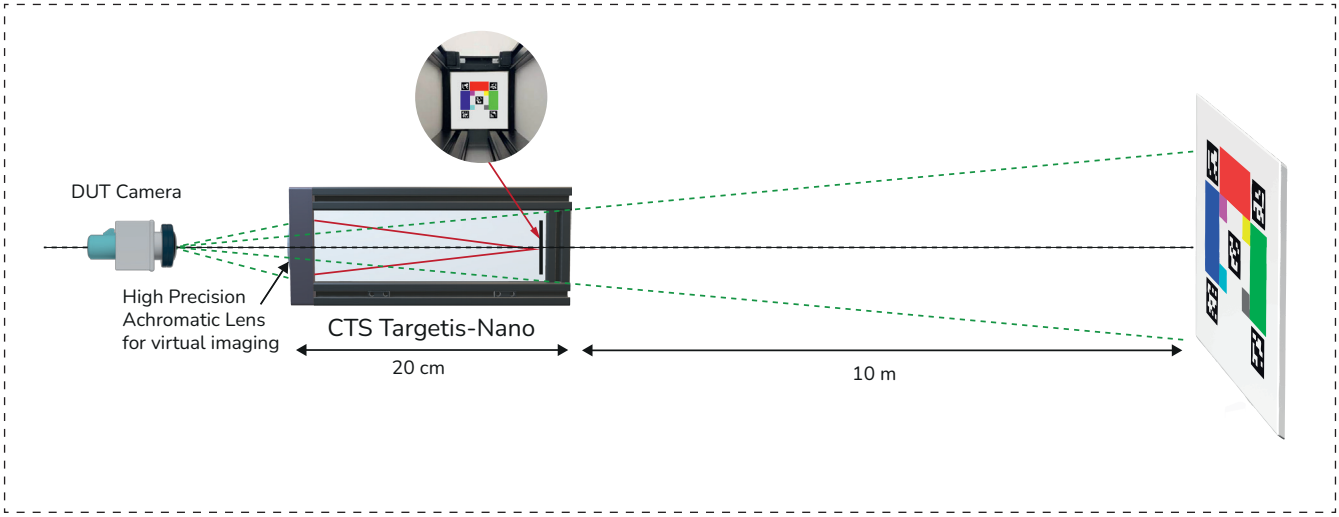
TZ electronic systems

CTS.Targetis
Camera Target Scope

Camera test over long distances - sharpness with little space requirement

Virtual imaging instead of test image over long distances



Maximum precision in the smallest space

Space-saving precision for EOL and function tests of vehicle cameras

Cameras with a large field of view (30° or 70° FOV) are optimized for detecting distant objects. However, in real test environments - especially for end-of-line test benches - this poses a major challenge: The required test set-up is often space-intensive, inflexible and complex to align.
With the CTS.Targetis-Nano, we offer a compact, high-precision solution for the virtual representation of distant targets at very short distances. It enables reliable and space-saving inspection directly in the production environment.

Your advantages at a glance:

- Compact design - no large space requirement, no bulky target systems.
- Highest measurement accuracy - perfect alignment and analysis of the camera optics.
- Stable despite movement - Minimal effects due to lateral displacement - thanks to virtual distance of over 10 meters.
- Efficient workflow - Faster inspection processes, simpler integration, maximum reliability.

Conclusion:

The CTS.Targetis-Nano solution optimizes your test environments and ensures more precise, faster and reproducible results - without complex installations or large space requirements.

CTS.Targetis-Nano - Precision in the smallest of spaces

Maximum performance for camera inspection in the smallest of spaces:
With the CTS.Targetis-Nano, the first innovation from our CamTargetScope series, CTS is taking camera-based testing technology to a new level. Developed for the exact simulation of compact test targets at short distances, the system revolutionizes camera testing within the TZ.CATS (Camera Test System) - space-saving, flexible and highly precise.
Of course, you can also use CTS.Targetis-Nano outside our TZ.CATS system.

