

DataMan[®] 395V Series User Guide



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Precautions

To reduce the risk of injury or equipment damage, observe the following precautions when you install the Cognex product:

- Connectivity is possible through the following options:
 - 24 VDC (+/- 10%) output connection using a UL or NTRL listed power supply
- Any other voltage creates a risk of fire or shock and can damage the components. Applicable national and local wiring standards and rules must be followed.
- This product is intended for industrial use in automated manufacturing or similar applications.
 - The safety of any system incorporating this product is the responsibility of the assembler of the system.
 - 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.
 - Route cables and wires away from high-current wiring or high-voltage power sources to reduce the risk of damage or malfunction from the following causes: over-voltage, line noise, electrostatic discharge (ESD), power surges, or other irregularities in the power supply.
 - Do not expose the image sensor to laser light. Image sensors can be damaged by direct, or reflected, laser light. If your application requires laser light that might strike the image sensor, use a lens filter at the corresponding laser wavelength. For suggestions, contact your local integrator or application engineer.
 - This product does not contain user-serviceable parts. Do not make electrical or mechanical modifications to product components. Unauthorized modifications can void your warranty.
 - 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 cable connections.
 - Ensure that cable strain relief is applied within strain relief zone. The strain relief zone is between two inches to six inches from the connector.
 - 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 should be used in accordance with the instructions in this manual.
 - All specifications are for reference purposes only and can change without notice.

Symbols

The following symbols indicate safety precautions and supplemental information:

 **WARNING:** This symbol indicates a hazard that could cause death, serious personal injury or electrical shock.

 **CAUTION:** This symbol indicates a hazard that could result in property damage.

 **Note:** This symbol indicates additional information about a subject.

 **Tip:** This symbol indicates suggestions and shortcuts that might not otherwise be apparent.

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Getting Started

This section provides general information about the DataMan 395V series verifier and the accessories and systems.

About the DataMan 395V Series

Supporting both small- and large-format scanning, the DataMan 395V series barcode verifiers deliver reliable verification across online and offline applications, from in-line production to lab environments. The DataMan 395V offers a wide range of FOV options for both 1D/2D label-based and DPM codes. Built on a single software stack with a modern, web-based user interface, DataMan 395V verifiers simplify setup, ensure a consistent user experience across devices, and enable scalable deployment. This unified architecture supports evolving code standards, providing a future-ready foundation for changing verification needs.

DataMan 395V Verifier Systems

The DataMan 395V Verifier product family consists of the following models:

Name	Illustration	Deployment	Field of View	Minimum X-Dimension	Light Configurations	Software Interface
DM395V-OMNI		Offline desktop verifier for extended large-format applications	160 x 133.85 mm	8 mil (0.203 mm)	45° Label Light	WebUI
DM395V-OPT		Offline portable verifier for standard large-format applications	98 x 82 mm	7 mil (0.178 mm)		
DM395V-LBL-0200		Inline/offline verifier for label-based codes	80 x 60 mm	6 mil (0.15 mm)		TruCheck Verification
DM395V-DPM-0200		Inline/offline verifier for Direct Part Marking (DPM)	35 x 29 mm	3.75 mil (0.095 mm)	30°, 45°, 90° DPM	
DM395V-S-HD		Offline verifier for smaller-format DPM applications	11 x 9 mm	1 mil (0.025 mm)		

All models support the ISO/IEC 15415, 15416, 15426, 29158 verification standards and 1D, 2D, DPM symbologies, with the lighting attachment shown above.

Accessories

You can purchase the following components separately. For a list of options and accessories, contact your local Cognex sales representative.

Cables

Note: Cables are sold separately.

CAUTION: All cable connectors are keyed to fit the connectors on the verifier. Do not force the connections or damage may occur.

Accessory	Product Number	Illustration
Power and I/O Breakout Cable, M12-12 to Flying Lead	CCB-PWRIO- xx (straight, xx specifies length: 5m, 10m, 15m) CCB-PWRIO-xxR (right-angled, xx specifies length: 5m, 10m, 15m)	
X-Coded to A-Coded Ethernet cable adapter, 0.5 m	CCB-M12X8MS-XCAC	
Ethernet Cable, X-coded M12-8 to RJ-45	CCB-84901-2001-xx (straight, xx specifies length: 2m, 5m, 10m, 15m, 30m) CCB-84901-2002-xx (right-angled, xx specifies length: 2m, 5m, 10m)	
I/O extension cable, straight, 5 m	CKR-200-CBL-EXT	
USB Type C Cable to USB Type A, Straight, 2.5 m	DMA-STCBLE-IP65-25	
USB Type C Cable to USB Type A, Straight 3.6 m	DMA-STCBLE-IP65-36	
USB Type C Cable to USB Type A, Angled, 2.5 m	DMA-RTCBLE-IP65-25	
USB Type C Cable to USB Type A, Angled, 3.6 m	DMA-RTCBLE-IP65-36	

