



OUTSTANDING SPECTRAL MEASUREMENTS OF OPTICAL COATINGS

PHOTON RT

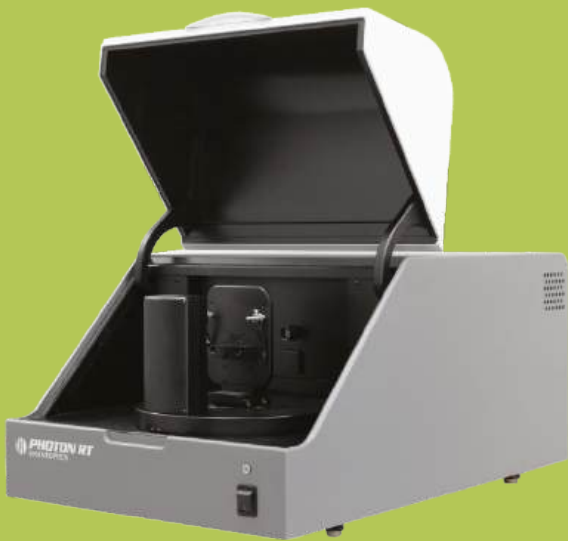
UV-VIS-MWIR SPECTRAL MEASUREMENTS OF PLANO OPTICS AND PRISMS



PHOTON RT

THE ONLY INSTRUMENT DESIGNED SPECIFICALLY TO TEST OPTICAL COATINGS

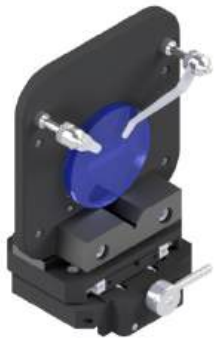
UNIQUE DESIGN



- ➔ Unique optical design – measurement from 185 nm up to 5200 nm in one instrument
- ➔ Multi-axis movement of the measurement channel – testing of sophisticated cemented prisms at any angles of incidence with variable off-set or arbitrary direction of the outgoing beam
- ➔ Special low-noise detectors are selected to qualify coatings with extreme specifications
- ➔ Optional sample stages designed for fast, complex or batch measurements
- ➔ Improved monochromator generates a highly collimated beam, produces low stray light and gives a high signal-to-noise ratio

AUTO-DETECT MOTORIZED STAGES

Z STAGE



Offers baseline calibration and subsequent test without user intervention

XY-MZF STAGE. MOTORIZED



Designed for testing a sample at multiple surface points

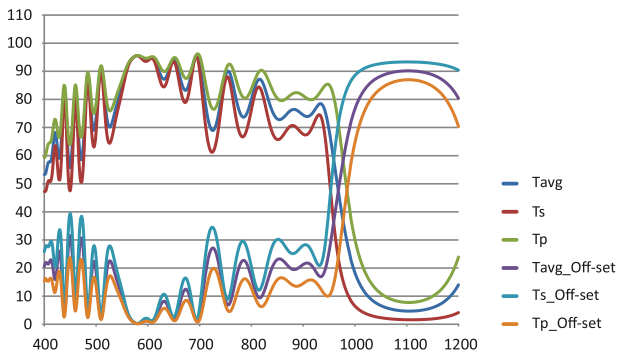
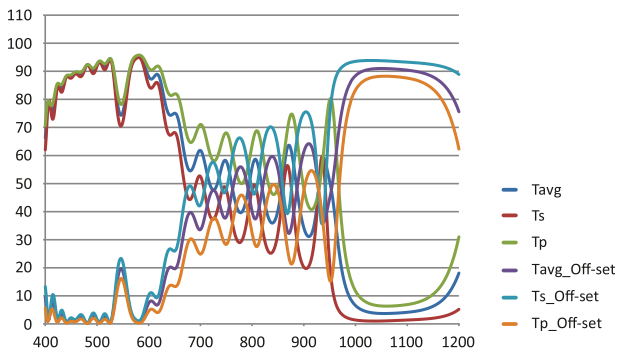
MULTIPLE SAMPLE STAGE



