



## ThetaMetrisis products

## Price List

Effective from 1<sup>st</sup> July 2022

## Core Units

Product	Description	List Price, €
<b>FR-pOrtable</b>	FR-pOrtable tool operating in the 370-1000nm spectral range equipped with: A) Hybrid integrated Incandescent-LED light source, miniaturized Spectrometer and optical probe for reflectance measurements. B) FR-Monitor software. C) Reference Samples. D) FR- pOrtable stage and holder for reflectance measurements.	9400
<b>FR-ES VIS/NIR (370-1020nm)</b>	FR-pRo tool operating in the 370-800nm spectral range equipped with: A) Tungsten Halogen light source with manual shutter. Miniaturized Spectrometer with 3648 pixels CCD Array, and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) FR-FilmThickness Kit C) Reference Samples D) FR-Monitor software	9500
<b>FR-pRo VIS/NIR (370-1020nm)</b>	FR-pRo tool in 370-1020nm spectral range equipped with: A) Tungsten Halogen light source with motorized shutter and fully software controlled. Miniaturized Spectrometer with 3648 pixels CCD Array, and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software	10500
<b>FR-pRo-UV/VIS (200-850nm)</b>	FR-pRo tool in 200-850nm spectral range equipped with: A) Deuterium Tungsten Halogen light source and shutter and fully software controlled. Miniaturized Spectrometer in 200 – 850nm spectral range, with 3648 pixels CCD Array, and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.	12800
<b>FR-pRo-UV/NIR-EXT (200-1000nm)</b>	FR-pRo tool in 200-1020nm spectral range equipped with: A) Deuterium Tungsten Halogen light source with shutter and software controlled. Miniaturized Spectrometer in 200nm – 1000nm spectral range with 3648 pixels CCD Array, and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.	13200
<b>FR-pRo-UV/NIR-HR (190-1100nm)</b>	High-resolution FR-pRo tool in UV/NIR spectral range equipped with: A) Deuterium Tungsten Halogen light source and shutter and fully software controlled. High Resolution, miniaturized Spectrometer in 190nm – 1100nm spectral range, with 3648 pixels CCD Array, and 14bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.	14700

<p><b>FR-pRo-RED/NIR-S1 (650-800nm)</b></p>	<p>FR-pRo tool in 650-800nm spectral range equipped with: A) Tungsten Halogen light source with motorized shutter and fully software controlled. Miniaturized Spectrometer with 3648 pixels CCD Array, and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software</p>	<p>10700</p>
<p><b>FR-pRo-NIR-N1 (850-1050nm)</b></p>	<p>FR-pRo tool operating in the 850-1050nm spectral range, equipped with: A) Tungsten Halogen light source and shutter software controlled. Miniaturized Spectrometer with 3648 pixels CCD array, optical resolution 0.4nm and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.</p>	<p>11200</p>
<p><b>FR-pRo-NIR-N2 (900-1050nm)</b></p>	<p>FR-pRo tool operating in the 900-1050nm spectral range equipped with: A) Tungsten Halogen light source and shutter, and fully software controlled. Miniaturized Spectrometer in the 900nm – 1050nm spectral range with 3648 pixels CCD array, optical resolution 0.2nm and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software</p>	<p>14000</p>
<p><b>FR-ES-NIR (900-1700nm)</b></p>	<p>FR-EntrySystem tool operating in the 900-1700nm spectral range equipped with: A) Tungsten Halogen light source without shutter. Miniaturized Spectrometer with 512 pixels InGaAs array 16 bit A/D electronics. Optical connectors SMA 90565, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.</p>	<p>15000</p>
<p><b>FR-pRo-NIR-E (950-1650nm)</b></p>	<p>FR-pRo tool operating in the 950-00nm spectral range equipped with: A) Tungsten Halogen light source with shutter and fully software controlled. Miniaturized Spectrometer with 256 pixels InGaAs CCD Array and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.</p>	<p>14000</p>
<p><b>FR-pRo-NIR-HR1 (900-2100nm)</b></p>	<p>FR-pRo tool operating in the 900-2100nm spectral range equipped with: A) Tungsten Halogen light source with shutter, and fully software controlled. Miniaturized Spectrometer with: Hamamatsu G9204-512 pixels InGaAs CCD (COOLED), 16 bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.</p>	<p>34000</p>
<p><b>FR-pRo NIR-N3 (1280-1350nm)</b></p>	<p>FR-pRo tool in narrow NIR spectral range equipped with: A) broadband sLED centered at 1310nm. Miniaturized Spectrometer in the 1280nm – 1350nm spectral range, Detector: Hamamatsu G9204-512, 512 pixels InGaAs linear array (COOLED), 16 bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software</p>	<p>25000</p>

