



**Malvern  
Panalytical**  
a spectris company

# Terraspec 4 Hi-Res

Fast, precise mineral exploration



# Terraspec 4 Hi-Res

A mainstay in the geological research community, the TerraSpec® VIS/NIR instrument is already recognized as the de facto technology for measuring the spectral reflectance of minerals. Highly portable and rugged with wireless capabilities, the TerraSpec 4 Hi-Res VIS/NIR instrument, with 3 nm resolution in the VNIR region and 6 nm resolution in the SWIR region, helps vector to mineral exploration targets quickly.

For mining exploration geologists, these features translate into fast data capture and improved data quality. This equates to better field accuracy in determining important vector mineralogies such as kaolinite, smectite and illite group minerals. Study of low-concentration and low-reflectance minerals, like iron-containing minerals such as serpentines and chlorites, is also possible.

## Optional TerraSpec 4 spectrometer accessories

ASD offers a comprehensive variety of spectroscopy accessories to meet a multitude of application requirements.

A controller computer is required and is sold as a separate line item.

*I have used this spectroradiometer for over 20 years. TerraSpec 4 Hi-Res is a robust instrument, in terms of use in field and lab conditions. Easy to calibrate. Results are reliable. I will keep using this technology for many years to come. The instrument, if it's adequately treated, could last for ever. Very cost effective."*

**Alejandro Caballero**  
Mineral Vector Services

The following accessories are those most commonly requested, and at least one or more are required and are sold as separate line items (contact Malvern Panalytical for a price quotation):



Hi-Brite Contact Probe for measurements of rocks and cores. This probe also requires an ASD Fiberoptic Jumper Cable, which is sold as a separate line item.



Hi-Brite Mug Light for measurements of rocks, grains and powders. This accessory also requires ASD Sample Holders and ASD Fiberoptic Jumper Cable, which are sold as separate line items.



Rapid analysis probe for powders and chips. This probe is specially designed for speedy spectral collection of fine grained materials like powders and can be used with quantitative predictive models. This probe also requires the ASD Fiberoptic Illuminator which is sold as a separate line item.



Small diameter reflectance probe for vugs and grain-specific mineralogy. This probe also requires the Fiberoptic Illuminator which is sold as a separate line item.



For increased portability, a specially designed backpack is available for collecting direct field measurements, and is sold as a separate line item.



### Unique applications:

- Mineral exploration
- Deposit mapping
- Mineral assemblage identification
- Drill cuttings analysis
- Core logging
- Determining geochemical gradients
- Clay species delineation
- Faster vectoring to ore body

# Technical specifications

Description	Specifications
Wavelength range	350 - 2500 nm
Spectral resolution	3 nm @ 700 nm and 6 nm @ 1400/2100 nm
Scanning time	100 milliseconds
Photometric noise VNIR SWIR1 SWIR2	4.8 × 10 <sup>-5</sup> AU or 48 μAU @ 700 nm 4.8 × 10 <sup>-5</sup> AU or 48 μAU @ 1400 nm 1.1 × 10 <sup>-4</sup> AU or 110 μAU @ 2100 nm
Wavelength reproducibility	0.1 nm
Wavelength accuracy	0.5 nm
Channels	2151
VNIR detector	512 element NIR-enhanced silicon array
SWIR 1 & 2 detectors	(1001-1800 nm) & (1801-2500 nm) Graded Index InGaAs Photodiode, two stage TE Cooled
<b>Certification and approvals</b>	
CE certified	EN61010-1:2001 2nd Edition
EU Directive	2006/95/EC, 2004/108/EC
ISTA®	Transit tested
Traceability	NIST traceable
<b>Communications</b>	
Wired	10/100 Base T Ethernet port with Ethernet cross-over cable
Wireless	802.11g/n
<b>Physical and environmental</b>	
Height x width x depth	12.7 × 36.8 × 29.2 cm (5 × 14.5 × 11.5 in)
Weight	5.44 kg (12 lbs)
Battery weight	1.2 kg (2.7 lbs)
Battery run time	Approximately 6 hours (without lamps or accessories)
Storage temperature	-15 to 45° C (5 to 113° F)
Input power	AC/DC switching power supply and a sealed lead-acid gel cell battery
AC input	90-240 VAC, 50/60 Hz
DC input	12 VDC, 60 W
Auxiliary port power	Output, +12 VDC, 27 Watt (max)
<b>Additional details</b>	
Software	RS3 spectral acquisition software, compatibility with The Spectral Geologist and SpecMin, seamless interface with ENVI®, ASD ViewSpec Pro for post processing, Indico® Pro spectral acquisition software
Portability	Rugged instrument transportation case; optional customized backpack with soft-sided travel bag
Warranty	One year full warranty including remote expert customer support by phone or internet
Computer	Windows® 7 64-bit laptop (instrument controller)



## Why choose us?

**When you make the invisible visible, the impossible is possible.**

Our analytical systems and services help our customers to create a better world. Through chemical, physical and structural analysis of materials, they improve everything from the energies that power us and the materials we build with, to the medicines that cure us and the foods we enjoy.

We partner with many of the world's biggest companies, universities and research organizations. They value us not only for the power of our solutions, but also for the depth of our expertise, collaboration and integrity.

With over 2200 employees, we serve the world, and we are part of Spectris plc, the world-leading precision measurements group.

**Malvern Panalytical. We're BIG on small™**

## Service & Support

Malvern Panalytical provides the global training, service and support you need to continuously drive your analytical processes at the highest level. We help you increase the return on your investment with us, and ensure that as your laboratory and analytical needs grow, we are there to support you.

Our worldwide team of specialists adds value to your business processes by ensuring applications expertise, rapid response and maximum instrument uptime.

- Local and remote support
- Full and flexible range of support agreements
- Compliance and validation support
- Onsite or classroom-based training courses
- e-Learning training courses and web seminars
- Sample and application consultancy



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