

# COGNEX

## DSMax™ 32T-CXP Basic Safety and Usage



2024 November 08  
Revision: 9.23.0.1



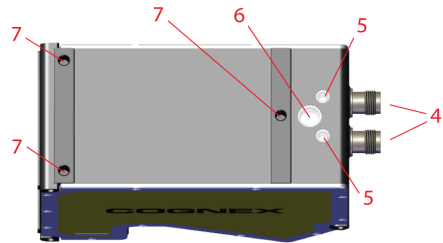
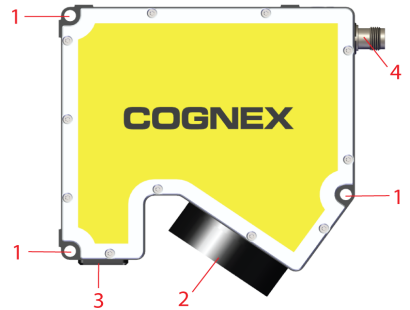
## Precautions

Reduce the risk of injury or equipment damage by observing the following precautions when installing Cognex products:

- Route all cables and wires away from high current or high-voltage power sources to reduce the risk of damage or malfunction due to over-voltage, line noise, electrostatic discharge (ESD), power surges, or other irregularities in the power supply.
- Do not install Cognex products where they are exposed to environmental hazards such as excessive heat, dust, moisture, humidity, impact, vibration, corrosive substances, flammable substances, or static electricity.
- Changes or modifications not expressly approved by the party responsible for regulatory compliance could void the user's authority to operate the equipment.
- Include service loops with all cable connections.
- Ensure that the cable bend radius begins at least six inches from the connector. Cable shielding can be degraded or cables can be damaged or wear out faster if a service loop or bend radius is tighter than 10X the cable diameter.
- This device is certified for office use only and if used at home, there can be frequency interference problems.
- Use this device in accordance with the instructions in this documentation.
- All specifications are for reference purposes only and can change without notice.

# Sensor Layout

Number	Feature
1	Clearance Mounting Hole
2	Imaging Lens
3	Laser Aperture
4	TNC Connector
5	CoaXPress Status Indicator
6	Laser Status Indicator
7	Side Mounting Hole (M5)



# Specifications

Refer to the following table for DSMax sensor head specifications:

Specification	DSMAX Sensor Head
Dimensions	133.4 mm (H) x 65 mm (W) x 142.7 mm (L)
Weight	843 g
Ratings	Voltage: +24 VDC (11-30 VDC) Current: 300 mA max Power: 8W
Environmental Operating Conditions	Operating Conditions: 0°C to 50°C
	Storage Temperature: -10°C to 60°C
	Maximum Humidity: 85% (non-condensing)
	Shock: Up to 50 G
	Vibration: Up to 8 G (10-500 Hz for 30 minutes)
Certification	IP65 / IP67 CE, KCC, FDA (laser); CAN/CSA C22.2 No. 61010-1, UL 61010-1, EN 61010-1; EN 61326-1:2013
Laser Classification	2M
Laser Divergence Angle	-0.65°(from cylindrical lens exit face)
Maximum Operating Frequency	200MHz
Input / Output	2X TNC Connectors

<b>Specification</b>	<b>DSMAX Sensor Head</b>
Coaxial Cable Resistance	75 Ohm
Communication Protocol	CoaXPress
Regulatory Model	R00066
Manufacturer	Cognex Corporation One Vision Drive Natick, MA 01760 USA

# Installation

Install your DSMax sensor head by performing the following steps:

Mount the DSMax sensor head using three socket head cap screws:

- Screw height: 70mm
- Screw thread: M4

Dimension A	82 mm*
Dimension B	121 mm*
Dimension C	26 mm*
Hole Diameter	5.2 mm
* Dimensions to center of mounting holes	

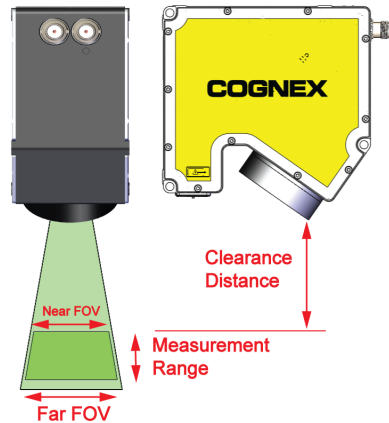
Connect the DSMax sensor head to a DSMax frame grabber using the provided coaxial cables.