<b>FR-pRo NIR-N4 (1520-1580nm)</b>	FR-pRo tool in narrow NIR spectral range equipped with: A) broadband SLED centered at 1550nm. Miniaturized Spectrometer in the 1520nm – 1580nm spectral range, Detector: Hamamatsu G9204-512, 512 pixels InGaAs linear array (COOLED), 16 bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.	25000
<b>FR-pRo D VIS/NIR N2 (380-1050nm)</b>	FR-pRo tool operating in the 380-1050nm spectral range equipped with: A) Tungsten Halogen light source, with shutter and fully computer controlled, Spectrometer 1: 380nm – 1025nm spectral range with 3648 pixels Si CCD Array, 16bit A/D electronics. Spectrometer 2: 900nm – 1050nm spectral range with 3648 pixels Si CCD Array, 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.	18000
<b>FR-pRo D UV/NIR N2 (200-1050nm)</b>	FR-pRo tool in UV/NIR spectral range covering the 200-1050nm range equipped with: A) Deuterium Tungsten Halogen light source, with shutter, fully computer controlled. Spectrometer-1 in 200nm – 1000nm spectral range with 3648 pixel Si CCD Array, and 16bit A/D electronics. Spectrometer-2 in 900nm – 1050nm spectral range, with 3648 pixel Si CCD Array. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.	19500
<b>FR-pRo D UV/NIR (200-1700nm)</b>	FR-pRo tool operating in the 200-1700nm spectral range equipped with: A) Deuterium Tungsten Halogen light source, with shutter and fully computer controlled, Spectrometer 1: 200nm – 1025nm spectral range with 3648 pixels Si CCD Array, 16bit A/D electronics. Spectrometer 2: 900nm – 1700nm spectral range, 512pixels InGaAs Hamamatsu linear array, 16 bit A/D resolution. Optical connectors SMA 905, Electrical connectors USB, power. B) Reference Samples C) FR-Monitor software.	23700
<b>FR-pRo-D VIS/NIR (370-1700nm)</b>	FR-pRo tool in the 370-1700nm spectral range equipped with: A) Tungsten Halogen light source, shutter and fully computer controlled. Spectrometer 1: 370nm – 1020nm spectral range with 3648 pixels Si CCD Array, and 16bit A/D electronics. Spectrometer2: 900nm – 1700nm spectral range, 512 pixels InGaAs array 16 bit A/D electronics. Optical connectors SMA 905,	22500
<b>FR-Scanner AllInOne VIS/NIR (370-1020nm)</b>	FR- tool in 370-1020nm spectral range equipped with: A) Tungsten Halogen light source with motorized shutter and fully software controlled. Miniaturized Spectrometer with 3648 pixels CCD, and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) RØ computer-controlled stage with linear travel of 150mm C) FR-pRo-FilmThicknessKit D) Reference wafers E) FR-Monitor software. Chuck is not included	26000