Power Supplies

Accessory	Product Number	Illustration
Power supply and cable kit	CPS-24V-ADP-M12A12	
Power supply and cable kit, which includes US and EU power supplies	DMV-PS-02	

Accessory	Product Number	Illustration
Connection module for up to four verifiers, including network switch xx can be EU, UK, or JP	DMA-CCM-4X-xx	
Connection module for one verifier xx can be US, EU, UK, or JP	DMA-CCM-1-xx	

Mounting Brackets

DPM and HD Mounting Brackets

Accessory	Product Number	Illustration
Stand Accessory	DMV-FMOL-STAND	
Stand Extension Arm	DMV-BRK-STANDEXT	

LBL Mounting Brackets

Accessory	Product Number	Illustration	Deployment
Stand Accessory	DMV-FMOL-STAND		Offline
Stand Extension Arm	DMV-BRK-STANDEXT		
Mounting Bracket for the stand accessory	DMV-BRK-IS7905		
Pivot mounting bracket	DMBK-PIVOT-DM380		Inline
Mounting bracket with M3, M4 and 1/4 - 20 mounting holes	BKT-INS-01		

Calibration Cards

Accessory	Product Number	Illustration
Applied Image #AI-CCS-UPC/EAN 6mil Calibration and Conformance Test Card: - Similar to discontinued GS1 EAN/UPC Calibration Card. - Provides conformance testing on 1D barcodes. - Provides traceability through an ISO 17025 accredited lab. - This card is produced by an ISO 17025 accredited lab. - NIST calibration symbol: EAN-13 MASTER GRADE and UPC-A MASTER GRADE	DMV-AICC	
Applied Image Data Matrix Calibration and Conformance Test Card: - Provides traceability through an ISO 17025 accredited lab. - This card is produced by an ISO 17025 accredited lab. - NIST calibration symbol: symbols 1 and 5 Note: The barcode symbols on this card contain encoded data that is generic and not GS1 formatted, but this is not relevant for calibration purposes.	DMV-DMCC	
Cognex GS1 Calibration and Conformance Test Card: - Offers conformance testing for 2D barcodes with GS1-formatted data. - Produced by an ISO 17025 accredited laboratory, ensuring precision and reliability. - NIST calibration symbol: symbol 1	DMV-DMCCG	
Cognex Standard Calibration Card contains Master Grade 1D and 2D symbols: - For calibration only. Does not contain any ISO/IEC 15426 conformance test symbol. - Provides traceability, but not to an accredited ISO 17025 lab. - NIST calibration symbol: 1D and 2D symbols	DMV-CCC	

Supporting Documentation

This document provides basic information about the DataMan 395V series verifiers. Additional information is available through the Windows **Start** menu or the WebUI **Help** menu after you install the DataMan software on your PC.

Note: For the latest documentation, visit: <https://support.cognex.com/en/products/dataman-395v>.

- The **DataMan Communications and Programming Guide** shows you how to integrate your DataMan verifier into your particular automation and factory environment.
Cognex > DataMan Software v x.x.x > Documentation > Communications > DataMan Communications and Programming Guide
- The **DataMan Industrial Protocols Manual** provides information on how to integrate DataMan verifiers into your particular environment using industrial protocols.
Cognex > DataMan Software v x.x.x > Documentation > Communications > DataMan Industrial Protocols Manual
- The **DataMan Reader Configuration Codes** document provides printable 2-D codes that you can use to configure the DataMan verifier.
Cognex > DataMan Software v x.x.x > Documentation > English > Reader Configuration Codes
- The **DataMan Questions and Answers** document provides context-sensitive information. You can view this help inside the DataMan Setup Tool or as a stand-alone help file.
Cognex > DataMan Software v x.x.x > Documentation > DM395V > Questions and Answers
- The **DataMan Control Commands** lists DataMan Control Commands with all relevant information. You can view this help inside the Setup Tool or as a stand-alone help file.
Cognex > DataMan Software v x.x.x > Documentation > English > DataMan Control Commands
- The **Setup Tool Reference Manual** describes the user interface of the DataMan Setup Tool software.
Cognex > DataMan Software v x.x.x > Documentation > English > Setup Tool Reference Manual
- The **Release Notes** list detailed system requirements and additional information about the DataMan software release.
Cognex > DataMan Software v x.x.x > Documentation > DataMan v x.x.x Release Notes

Specifications

The following sections list general specifications for the verifier.