Use only Cognex-approved 5m coaxial cables included within product kit.



Vertically position the sensor where objects to be scanned appear within the field of view (FOV).

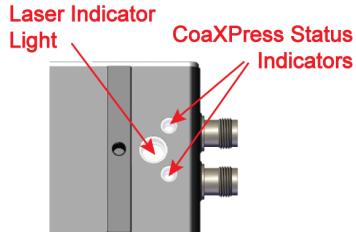
Specification	Distance (mm)
Near Field of View	30.2
Far Field of View	33.3
Clearance Distance	51.4
Measurement Range	10.9



Launch your VisionPro vision application and configure the sensor as an image source. Refer to your VisionPro documentation for details.

# Indicator Lights

The DSMax sensor head supports indicator lights to represent that status of the laser and the CoaXPress transmission status:



The Laser Indicator Light represents one of the two operating states:

Color	Operating State	Power Provided to Laser
Green	Laser on	Yes
Red	Sensor receiving power	No

The CoaXPress status indicators follow the specific color schemes detailed by the CoaXPress standard version 1.1.1:

Indicator Lights	CoaXPress State
Off	No power
Solid orange	System booting

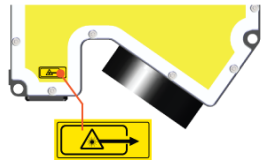
Fast flash alternate green / orange shown for a minimum of 1s even if the connection detected is faster	Connection detection in progress, PoCXP active
Slowflash alternate red / green	Device / host incompatible, PoCXP active
Solid red	PoCXPover-current (Host only)
Solid green	Device / Hostconnected, but no data being transferred
Show pulse orange	Device / Host connected, waiting for event (e.g. trigger, exposure pulse)
Fast flash green	Device / Host connected, data being transferred
500ms red pulse in case of multiple errors. At least two green fast flash pulses before the next error is indicated	Error during data transfer (e.g. CRC error, single bit error detected)
Fast flash red	System error (for example, internal error)

# Laser Compliance



**LASER RADIATION, AVOID DIRECT EYE EXPOSURE**  
**CLASS 2M LASER PRODUCT**  
**FAILURE TO FOLLOW THESE INSTRUCTIONS MAY CAUSE SERIOUS INJURY**

Cognex Corporation places the following labels on every DSMax Sensor Head:



Cognex Corporation  
REGULATORY MODEL #300066  
TYPE: B21-10293-1R Rev X  
S/N: 1459557123456  
IP65/IP67  
Input: 24VDC  $\leq$  300mA MAX

COGNEX Corporation  
1000  
1 Vision Drive, North, MA 01704 USA  
COGNEX 3217  
P/N: 825-10937-1R B  
S/N: 14189747123456  
Made in USA



**CAUTION**  
**LASER**  
**2M**

Minimum Class 2 Label  
Contains Information: IEC60825-1:2014-5  
CLASS 2M LASER PRODUCT  
CONTAINS INFORMATION IEC60825-1:2014-5 AND IEC61010-1  
CAUTION FOR ELECTRICAL EQUIPMENT IEC  
LASER PRODUCT NO. BE SAFETY CLASS 2M

Compliant with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. Certified to Class 2M according to IEC 60825-1:2007 and IEC 60825-1:2014-5.

Use of controls or adjustments in performance of procedures other than those specified herein may result in hazardous exposure.