<b>FR-Scanner AllInOne UV/VIS (200-850nm)</b>	FR- tool in 200-850nm spectral range equipped with: A) Deuterium-Tungsten Halogen light source with motorized shutter and fully software controlled. Miniaturized Spectrometer with 3648 pixels CCD, and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) RØ computer-controlled stage with linear travel of 150mm C) FR-pRo-FilmThicknessKit D) Reference wafers E) FR-Monitor software. Chuck is not included	27300
<b>FR-Scanner AllInOne UV/NIR-EXT (200-1000nm)</b>	FR- tool in 200-850nm spectral range equipped with: A) Deuterium-Tungsten Halogen light source with motorized shutter and fully software controlled. Miniaturized Spectrometer with 3648 pixels CCD, and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) RØ computer-controlled stage with linear travel of 150mm C) FR-pRo-FilmThicknessKit D) Reference wafers E) FR-Monitor software. Chuck is not included	27700
<b>FR-Scanner AllInOne UV/NIR-HR (190-1100nm)</b>	FR- tool in 190-1100nm spectral range equipped with: A) Deuterium-Tungsten Halogen light source with motorized shutter and fully software controlled. Miniaturized Spectrometer with 3648 pixels CCD, and 14bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) RØ computer-controlled stage with linear travel of 150mm C) FR-pRo-FilmThicknessKit D) Reference wafers E) FR-Monitor software. Chuck is not included	30000
<b>FR-Scanner AllInOne NIR-N1 (850-1050nm)</b>	FR- tool in 850-1050nm spectral range equipped with: A) Tungsten Halogen light source with motorized shutter and fully software controlled. Miniaturized Spectrometer with 3648 pixels CCD, and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) RØ computer-controlled stage with linear travel of 150mm C) FR-pRo-FilmThicknessKit D) Reference wafers E) FR-Monitor software. Chuck is not included	26700
<b>FR-Scanner XY-200 AllInOne VIS/NIR (370-1020nm)</b>	FR- tool in 370-1020nm spectral range equipped with: A) Tungsten Halogen light source with motorized shutter and fully software controlled. Miniaturized Spectrometer with 3648 pixels CCD, and 16bit A/D electronics. Optical connectors SMA 905, Electrical connectors USB, power. B) XY computer-controlled stage with linear travel of 200mm/axis C) FR-pRo-FilmThicknessKit D) Reference wafers E) FR-Monitor software. Chuck is not included	32000
<b>FR-pRo-FilmThicknessKit</b>	Film Thickness measurements kit for all FR-pRo (not FR-pRo D). It includes: A) Probe Holder with accurate manual Z-axis adjustment B) 0.6m Reflection Probe for the working spectra range of FR-tool	1400
<b>FR-pRo-FilmThicknessKit-Long</b>	Film Thickness measurements kit for FR-pRo pRo (not FR-pRo D). It includes: A) Probe Holder with manual Z-axis adjustment B) 1.3m Long Reflection Probe for the working spectra range of FR-tool	1500

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<b>FR-pRo-FilmThicknessKit (D UV/VIS/NIR)</b>	Film Thickness measurement kit for all FR-pRo-D units equipped with two spectrometers. It includes: A) Probe Holder with accurate manual Z-axis adjustment B) Reflection Probe UV/VIS/NIR (17 illumination fibers, 2 read fibers in separate legs, 200 μm Broadband fiber, SMA connectors.	2200
<b>FR-pRo-FilmThicknessKit-XSR</b>	Film Thickness measurements kit for FR-pRo UV configurations: A) Probe Holder with accurate manual Z-axis adjustment B) Extra Solarized Reflection Probe	1700
<b>Spect-TCP/IR-VIS/NIR</b>	Miniaturized spectrometer – Ocean FX Spectral range: 380-1000nm, 25um slit, 1.4nm, Thickness: 50nm-30um. License included	7400
<b>FR-Scanner with Cassette Loader</b>	FR-Scanner with Cassette Loader	200000

