



C6 Series

**XCS Sensors**

# XCS

## Sensors



### XCS Series

- ✓ Unique 3D scan results without occlusion due to dual-head option and extremely high profile speed at 3072 or 4096 points per profile
- ✓ High precision and repeatability thanks to high-quality laser line projection
- ✓ Unrivalled optical resolution for electronic inspection (e.g. BGA inspection) with a field of view of up to 53 mm
- ✓ Highest inspection speed available with 3070 WARP sensor

### Product Overview

#### Available Models:

##### 3070 WARP:

- ✓ 602344999 / C6-3070W-XCS-48-146-D-405-3R
- ✓ 602345000 / C6-3070W-XCS-48-146-S-405-3R

##### 3070:

- ✓ 602345001 / C6-3070-XCS-48-146-D-405-3R
- ✓ 602345002 / C6-3070-XCS-48-146-S-405-3R

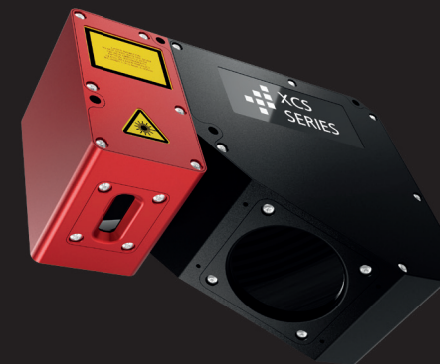
##### 4090:

- ✓ 602344997 / C6-4090-XCS-53-146-D-405-3R
- ✓ 602344998 / C6-4090-XCS-53-146-S-405-3R

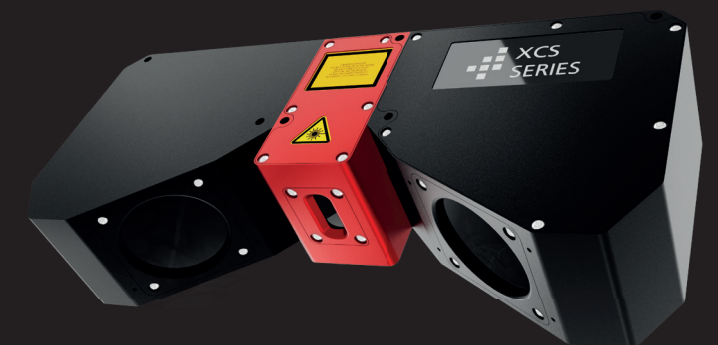
#### Application Recommendations:

- ✓ Electronics & Semicon
- ✓ E-Mobility & Battery
- ✓ Automotive Metrology
- ✓ Industrial Automation
- ✓ Welding
- ✓ Pharmaceuticals
- ✓ Wood & Lumber

#### Single-Head



#### Dual-Head





## General Specifications for all XCS Models

<b>Interface</b>	Gigabit Ethernet (1GigE)
<b>Inputs</b>	<ul style="list-style-type: none"> <li>Encoder A+, A -, B+, B -, Z+, Z- (TTL Level)</li> <li>Two freely configurable digital inputs (+5 to +24 VDC)</li> </ul>
<b>Outputs</b>	Two freely configurable digital outputs (+5 to +24 VDC)
<b>Power Supply</b>	<ul style="list-style-type: none"> <li>Sensor supply +10 to +24 VDC (max. +27 VDC )</li> <li>Laser supply +10 to +24 VDC</li> </ul>
<b>Housing</b>	Anodized aluminum, IP67
<b>Environmental Conditions</b>	<ul style="list-style-type: none"> <li>Operating temperature 0 ° C to +40 °C</li> <li>Storage temperature -20 °C to +80 °C</li> <li>Humidity 20% to 80%</li> </ul>
<b>Vibration/Shock</b>	<ul style="list-style-type: none"> <li>Vibration resistance (sinusoidal): DIN EN 60068-2-6: 2008-10: 2g, 10-150 Hz</li> <li>Vibration resistance (random): DIN EN 60068-2-64: 2020-09: 7g, 10-500 Hz</li> <li>Shock resistance: DIN EN 60068-2-27: 2010-02: 15g, 3ms</li> </ul>
<b>Communication Protocols</b>	GenICam, GigE Vision
<b>Features</b>	Automatic RegionTracking, Automatic RegionSearch, Multiple Regions, MultiPart, AutoStart, History Buffer, Multi-Slope, MultiPeak