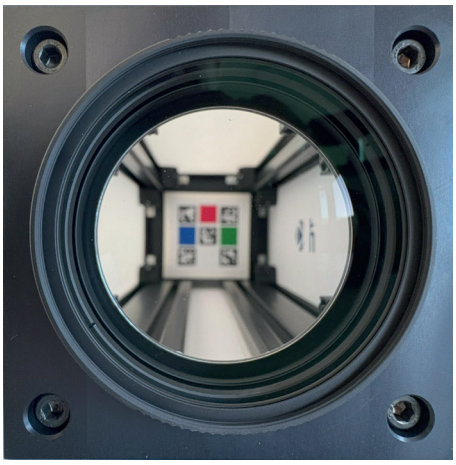
Efficiency meets precision:

The Targetis-Nano was specially designed for long-range cameras and enables - even in cramped test environments - exact qualification using a golden device. Thanks to its innovative optics, the system delivers reliable measurement results even with long-focus cameras.

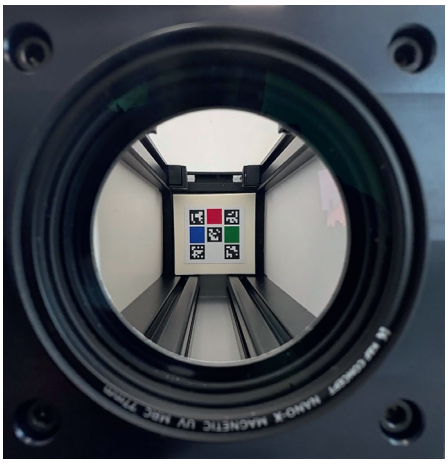
- Compact design
  Perfect for end-of-line (EOL) test benches. Ideal for use in development and in the laboratory.
  Flexible in a wide range of test environments
- Highest precision
  Generously adjustable virtual test distance. Ideal for cameras with remote focus
- Portable all-in-one solution
  Mobile and ready for immediate use. Location-independent use for maximum flexibility CTS.Targetis-Nano - the future of camera inspection starts here.

Set new standards in quality assurance with a system that combines precision and compactness.

A Look Through the Lens:
Virtual Depth – Focus into the Distance



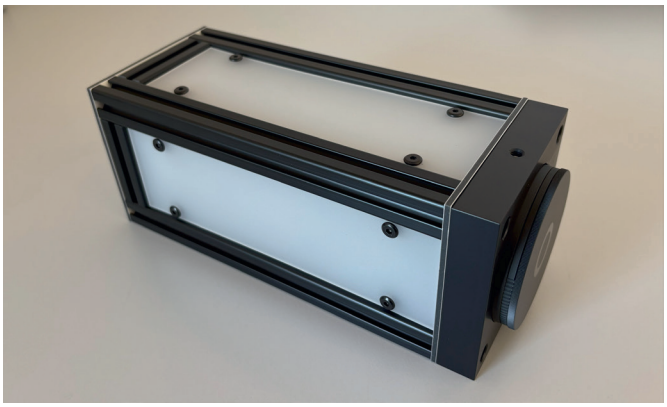
Left: Focus on the front plate. The target for the TZ.CATS system appears 10m–15m behind the recording plate due to the virtual image effect and is out of focus.



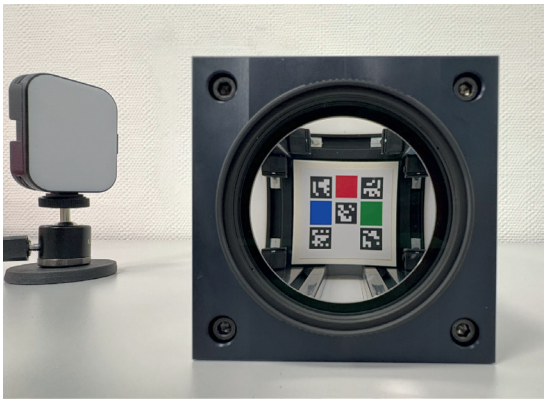
Right: Focus on the target (camera focuses to infinity).