## Fibers & Probes

Product	Description	List Price, €
<b>F-50µm-2m-VIS/NIR</b>	Optical Fiber with 50µm core and 2m Length. Spectral range 400-2100nm	260
<b>F-200µm-1m-UV</b>	Solarized optical Fiber with 200µm core and 1.0m Length. Spectral range 200-1100nm.	270
<b>F-200µm-1m-VIS/NIR</b>	Optical Fiber with 200µm core and 1.0m Length. Spectral range 400-2100nm.	270
<b>FB-200µm-5m-UV/NIR</b>	Solarized bifurcated Fiber with 200µm core and 5m Length. Spectral range 190-2100nm	950
<b>FB-200µm-5m-VIS/NIR</b>	Bifurcated Fiber with 200µm core and 5m Length. Spectral range 400-2100nm	850
<b>F-600µm-1m-UV</b>	Solarized optical Fiber with 600µm core and 1m Length. Spectral range 200-1100nm	300
<b>F-600µm-1m-VIS/NIR</b>	Optical Fiber with 600µm core and 1m Length. Spectral range 400-2100nm	300
<b>F-600µm-3m-VIS/NIR</b>	Optical Fiber with 600µm core and 1m Length. Spectral range 400-2100nm	540
<b>FB-400µm-2m-UV/NIR</b>	Solarized bifurcated Fiber with 400µm core and 2m Length. Spectral range 200-2100nm.	750
<b>FB-400µm-2m-VIS/NIR</b>	Bifurcated Fiber with 400µm core and 2.0m Length. Spectral range 400-2100nm.	700
<b>FB-600µm-3m-VIS/NIR</b>	Bifurcated Fiber with 600µm core and 3m Length. Spectral range 400-2100nm.	1200
<b>R 50µm-2.0m-VIS/NIR</b>	Reflectance probe (Illum 6x50µm, Receiving fiber 1x50µm) 2.0m long. Spectral range 400-2100nm	950
<b>R 200µm-0.6m-UV</b>	Solarized reflectance probe (Illum 6x200µm, Receiving fiber 1x200µm) 0.6m long. Spectral range 200-1100nm	800
<b>R 200µm-1.0m-VIS/NIR</b>	Reflectance probe (Illum 6x200µm, Receiving fiber 1x200µm) 1.0m long. Spectral range 400-2100nm	800
<b>R 200µm-2.0m-UV</b>	Solarized reflectance probe (Illum 6x200µm, Receiving fiber 1x200µm) 2.0m long. Spectral range 200-1100nm	900
<b>R 200µm-2.0m-VIS/NIR</b>	Reflectance probe (Illum 6x200µm, Receiving fiber 1x200µm) 2.0m long. Spectral range 400-2100nm	900

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<b>R 200<math>\mu</math>m-5.0m-VIS/NIR</b>	Reflectance probe (Illum 6x200 $\mu$ m, Receiving fiber 1x200 $\mu$ m) 5.0m long. Spectral range 400-2100nm	1300
<b>R 200<math>\mu</math>m-10.0m-VIS/NIR</b>	Reflectance probe (Illum 6x200 $\mu$ m, Receiving fiber 1x200 $\mu$ m) 10.0m long. Spectral range 400-2100nm	1500
<b>R 200<math>\mu</math>m-20.0m-VIS</b>	Reflectance probe (Illum 6x200 $\mu$ m, Receiving fiber 1x200 $\mu$ m) 20.0m long (30cm legs). Spectral range 400-2100nm	3600
<b>R200<math>\mu</math>m-3.0-UV/VIS/NIR</b>	3-m long Reflection Probe UV/VIS/NIR (17 illumination fibers, 2 read fibers in separate legs, 200 $\mu$ m Broadband fiber, SMA connectors)	2300
<b>R (D) 200<math>\mu</math>m-2.0m-UV/VIS/NIR</b>	Reflectance probe (Illum 17x200 $\mu$ m, Receiving fiber 2x200 $\mu$ m) 2.0m long. Spectral range 200-1700nm	1700



## Microscope modules

Product	Description	List Price, €
<b>FR-uProbe</b>	It is mounted on any trinocular optical microscope with C-mount port. It includes a) the part to be mounted on the microscope. The spot size is defined by the aperture embedded in the module and the objective lens of the microscope. b) spectrometer with 3648 pixels Si CCD, 16bit A/D electronics c) optical fiber. The module comes with high resolution USB camera for inspection of the area of characterization. The microscope's light source is used as illumination source. d) FR-Monitor software e) Reference Samples.	10500
<b>FR-Mic</b>	Microscope column operating in a wide spectral range. It comes with high resolution USB camera for inspection of the area of characterization. For operation, the module should connect to FR-pRo the spectral range of which defines the spectral range of the microscope. Turret & objective lens are not included.	6000
<b>FR-Mic w/o Mount Rod</b>	Microscope column with USB camera. For operation, the module should connect to FR-pRo the spectral range of which defines the spectral range of the microscope. Mounting rod, Z-axis, turret & objective lens(es) are not included.	5500
<b>FR-Mic-Adaptor</b>	Module for mounting on any trinocular optical microscope with C-mount port. The spot size is defined by the aperture embedded in the module and the objective lens of the microscope. It comes with high resolution USB camera for inspection of the area of characterization and optical fiber for the connection with FR-pRo. The microscope's light source (50W halogen min) is used as illumination source.	4300
<b>Autofocus module</b>	Autofocus module for FR-Mic module (controller and related software are included)	5000