## Laser Specifications for all XCS Models

<b>Laser Wavelength</b>	405 nm
<b>Laser Class</b>	3R

## Models 3070 / 3070 WARP

<b>Part Number / Model Name</b>	602344999 / C6-3070W-XCS-48-146-D-405-3R
	602345000 / C6-3070W-XCS-48-146-S-405-3R
	602345001 / C6-3070-XCS-48-146-D-405-3R
	602345002 / C6-3070-XCS-48-146-S-405-3R

## Optical Setup 3070 / 3070 WARP

<b>Lateral Resolution X</b>	0.016 mm
<b>Height Resolution Z</b>	0.5 μm (with 6 subpixels)
<b>Working Distance</b>	146 mm
<b>X-FOV</b>	48 mm
<b>Profile Resolution</b>	3072 pixel per profile
<b>Profile Speed</b>	max. 140 kHz, 14.5 kHz @ full Z-Range
<b>Z-Range Near to Far</b>	20 mm

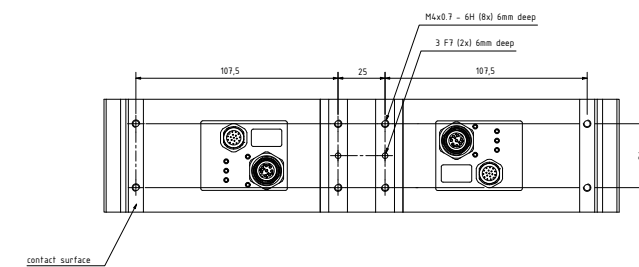
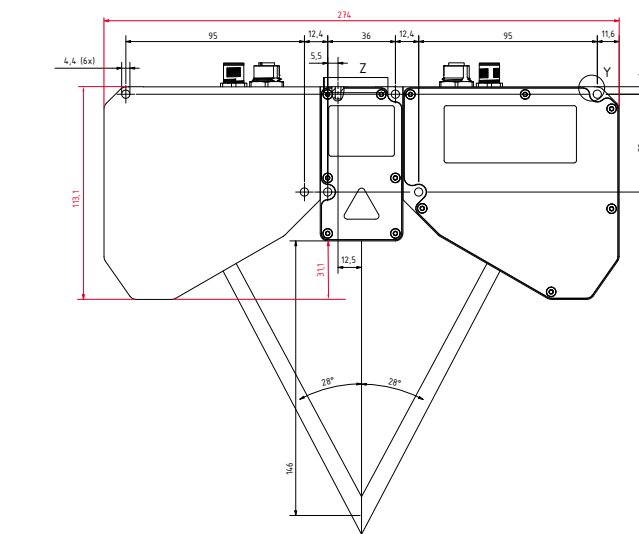
## Models 4090

