# CT7 – coating monitor

The CT7 (**C**oating **T**est **7** wavelengths) is dedicated to monitoring of the coating's quality of the high grade optical surfaces of giant terrestrial telescopes.
CT7 measures the *specular* reflection and scattering index using seven wavelengths covering the range from UV to near IR.

## *Specification of the relectometer*

Seven bands from UV to IR chosen to be equidistant on the energy scale (table below).
Acceptance angle : 1.5°
Temperature unsensitive (<0.025%/°C)

## *Dust monitor*

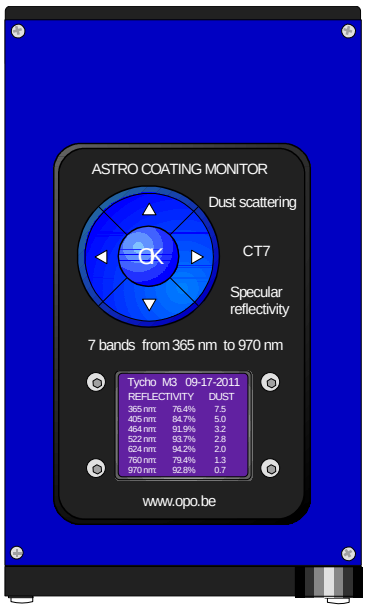
The CT7 may be equipped with a dust monitor. The latter measures the scattered light in the seven bands. It measures the integrated scattered light between 9° and 19°.

This measurement yields a fair approximation for the relative value of the TIS. The dust index indicates the quantity of dust (in relative surface) covering the mirror.

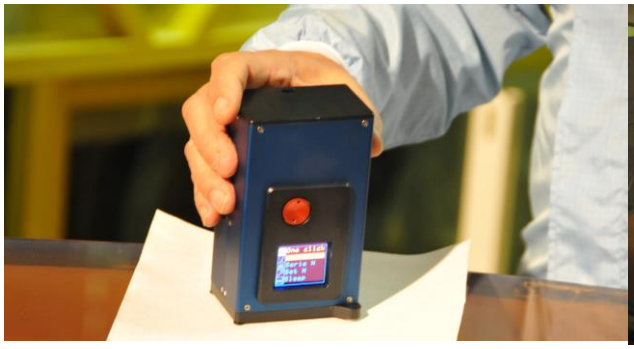
## *Operation*

CT7 is designed for one hand operation, what is revealed by it's small size of 80x 60x 120 mm and mass ~550 gr.

A safe and accurate contact with delicate mirrors is ensured by three point soft contact feet on optical cloth.
The internal memory keeps more than 400 measurements with time stamps and user's identifier.
Fully featured operator's interface software runs on PC and uses USB for CT7 connection.
Batteries are charged when CT7 is connected to the USB port of the PC.




| Accuracy of reflectivity is given for reflectivity>50% | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Wavelength [nm]** | **365** | **405** | **464** | **522** | **624** | **760** | **970** |
| **Bandwidth [nm]** | 10 | 15 | 25 | 30 | 30 | 40 | 50 |
| **Absolute accuracy*** | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.5% |
| **Repeatability** | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.025% |
| *Absolute accuracy obtained using the VW jig for calibrating the gauge. | | | | | | | |



# Other Instruments

### *Roughness meter*

This instrument measures the reflectivity of the sample at grazing incidence utilizing the seven wavelength bands of CT7. It is based on the same principle of digital lock-in detection, inheriting of the extreme stability of this process.
The instrument yields the roughness of surfaces in the range of 1 µm up to 500 µm.
It has the same general structure and ease of use than the CT7.

### *Scatterometer (scratches & digs)*

This is a version comprising only the scatterometer working at one wavelength band (usually white). It is specially fit to measure windshields and windows deterioration by exposure; scratches and digs on polished surfaces (glass, acrylic, metals …)

### *Solar Plant Mirror Meter*

*(Second surface reflectometer)*

This is a low cost simplified version of the CT7.
It is specially designed for helping the maintenance of solar furnace mirrors. It measures the total reflective efficiency of second surface mirrors as weighted by the solar power spectrum. This is achieved by utilizing one large wavelength band covering the visible spectrum. It also has the same general structure as CT7 and is specially fit for measuring cylindrical mirrors.

***Additional options:***

Wavelength band choice extension to 275 nm, 311 nm.

Strong's VW device for absolute recalibration of the instrument on site.

***Contacts***

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**The user's manual and PC operating software of CT7 are available free on:**
**www.a1pixel.pl/CT7/index.html**