## Stages

Product	Description	List Price, €
<b>XY-M100 Stage</b>	Manual X-Y stage for positioning measurements over an area of 100mm x 100mm	1200
<b>XY-M200 Stage</b>	Manual X-Y stage for positioning measurements over an area of 200mm x 200mm.	2500
<b>XY-M-500x400 Stage</b>	Manual stage to accommodate glass samples with holder to mount FR-pOrtable	18000
<b>Rθ-M150 stage</b>	Manual R-Theta stage with 150mm liner travel capable to measure at any point of wafers up to 300mm in diameter	4800
<b>X-A100 Stage</b>	Single motorized axis for automated line measurements. Travel 100mm. Controller included.	4800
<b>XY-A100 Stage</b>	X-Y-Scanning module for automated surface or multiple points scanning at Cartesian and/or Polar (emulation) coordinates. XY travel range: 100X100mm -4"x4", Absolute Position accuracy: 5um/100mm travel, Movement resolution: 2.5um	13000
<b>XY-A200 Stage</b>	X-Y-Scanning module for automated surface or multiple points scanning at Cartesian and/or Polar (emulation) coordinates. XY travel range: 200X200mm -4"x4", Absolute Position accuracy: 5um/200mm travel, Movement resolution: 2.5um	26000
<b>XY-A400 Stage</b>	Computer Controlled XY stage with 400mm travel in each axis	32000
<b>XY-A-500x400 Stage</b>	Computer-controlled stage to accommodate glass samples with holder to mount FR-pOrtable. Software upgrade is included	35000
<b>Rθ-A150 stage</b>	R-θ Scanning module for automated mapping of coatings on wafers at polar (R-θ) coordinates. All wafers with standard dimensions up to 12-inch diameter are supported. Accuracy in R-axis 5μm & θ angle < 0.1o. Scanning Speed >300 measurements/min. The wafer is hold down through vacuum. Chuck is NOT included.	17000
<b>Rθ-A200 stage</b>	R-θ Scanning module for automated mapping of coatings on wafers at polar (R-θ) coordinates. All wafers with standard dimensions up to 200mm in diameter are supported. Accuracy in R-axis 5μm & θ angle < 0.1o. Scanning Speed >200 measurements/min. The wafer is hold down through vacuum. Chuck is NOT included.	21500
<b>Rθ-A300-HW stage</b>	R-θ Scanning module for automated mapping of coatings on wafers at polar (R-θ) coordinates. For samples up to 600mm in diameter. Max Weight 30Kg. It should be connected with FR-pRo tool. Chuck is included.	48000

## Lenses & Filters

Product	Description	List Price, €
<b>5X VIS Lens</b>	5X VIS long working distance objective lens	800
<b>10X VIS Lens</b>	10X VIS long working distance objective lens	1400
<b>20X VIS Lens</b>	20X VIS long working distance objective lens	2000
<b>50X VIS lens</b>	50X VIS long working distance objective lens	3000
<b>10X UV/NIR Lens</b>	Infinite conjugate UV/NIR 10X Reflective Objective lens	2400
<b>15X UV/NIR Lens</b>	Infinite Conjugate, UV Coated, 15X UV/NIR Reflective Objective lens	2600
<b>20X UV/NIR Lens</b>	Infinite Conjugate, UV Coated, 20X Reflective Objective lens	2900
<b>25X UV/NIR Lens</b>	Infinite conjugate UV/NIR 25X Reflective Objective lens	2900
<b>40X UV/NIR lens</b>	Infinite conjugate UV/NIR 40X Reflective Objective lens	3400
<b>5X VIS/NIR-HE Lens</b>	5X Plan Apo NIR Infinity Corrected Objective lens	2500
<b>10X VIS/NIR-HE Lens</b>	10X Plan Apo NIR Infinity Corrected Objective	2800
<b>20X VIS/NIR-HE Lens</b>	20X Plan Apo NIR Infinity Corrected Objective lens	4800
<b>50X VIS/NIR-HE Lens</b>	50X Plan Apo NIR Infinity Corrected Objective lens	6000
<b>Turret</b>	4-positions Turret for use with FR-Mic modules	800
<b>1-in Lens / EFL f=30mm</b>	1-inch Lens with EFL f=30mm	180
<b>Kinematic mount /1-in lens assembly</b>	Kinematic mount for 1-inch lens assembly	150
<b>F-UV lens</b>	Focusing module for the UV range.	1000