<b>Part Number / Model Name</b>	602344997 / C6-4090-XCS-53-146-D-405-3R 602344998 / C6-4090-XCS-53-146-S-405-3R
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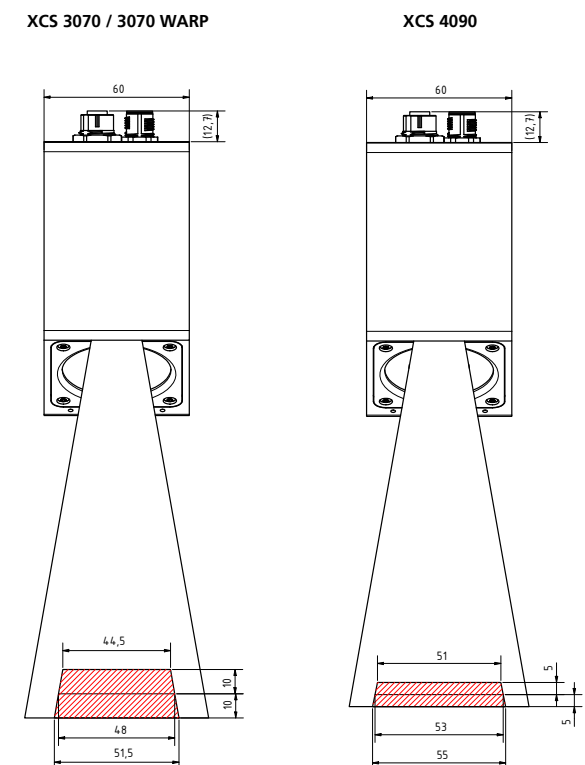
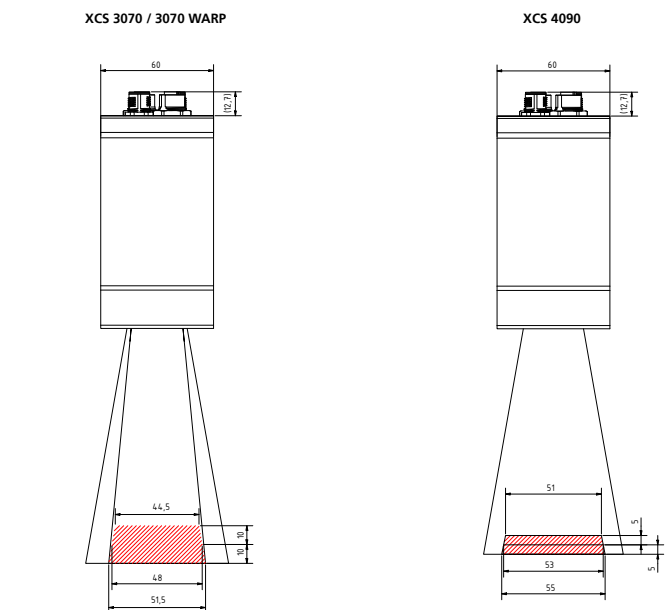
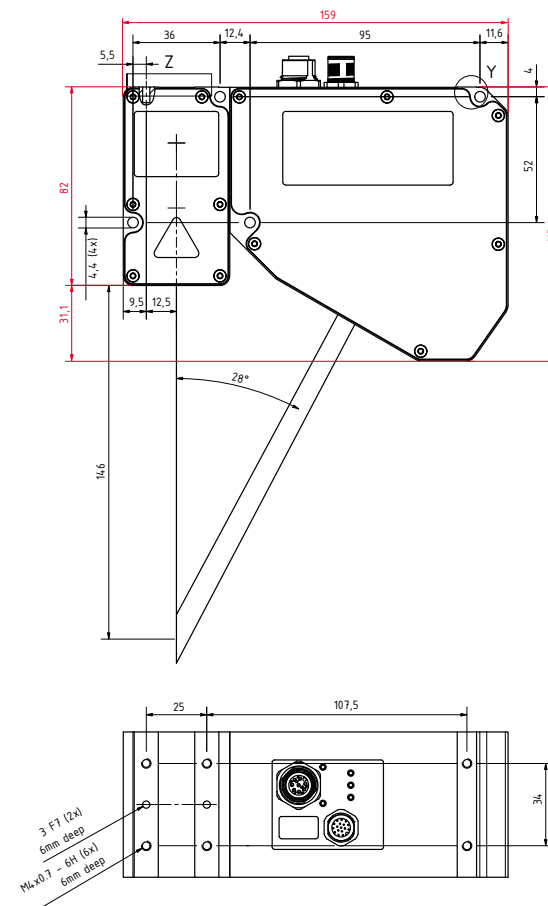
## Optical Setup 4090

<b>Lateral Resolution X</b>	0.013 mm
<b>Height Resolution Z</b>	0.42 μm (with 6 subpixels)
<b>Working Distance</b>	146 mm
<b>X-FOV</b>	53 mm
<b>Profile Resolution</b>	4096 pixel per profile
<b>Profile Speed</b>	max. 20.3 kHz
<b>Z-Range Near to Far</b>	10 mm