Illumination of the Target

- The CTS is designed to work optimally under the ambient light conditions intended for the TZ.CATS system. To achieve this, the CTS features two opaque diffuser panels (one on the top and one on the left side), each with 70% transmission.
- The satinized surface of these panels creates a uniform, diffuse illumination inside the CTS, ensuring optimal lighting conditions for the metrological tasks of TZ.CATS and providing ideal target visibility.
- If the available ambient lighting is limited (e.g., in a dark room) or if the CTS is partially shaded, it can be illuminated using an external light source (see example).
- Due to the design of the CTS and TZ.CATS, no special lighting requirements need to be considered. However, a uniform illumination and consistent ambient brightness should be maintained for optimal performance.



Example: Illumination Methods



Left: CTS with ambient lighting – utilizes existing environmental light conditions for illumination.

Right: CTS with additional dedicated lighting – enhanced with an external light source to ensure consistent and uniform illumination.

Technical Data

Cam Target Scope CTS.TARGETIS-Nano 77/+5D:
Compact variant of the CamTargetScope series, designed for precise functional testing of long-range cameras with fixed focus set to infinity. The innovative optical design and robust target layout combines compact size with exceptional robustness and precision. Ideal for space-saving test setups, providing reliable results for camera orientation and functionality.

CTS.TARGETIS-Nano 77/+5D 1000-CTS0001_A	Specification
Working Distance d (distance from camera front lens with 70° FOV to first surface lens of CTS):	10mm ≤ d ≤ 100mm (with constraints and modified target up to 150mm)
Optics:	
Entrance pupil D of CTS.Targetis-Nano	D=77mm (Clear Aperture: 60mm)
Achromatic properties	+5D
Virtual target distance	≥ 10m
Target:	
Target Size (inner dimensions)	45 mm x 45 mm
Outer dimension: (L x H x W)	Approx. 245 mm x 100 mm x 100 mm
Mounting:	4 variable (longitudinally adjustable) sliding blocks along the bottom of the aluminum profile for attaching mounting brackets, each with 2 x M4 threads (sliding blocks height 10 mm above the floor)
Target Illumination:	
Passive illumination from outside:	Top cover plate and one side panel is opal (T ≥ 70%), so that external lighting can be provided through the top plate
Optional active illumination	None

Technical Data

Cam Target Scope CTS.TARGETIS-Nano 48/+6.7D:
Compact variant of the CamTargetScope series, designed for precise functional testing of long-range cameras with fixed focus set to infinity. The innovative optical design and robust target layout combines compact size with exceptional robustness and precision. Ideal for space-saving test setups, providing reliable results for camera orientation and functionality.

CTS.TARGETIS-Nano 48/+6.7D 1000-CTS0002_A	Specification
Working Distance d (distance from camera front lens with 70° FOV to first surface lens of CTS):	10 mm ≤ d ≤ 100 mm (max!)
Optics:	
Entrance pupil D of CTS.Targetis-Nano	D=48 mm (Clear Aperture: 45,7mm)
Achromatic properties	+6.7D
Virtual target distance	≥ 5m
Target:	
Target Size (inner dimensions)	24 mm x 24 mm
Outer dimension: (L x H x W)	Approx. 195 mm x 80 mm x 80 mm
Mounting:	4 variable (longitudinally adjustable) sliding blocks along the bottom of the aluminum profile for attaching mounting brackets, each with 2 x M4 threads (sliding blocks height 10 mm above the floor)
Target Illumination:	
Passive illumination from outside:	Top cover plate and one side panel is opal (T ≥ 70%), so that external lighting can be provided through the top plate
Optional active illumination	None

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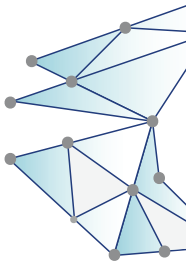

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