## Chucks for stages

Product	Description	List Price, €
<b>Chuck-4inch</b>	Vacuum chuck for 4inch wafers. For use with Rθ-stage	630
<b>Chuck-6inch</b>	Vacuum chuck for 6inch wafers. For use with Rθ-stage	730
<b>Chuck-200mm</b>	Vacuum chuck for 200mm wafers. For use with Rθ-stage	950
<b>Chuck-300mm</b>	Vacuum chuck for 300mm wafers. For use with Rθ-stage	1100
<b>Chuck-340mm</b>	Vacuum Chuck for 340mm wafers. For use with Rθ-200 stage	2200
<b>Chuck-340mm-6inch</b>	Vacuum Chuck for 340mm and 6inch wafers. For use with Rθ-200 stage	2700
<b>Chuck-Mask</b>	Vacuum Chuck for 6inch mask plates with 4-positions for Si reference dies. Si dies are included. For use with Rθ-stage	1800
<b>Chuck XY100</b>	Vacuum chuck for 4inch wafers and pieces for arbitrary size. For use with XY stages	750
<b>Chuck Multiwafer</b>	Vacuum Chuck to accommodate standard wafers with diameter: 4in & 6in & 8in	1700

## Accessories

Product	Description	List Price, €
<b>FR-ES shutter</b>	Software controlled motorized shutter for FR-ES	600
<b>FR-90-H</b>	Module for reflectance measurements at 90°, e.g. inside cans. It is mounted on the reflection probe (not included)	600
<b>CLS-UV/VIS/NIR</b>	Light Source for the calibration of the spectrometers in UV/VIS/NIR	900
<b>FR-pOrtable-Transmission</b>	A module for transmission measurements of coatings with FR-pOrtable	1300
<b>FR-pOrtable-XY-M55</b>	Stage for manual X-Y positioning of the reflection probe over an area of 66mm x 55mm	1100
<b>FR-pOrtable-XY-M100</b>	Stage for manual X-Y positioning of the reflection probe over an area of 100mm x 100mm.	1300
<b>FR-pOrtable-P-M200</b>	XY manual platform with 300X200mm traveling distance.	2700
<b>ContactProbe-ST</b>	Standard Contact Probe assembly for use on flat or curved samples. It is equipped with soft O-rings not to damage the surface under characterization. For use with any FR-pRo tool. Optical fiber is not included.	550
<b>Focusing Module</b>	Focusing module mounted on the reflection probe and allows for smaller spot size, and/or larger measurement distance e.g. through a chamber. For FR-pRo only	850
<b>FR-pRo-FH</b>	Filter holder that is placed on the emission port of the FR-pRo. It can accommodate 12.5mm diameter filters. Filter is not included	300
<b>FR-InvSampleHolder</b>	A module that is mounted on the reflection probe and allows the placement of the reflection probe below the sample under characterization that is placed up-side down.	100
<b>FR-SamCam</b>	USB camera for FR-pRo units	380
<b>FR-pRo Stage control</b>	Support for future upgrade of FR-pRo with motorized stage	500
<b>IntSphere Module</b>	Module for Total/Diffuse & Specular reflectance measurements in visible range that include: a) A 50mm Integrating sphere and holder, b) 2 optical fibers, c) a 300mm x 200mm footprint optical bench for assembly of optical components.	6000