## Laser Safety Warnings

- Block unused beams.
- Switch off the laser when not in use.
- Avoid direct eye exposure to laser radiation.
- Prevent intrabeam viewing of the laser.
- Keep the laser plane horizontal or pointing downwards.
- Do not place optical components (mirrors) into the beam.
- Design test fixtures in such a way to prevent unintentional viewing of the beams.
- Report any issues that may have an impact on laser safety to your supervisor or the Laser Safety Officer.
- Consciously close your eyes or turn away from if the laser impinges on the eye. **DO NOT SUPPRESS YOUR BLINK REFLEX.**
- Do not view directly with optical instruments (magnifying or telescopic) or direct laser beam into an area where such instruments are likely to be used.
- Cognex recommends the usage of protective eyewear with specs equivalent to Newport Laser Safety Glasses (P/N: G30103).
- Avoid the use of highly reflective material, or try to angle the part to prevent unintentional viewing of the reflection.

## Important Product Information

- Under no circumstance should you modify the DSMAX Sensor Head in any way.
- There is no scheduled maintenance necessary to keep the product in compliance.
- When moving the unit from a warm environment to a cold environment, allow the unit to equalize in a room temperature environment for 24 hours.
- Use only Cognex-supplied accessories with the DSMAX Sensor Head. Contact your local Cognexsales representative for more information with any questions about compatible accessories.
- Under the Korean Certification safety standards, this product is certified to "Class A". EMC registration is done on this equipment for business use only. Product seller and user should take note that this equipment is not for household usage. The following shows a Korean-translated version of this statement:

### A급 기기 (업무용 정보통신기기)

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

# Product Service

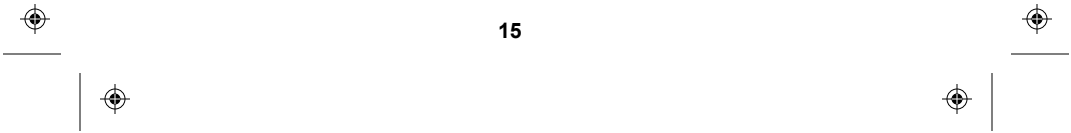


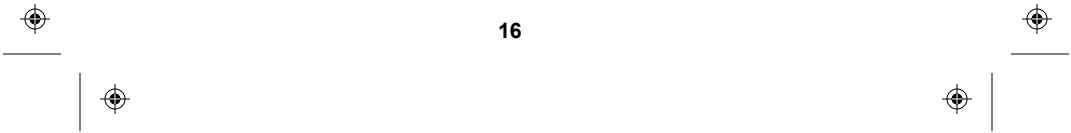
Cognex Corporation makes the following recommendations for cleaning the external optical surfaces of a DSMax sensor:


- Unplug the DSMAX Sensor Head so the laser cannot be powered on
- Use lint-free tissue or an optical-grade cotton swab (“Q-tip”)
- Use reagent-grade acetone and isopropyl alcohol
- Use minimal pressure
- Dispose of tissue and/or swab after each swipe to prevent lint deposition
- Swipe in a single, even stroke across optical surfaces
- Rotate the tissue or swab during cleaning so dirt is not dragged across the surface

If the DSMAX Sensor Head is soiled such that full liquid immersion is required, fasten TNC caps to I/O connectors and rinse the unit with appropriate cleaning fluid. Failure to fasten TNC caps before immersion will result in **IRREPARABLE DAMAGE** to the DSMAX Sensor Head.

- The DSMAX Sensor Head cannot be serviced by the customer. Please bring any performance issues to the attention of your local Cognex representative.
- In case of any necessary servicing or repairing processes, return the unit to the factory.
- Service is only to be handled by authorized factory-trained technicians. The DSMAX Sensor Head does not contain parts that are user-serviceable.
- Under no circumstances should you operate the DSMAX Sensor Head if it is defective or the seal damaged. Cognex Corporation cannot be held responsible for any harm caused by operating a faulty unit.







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