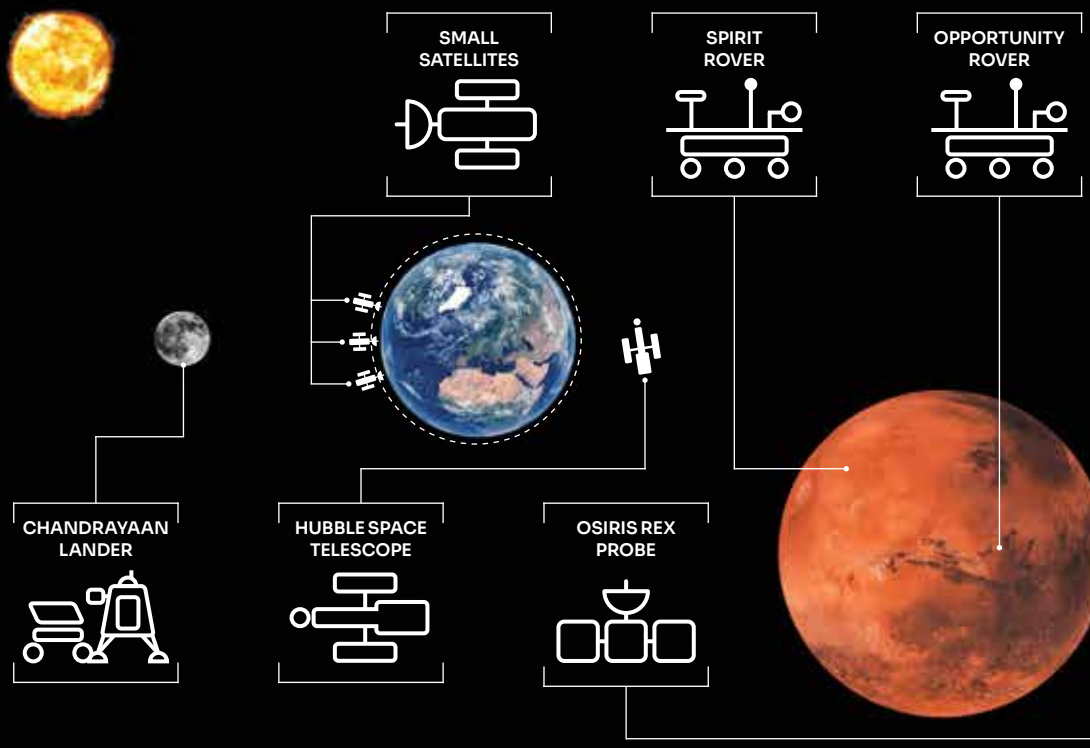
omega optical LIGHT MANAGED



APPLICATION

SPACE QUALIFIED OPTICAL COATINGS

With Components and Coatings Trusted by Leading Government And Private Space Ventures, We Offer Multiple TRL9 Products.

OMEGA OPTICAL DESIGNS AND MANUFACtures precision coated optical components for all Earth Orbits (VLEO, LEO, MEO, GEO, HEO), and incorporate radiation resistance and demisability into our material selection process. The journey to Space can be a harsh ride, and therefore our optical component and coating designs are specified to perform over a wide range of temperatures, shock and vibration robustness, and corrosion resistance. We are among the few companies who can claim multiple TRL9 optical coatings.

Our Products have been repeatedly selected by NASA, ESA, and Private Constellation operators based on our Design Heritage, Past Space-Performance, and attention-to-detail. We actively collaborate with our partners to ensure a robust design and optical performance work as well in Space as during Ground testing.

See the growing list of our space projects on the next page. ➔

ISO 9001:2015 CERTIFIED | ITAR REGISTERED | MADE IN THE USA

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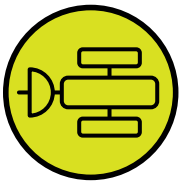
CHANDRAYAAN 3 MISSION

The Indian Space Research Organization (ISRO) and their contractors selected Omega Optical to provide a Linear Variable Filter (LVF) for instrumentation on the Vikram Lander. The Lander module successfully landed on the south pole of the moon 23 August 2023, and subsequently deployed the rover to explore the moon surface, including collection of spectroscopy information related to material composition of the Moon.

WE'VE BEEN EVERYWHERE

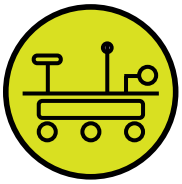
PROJECT	OPTICAL COATING	OPTICAL COMPONENT
NASA STARDUST SATELLITE	Optical Filters	Fused Silica Substrate
MARS SPIRIT ROVER	Optical Filters	Fused Silica Substrate
MARS OPPORTUNITY ROVER	Optical FIlters	Fused Silica Substrate
HUBBLE WFPC2	Optical Filters	Fused Silica Substrate
HUBBLE WFPC3	Optical Filters	Fused Silica Substrate
NASA OPALS	Optical Filters	Fused Silica Substrate
NASA PREFIRE	Optical Filters GRISM Coating on Silicon Prism Substrate	
CHANDRAYAAN-3 LUNAR LANDER	Linear Variable Filter	Fused Silica Substrate
ESA GIOTTO SPACECRAFT	Optical Filters	Fused Silica Substrate
ASTRONOMICAL TELESCOPES		Holographic Gratings, Ruled Gratings
NASA MARS PHOENIX	Gold Coatings	
BEAMSPLITTER FOR OSIRIS REX (OVIRS)	Beamsplitter Coating	
CROSS-TRACK INFRARED SOUNDER (CRIS)	Beamsplitter Coating	
PRIVATE CONSTELLATION A		Diamond Turned Mirrors, Fast Steering Mirrors
PRIVATE CONSTELLATION B	Narrowband filters, Mirrors	Fused Silica
PRIVATE CONSTELLATION C	LVF	Fused Silica

SMALL SATELLITES



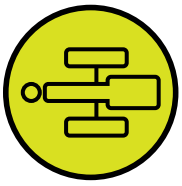
Omega Optical was an early supporter of public and private small satellite missions, both individual launches and modern constellations. Formats our optics have supported include nanosats, 3U, 6U, and 12U cubesats, along with others. Early use cases involved Visible to NIR (multispectral) Earth Observation from Low Earth Orbit (LEO), while more recent uses include NIR to MWIR hyperspectral imaging and laser communication.

SPIRIT & OPPORTUNITY ROVERS



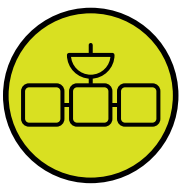
We remain in contact today with the NASA JPL team who selected Omega to support the Spirit and Opportunity Rovers. We're proud that our optics continued to operate over the (still) record of 45.16km which Opportunity covered on the Martian surface over 14 years.

HUBBLE SPACE TELESCOPE



Not only did our optical filters support both Wide Field Planetary Cameras 2 and 3 (WFC2, WFPC3), they survived the return trip to be displayed in WFPC2 at the Smithsonian National Air and Space Museum. As a reminder, WFPC2 brought us the beautiful Hourglass Nebula, Egg Nebula, and Deep Field Images. WFC3 remains in use on Hubble today since installation in 2009.

OSIRIS REX PROBE



Launched on in 2016 and returned to Earth in 2020, the OSIRIS REx spacecraft traveled to the near-Earth asteroid Bennu and returned with surface rock samples. Our coated beamsplitter was onboard the OVIRS instrument to review Bennu's spectral signature to detect organics and other minerals.

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