<b>FR-Transmittance kit</b>	A Kit for transmittance measurements with FR-pRo tools. It includes a holder for Absorbance/Transmittance measurements of a) solid films or solid material up to 10mm thick and b) liquid samples in rectangular cuvettes with 10mm path length (3.5ml volume) and 2X Optical Fibers for connection with FR-pRo tool.	2000
<b>Transmittance stage</b>	Stage for transmittance measurements. Fibers are not included. It requires FR-pRo.	1100
<b>Cuv Holder 2W-1</b>	Cuvette holder for absorbance / transmittance measurements for cuvettes with 1cm path length. Two SMA-905 optical connections are available.	650
<b>Cuv Holder 2W-10</b>	Cuvette holder for absorbance/transmittance measurements for 10cm path length cuvette. Two SMA905 optical connections are available.	1100
<b>Cuv Holder 4W</b>	Cuvette holder for absorbance, transmittance and fluorescence measurements for cuvettes with 1cm path length. Four SMA905 optical connections are available.	1100
<b>Absorbance &amp; Fluorescence holder</b>	The holder can accommodate standard 10mm pathlength cuvettes. It is equipped with a mirror for enhanced fluorescence signal, three SMA ports for standard absorbance & fluorescence measurements and built-in cover to block ambient light and two filter holders that accept both 12.5- and 25-mm diameter filters.	1100
<b>Film/Cuv Holder</b>	Holder that supports a) Absorbance/Transmittance measurements of solid films or solid material up to 10mm thick and b) liquid samples in rectangular cuvettes with 1cm path length (3.5ml volume).	1100
<b>Liquid-E Module</b>	Teflon cell for measurements in liquids with optical window (quartz). Sample holder for insertion of the sample into the liquid capable to handle up to 30mm x 30mm samples. Ports for circulation pump. Operation through FR-Monitor. Optical probe and Pump are not included.	2700
<b>Gas Chamber Module</b>	Aluminum Gas Chamber with effective diameter 3–6inch range, with transparent UV measurement window. Comes with holder and Gas inlet/outlet connections. It requires FR-pRo	2000
<b>FR-Thermal</b>	Computer controlled hot plate with effective diameter in the 3– 6in range (customer's specifications) operating in the room temperature - 200oC range. Temperature controller (0.2 °C accuracy) with programming capabilities of thermal cycles and heating parameters, operated through FR-pRo (not included) and FR-Monitor	4600

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<b>FR-Hot/Cool</b>	Computer Controlled Hot/Cool plate with effective size: 50x50mm operating in the 6-110°C temperature range. Temperature controller (0.2 °C accuracy) with programming capabilities of thermal cycles and heating/cooling parameters, operated through FR-Monitor	9500
<b>Mfluidic Kit</b>	Complete kit for real-time monitoring of bioreactions. It consists of: a) A docking station to accommodate Si chips of certain dimensions and equipped with stainless steel tubing for the connection with micropumps for the circulation of the liquids of interest. B) Set of a) 20-Si dies for reference b) 70 SiO <sub>2</sub> /Si dies with 1000nm SiO <sub>2</sub> thickness and c)60 microfluidic cells.	3500
<b>FR-pRo D R/T/C (190-1700nm)</b>	FR-pRo module for simultaneous Reflectance and Transmittance measurements of coatings and colour characterization. It requires FR-pRo.	16000
<b>FR-pRo R/T/C (370-1020nm)</b>	FR-pRo module for simultaneous Reflectance and Transmittance measurements of coatings and colour characterization. It requires FR-pRo.	10000
<b>OptMic-ES</b>	Trinocular Upright Reflectance Optical microscope equipped with Objective lenses: 5x, 10x, 20x, 40x and Lamp 50W. Stage travel 63x50mm	3200
<b>OptMic-200</b>	Trinocular Upright Reflectance Optical microscope equipped with Objective lenses: 5x, 10x, 20x, 40x and Lamp 50W. Stage travel 200x200mm	4200
<b>PC All-In-One</b>	AllInOne PC with minimum specs: i7 processor, 8GB RAM, 512GB SSD, 23in monitor	2000
<b>6inch NIST wafer</b>	NIST film thickness standard. Available thicknesses: SiO <sub>2</sub> (100nm, 200nm, 400nm, 675nm, 1010nm) Si <sub>3</sub> N <sub>4</sub> (90nm, 120nm, 200nm)	4600
<b>8inch NIST wafer</b>	NIST film thickness standard. Available thicknesses: SiO <sub>2</sub> (100nm, 200nm, 400nm, 675nm, 1010nm) Si <sub>3</sub> N <sub>4</sub> (90nm, 120nm, 200nm)	5700
<b>Annual Warranty FR-pRo</b>	Annual Warranty for FR-pRo units (lamps and fibers due to wrong usage are not included). Shipment costs are not included	500
<b>API</b>	Standard API. It supports communication with FR-pRo units, spectrometers, acquisition of spectra, Storing of spectra in txt and csv format, Film thickness measurement, Materials database, etc. License for virtual spectrometer is included.	5000
<b>API License</b>	Standard API license. It supports one FR-pRo tool (S/N is needed)	3000
<b>Characterization</b>	Optical characterization of thin films (service)	300