## Technical Drawings Dual-Head



## Technical Drawings Single-Head



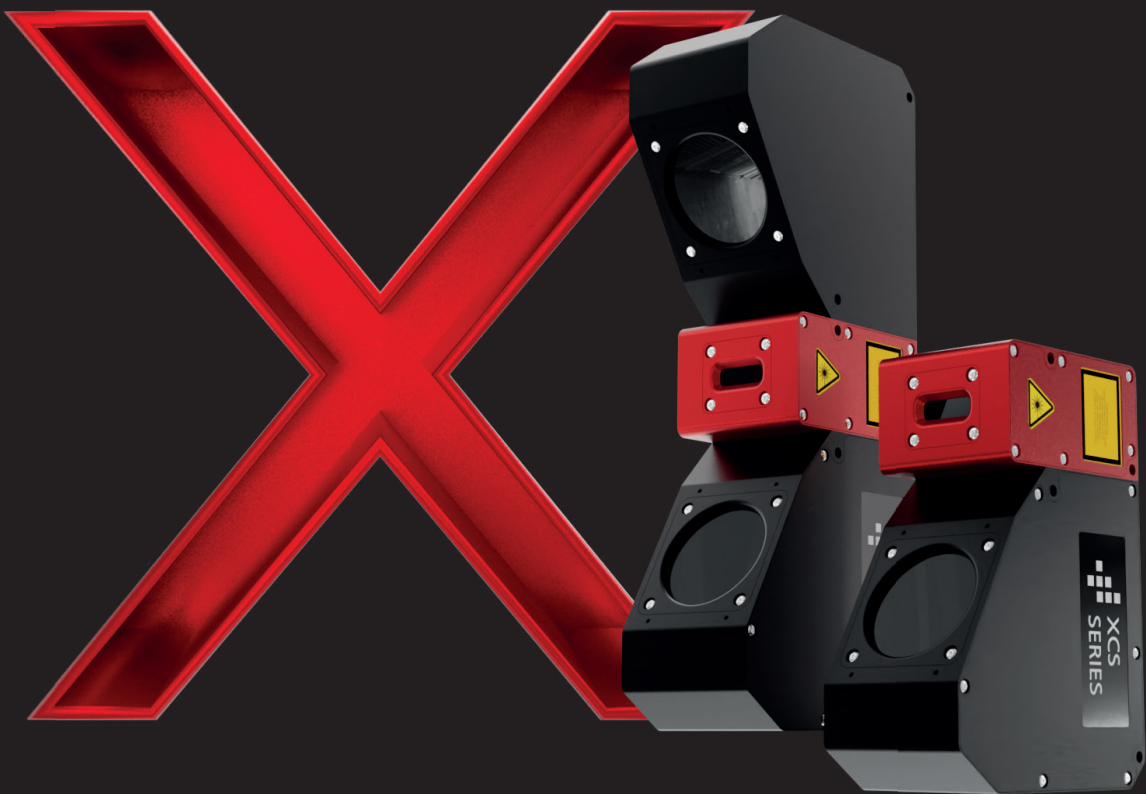
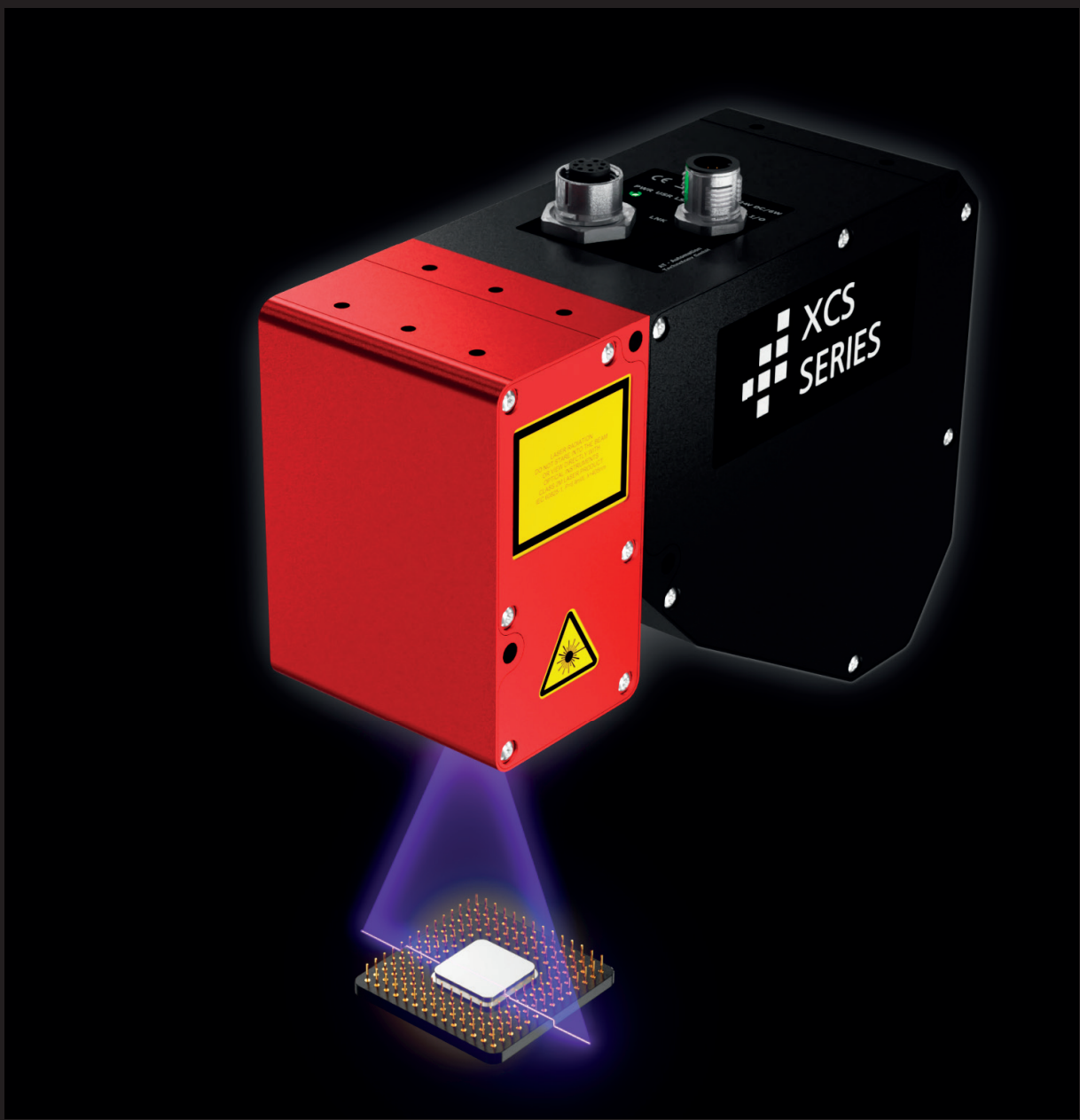
# Small Field of View, Big Impact: New XCS Sensor from AT Transforms the Electronics Industry

