 40 °C (104 °F) non-condensing
Protection rating	IP68 according to IEC 60529 submersible, up to 10 m (33 ft) 30 min

Operating Modes

Dose Rate	Gamma dose rate and dose rate history viewer, neutron count rate with the appropriate detector
Finder	Count rate history display
Easy Finder	Source strength and direction
Identification	Gamma spectrum measurement and identification, spectrum viewer

Power Module PM18650

Capacity	3,6 V / 7 Ah / 25 Wh
Run time at 20 °C (68 °F)	> 6 h regular use (non-alarm state)
Operating temperature	-20 °C to 50 °C (-4 °F to 122 °F)

Technical Data Table

Charging temperature	0 °C to 40 °C (+32 °F to 104 °F)
Storage temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Weight	135 g (0.3 lbs)

Power Module PM18650+ (optional)

Capacity	3,6 V / 14 Ah / 50 Wh
Run time at 20 °C (68 °F)	> 12 h regular use (non-alarm state)
Operating temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Charging temperature	0 °C to 40 °C (+32 °F to 104 °F)
Storage temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Weight	270 g (0.6 lbs)

Hardware

Data storage	30 GB internal memory
Wi-Fi	Wi-Fi access point 2,4 GHz 802.11 g, encryption WPA-PSK AES
Bluetooth	Bluetooth LE for connection to the Mobile App
GPS	Navstar GPS, Galileo, Glonass, Beidou
USB-C	Power and data port

Software

Web server	Web Interface for setup, data download and remote control
Data streaming	Support of the Sigma streaming API via BT tethering
Data reporting	Support of the Sigma reporting API via BT tethering
Session data	Continuous tracking of GPS position, dose rate, alarms and identification results

Mobile App

Supported operating systems	Apple iOS, Android
Remote setup	Adjustment of all instrument settings

Technical Data Table

Remote operation	Remote operation and observation of the instrument
Reachback	Reachback functionality (e-mail with attached ANSI N42.42 data)

Standards Compliance

RID	IEC 62327, ANSI N42.34
Environmental tests	IEC 62706
Data format	ANSI N42.42, IEC 62755

All technical data are subject to change without further notice.