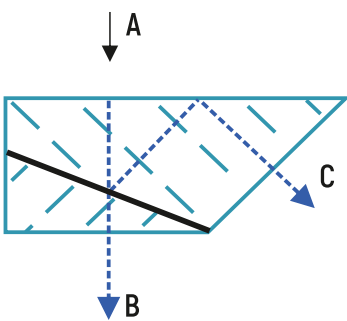
Designed for fully automatic testing of multiple samples including baseline calibration

UNIQUE RESULTS*

MEASUREMENT OF COMPLEX PRISMS WITH BEAM OFFSET



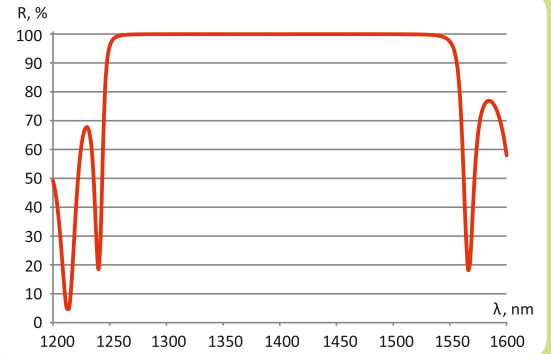
CEMENTED PRISM WITH BEAM OFF-SET



Measurement of beams B and C in one run without moving the sample

*The example results shown are ONLY obtainable by using the PHOTON RT

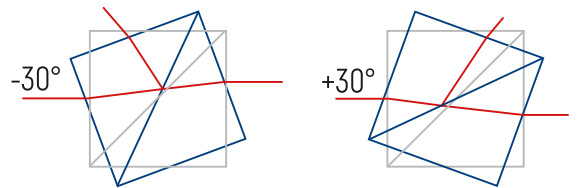
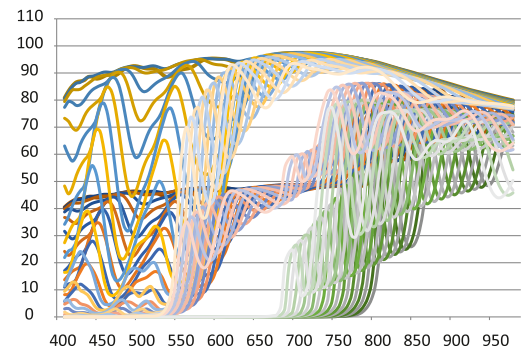
1392 nm BROADBAND NEAR IR LASER MIRROR



Max measured absolute specular reflectance:

99,9953%

BEAM SPLITTER MEASUREMENTS AT VARIABLE AOI



Designed specifically for optics used in AR and VR devices

SPECIFICATIONS

| PHOTON RT Spectrophotometer. Product Configuration | | | |
|---|--|-------------------------|--------------------------------|
| MODEL | 0217 | 0226 | 0252 |
| OPTICAL CONFIGURATION | | | |
| Photometric functions | %T, %R | | |
| Effective wavelength range, nm | 185 - 1700 | 185 - 2600 | 185 - 5200 |
| Built-in polarizer, nm | 220 - 1700 | 220 - 2600 | 220 - 5200 |
| Optical scheme of monochromator | Czerny-Turner | | |
| Optics | Mirror, MgF ₂ | | |
| Reference channel | Yes | | |
| Wavelength sampling pitch, nm | 0,1 - 100 | | |
| Spot size on the measured sample, mm | 6 x 2 → 2 x 2 | | |
| Turning pitch angle of sample stage | 0,01 deg | | |
| Turning pitch angle of photodetectors | 0,01 deg | | |
| Beam displacement compensation | - 60,0 mm ... 0 ... + 60,0 mm (actual value depends on detector position) | | |
| Variable angle measurements | 1. 0 - 75 deg for transmittance (up to 85 deg with 7085 sample stage) 2. 8 - 75 deg for absolute reflectance (up to 85 deg with 7085 sample stage) 3. Detector rotation range: 300 deg ... 180 deg ... 16 deg 4. Sample stage rotation range: - 85 deg ... 0 deg ... + 85 deg | | |
| Wavelength subranges, nm | Ultimate spectral resolution, nm (non-polarized light) | Wavelength accuracy, nm | Wavelength repeat accuracy, nm |
| 185 - 990 nm | 0,6 | +/- 0,5 | +/- 0,25 |
| 990 - 1700 / 2450 / 2600 nm | 1,2 | +/- 1,0 | +/- 0,5 |
| 2450 - 5200 nm | N/A | N/A | +/- 2,0 |
| Stray light level, % at 532 nm | < 0,1 | | |
| Angle of beam divergence | +/- 1 deg | | |
| Photometric accuracy | (VIS) NIST SRM 930e: +/- 0,003 Abs (1 Abs) NIST SRM 1930: +/- 0,003 Abs (0,33 Abs); +/- 0,006 Abs (2 Abs) (MWIR) NRC NG11 SRM: +/- 0,0013 Abs (0,13 Abs); +/- 0,0053 Abs (0,49 Abs); +/- 0,0011 Abs (0,82 Abs); +/- 0,005 Abs (1,0 Abs) Determined using 0,1 second accumulation, maximum deviation for 10 subsequent measurements | | |
| Photometric repeat accuracy | (VIS) NIST SRM 930e: +/- 0,0004 Abs (1 Abs) NIST SRM 1930: +/- 0,0001 Abs (0,33 Abs); +/- 0,005 Abs (2 Abs) (MWIR) NRC NG11 SRM: +/- 0,0003 Abs (0,13 Abs); +/- 0,0008 Abs (0,49 Abs); +/- 0,0022 Abs (0,82 Abs); +/- 0,0034 Abs (1,0 Abs) Determined using 0,1 second accumulation, maximum deviation for 10 subsequent measurements | | |
| Stability of baseline, %/hour (VIS range) | < 0,1 (one hour warm-up time) | | |
| Unattended polarization measurements with built-in polarizers | S, P (S + P) / 2 | | |
| Zero order / Green beam | Built-in, automatic | | |
| Light sources, preinstalled | 1. Deuterium lamp: 1 ea 2. Halogen lamp: 1 ea 3. IR source: 1 ea (model 0252) 4. HgAr wavelength calibration lamp: 1 ea | | |
| Light sources, spare | Halogen lamp: 2 ea (included with shipment). Other spare light sources can be ordered additionally | | |
| SAMPLE COMPARTMENT | | | |
| Dovetail baseplate for sample stages | Designed for mounting of motorized and non-motorized sample stages. Integrated controller ensures instant detection of the motorized stage | | |
| Planar sample stage | For measurement of transmission and reflection of planar samples with size bigger than 12,0 x 10,0 mm | | |
| Independent positioning | Independent computer controlled positioning of sample stage and photodetectors unit | | |
| Synchronized positioning | Synchronized computer controlled positioning of sample stage and photodetectors unit depending on the selected photometric function | | |
| Size of samples | Min. 12,0 x 10,0 mm - for measurement at 0 - 10 deg incidence angles Min. 12,0 x 25,0 mm - for measurement at 10 - 75 deg incidence angles Max. sample size: <ul style="list-style-type: none"> up to 152,4 mm (6") with closed lid for standard sample stage up to 140,0 mm (5 1/2") with closed lid for Z sample stage | | |
| Sample stage for PBS cubes | 50,0 x 50,0 x 50,0 mm sample stage with two additional cube holders 1" x 1" x 1" and 1/2" x 1/2" x 1/2" | | |
| Optional motorized and non-motorized sample stage | 1. MP Stage. Multiple sample measurement 2. XY Stage. XY sample mapping 3. XY-MZF Stage. Measurement of multi-zone filters and linear variable filters 4. Z Stage. Sequential baseline calibration and sample measurement without opening the lid 5. QW Stage. Testing of wave plates 6. R Stage. 360 deg rotation of the sample around the beam axis 7. 7085 Stage. Measurement at extreme angles of incidence up to 85 deg | | |
| INTERFACE, DIMENSIONS AND WEIGHT | | | |
| Interface | USB 2.0, Windows-based, English | | |
| File saving options | res (txt), xls, pdf, csv | | |
| Power consumption, Watt | 110 | | |
| Power input | 110-220 V (+/- 10%), 50-60 Hz | | |
| Width x Depth x Height, mm (inches) | 425 x 625 x 285 (16 3/4" x 24 2/3" x 10 1/5") | | |
| Net weight, kg (lbs) | 50 (110) | | |

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