In the semiconductor industry, it is the smallest details that make the difference between success and failure. With its new 3D sensor from the recently developed XCS series, AT Sensors is launching a product onto the market that is a real game changer, especially for high-performance applications in the electronics industry.

The decisive arguments for this are above all its optimized laser and its very small field of view of up to 2.08 in (53 mm). The most important feature of the XCS series laser is the homogeneous thickness along the laser line thanks to the laser projector's special optics. The homogeneous line thickness enables precise scanning of the smallest structures – regardless of whether the object to be scanned is in the middle or at the edge of the line. The particular benefit for the customer: the development of inspection applications with high repeatability and exceptional accuracy, which means a real breakthrough in terms of precision for the inspection of ball grid arrays (BGAs), for example.

An equally decisive advantage is the Clean Beam function developed by AT. This protects the laser from external interference factors such as optical anomalies, so that the laser beam is both very precise and extremely focused. In addition, Clean Beam also enables a uniform intensity distribution, which in turn ensures reliable and consistent results. The unrivaled performance of the XCS sensor is further enhanced by its dual-head option. This delivers unique 3D scanning results by eliminating occlusions while providing unparalleled high resolution at extreme speed. The 3070 WARP version of the sensor achieves profile speeds of up to 140 kHz, allowing the data volumes of the 3D scans to be analyzed particularly quickly and efficiently.

With the new 3D sensor from the XCS series, AT Sensors is once again underlining its role as a pioneer in automation technology. The sensor is available immediately and promises to become an indispensable product for many electronics applications.



### NO OCCLUSION

Unique 3D scan results with no occlusion through Dual Head option and extremely high resolution



### PRECISION

High precision and detection of smallest surface details through high-quality laser line projection



### RESOLUTION

Unmatched resolution for electronic inspection (e.g. BGA, PGA) within a field of view up to 53 mm



### SPEED

Highest inspection speed of up to 140kHz available with 3070 WARP sensor version



Learn more about our **XCS Sensors**:  
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