## Freight & Training

Product	Description	List Price, €
<b>FR-pRo Freight to Europe</b>	Freight costs at any point within Europe (DAP) with TNT. Insurance is included	400
<b>FR-pRo Freight to Hong Kong and China</b>	Freight costs to HK for FR-pRo (include expenses at Greek customs, transportation to Dymek labs at HK by TNT and insurance). Expenses, if any, at HK customs are not included.	500
<b>FR-pRo Freight to Singapore</b>	Freight costs to Singapore (include expenses at Greek customs, transportation to Dymek labs at Singapore by TNT and insurance). Expenses, if any, at Singapore customs are not included	500
<b>Training (Asia)</b>	2-days on-site training (accommodation and traveling costs are included)	4300
<b>Training (Europe)</b>	1-day on-site training (accommodation and traveling costs are included)	2600



## Spare Parts

Product	Description	List Price, €
<b>Biochip kit -1</b>	Set of a) 20-Si dies for reference b) 70 SiO <sub>2</sub> /Si dies with 1000nm SiO <sub>2</sub> thickness and c) 60 microfluidic cells for use with Mfluidic Kit. Chips and microfluidic cells have 15x5mm footprint	1100
<b>Biochip kit -2</b>	Set of a) 70 SiO <sub>2</sub> /Si dies with 1000nm SiO <sub>2</sub> thickness and b) 60 microfluidic cells for use with Mfluidic Kit and c) two stainless cannulas. Chips and microfluidic cells have 15x5mm footprint	1100
<b>Cuvette-1cm-2W</b>	Standard Quartz cuvette with 1cm optical length and 2 polished windows, 3.5mL volume.	150
<b>Cuvette-1cm-4W</b>	Quartz cuvette with 1cm optical length and 4 polished windows, 3.5ml volume	260
<b>Tungsten bulb</b>	Replacement bulb for VIS/NIR FR-pRo tools. LifeTime 10000h	120
<b>Deuterium lamp</b>	Spare Deuterium lamp	550
<b>UV/NIR Light Source</b>	Pre-assembled and pre-aligned light source for UV/NIR FR tools, for easy installation (2 screws support). The used light source should be returned. LifeTime 2000h for the deuterium lamp	1100
<b>FR-pOrtable light source</b>	VIS/NIR light source for FR-pOrtable. Lifetime 20000h. The tool should be returned to our labs for light source installation. Shipment costs are not included.	500
<b>FR-Liquid Slider</b>	Spare slider (sample holder) for FR-Liquid	300
<b>FR-Calibration samples</b>	Set of reference samples It consists of a) a Si reflectance standard, b) a calibrated characterized area of SiO <sub>2</sub> /Si and c) a calibrated characterized area of Si <sub>3</sub> N <sub>4</sub> /SiO <sub>2</sub> /Si.	350
<b>RTRM-1</b>	Reference Target for Reflectance Measurement from Si, Size 8700x9700x525microns.	60
<b>ThSt-1000</b>	Secondary NIST film (SiO <sub>2</sub> ) thickness standard with size 10x10x0.525mm. Nominal SiO <sub>2</sub> thickness 1000nm. The actual SiO <sub>2</sub> thickness is measured against a NIST thickness standard. Should be ordered in batches of 10.	300
<b>Secondary NIST film thickness standard (piece)</b>	Secondary NIST film (SiO <sub>2</sub> ) thickness standards with size 20X20mm. The SiO <sub>2</sub> thickness is measured against a NIST thickness standard	330
<b>Secondary NIST film thickness standard (wafer)</b>	Secondary NIST film (SiO <sub>2</sub> ) thickness standard on 4inch Si wafer. The SiO <sub>2</sub> thickness is measured against a NIST thickness standard	650

## ThetaMetrisis Price List

<b>BK7 reflectance standard</b>	BK7 reflectance standard, diameter 39mm thickness 3mm with back-side absorber	100
<b>Spectrometer Calibration</b>	Wavelength Calibration of the spectrometer embedded in the FR-tool. Shipment costs are not included.	400
<b>Probe Holder</b>	Super Structure with manual movement, for precise positioning (Z-axis) of the reflectance probe over the measurement area.	750
<b>Lubrication set</b>	Set of lubricants for the stage	120