DataMan 395V Specifications

Optical Specifications

Specification	DataMan 395V Omni	DataMan 395V Optima	DataMan 395V LBL	DataMan 395V DPM	DataMan 395V HD
Lighting	660 nm, 45°, 4-quadrant			660 nm, 45°, 4-quadrant 660 nm, 30°, 1-quadrant, 2-quadrant, 4-quadrant 660 nm, 90°	
Minimum X-Dimension	8 mil (0.203 mm)	7 mil (0.178 mm)	6 mil (0.15 mm)	3.75 mil (0.095 mm)	1 mil (0.025 mm)
Working Distance	0 mm: codes are scanned directly on the verification surface		60 mm	41 mm with side lighting attachment 71 mm without side lighting attachment	
Depth of Field (Working Distance tolerance)	N/A: codes are scanned directly on the verification surface		+/- 3 mm	5 mil symbols: +/- 1.5 mm 15 mil symbols: +/- 2.5 mm	1 mil symbols: +/- 0.2 mm 4 mil symbols: +/- 0.8 mm
Field of View	160 x 133.85 mm	98 x 82 mm	80 x 60 mm	35 x 29 mm	11 x 9 mm
Coplanarity Tolerance	N/A	N/A	+/- 3° of coplanar	+/- 2° of coplanar	+/- 0.1° of coplanar

Physical Specifications

Specification	DataMan 395V Omni	DataMan 395V Optima	DataMan 395V LBL	DataMan 395V DPM	DataMan 395V HD
Dimensions	362 x 273 x 298 mm (14.2 x 10.7 x 11.7 in)	236 x 276 x 211 mm (9.3 x 10.9 x 8.3 in)	185 x 185 x 175 mm (7.3 x 7.3 x 6.9 in)	286 x 145 x 193 mm (11.3 x 5.7 x 7.6 in)	360 x 145 x 193 mm (14.2 x 5.7 x 7.6 in)
Weight	6800 g (239.9 oz)	2050 g (72.3 oz)	40.5 g (33.3 oz)	2200 g (77.6 oz)	2450 g (86.4 oz)
Power Consumption	24 V DC $\pm$ 10%, 1.5 A maximum (Label Light, 36 W peak power consumption). Supplied by LPS or NEC class 2 only.				
Operating Temperature	0°C to 40°C (32°F to 104°F)				
Storage Temperature	-20°C to 80°C (-4°F to 176°F)				

Specification	DataMan 395V Omni	DataMan 395V Optima	DataMan 395V LBL	DataMan 395V DPM	DataMan 395V HD
Case Temperature	0°C to 57°C (32°F to 134.6°F)				
Humidity	< 95% non-condensing				
Shock (Shipping and Storage)	ISTA-1A Standardized Testing - Packaged Products 150 lbs or less		IEC 60068-2-27: 18 shocks (3 shocks in each polarity in each (X, Y, Z) axis) at 80 Gs (800 m/s ² at 11 ms, half-sinusodial) with cables or cable plugs and appropriate lens cover attached.	ISTA-1A Standardized Testing - Packaged Products 150 lbs or less	
Vibration (Shipping and Storage)	IEC 60068-2-6: vibration test in each of the three main axis for 2 hours (20 cycles) at 2 Gs (10 to 150 Hz at 50 m/s ² at 0.35 mm) with cables or cable plugs and appropriate lens cover attached.		IEC 60068-2-6: vibration test in each of the three main axis for 2 hours at 10 Gs (10 to 500 Hz at 100 m/s ² / 15 mm) with cables or cable plugs and appropriate lens cover attached.	FedEx Vibration Testing for packaged products 150 lbs or less	
Environmental Protection	IP40		IP65		

Application Specifications

Specification	DataMan 395V Omni	DataMan 395V Optima	DataMan 395V LBL	DataMan 395V DPM	DataMan 395V HD
Maximum Codes per Second	N/A	N/A	1D: 20 codes/second 2D: 10 codes/second	2D: 10 codes/second	Application Dependent
Maximum Linear Line Speed	N/A	N/A	3.6 ft/second (1.1 m/second)	4.6 ft/second (1.4 m/second)	Application Dependent
Industry Standards Compliance	ISO/IEC 15415, ISO/IEC 15416, ISO/IEC TR 29158, ISO/IEC 15426-1, ISO/IEC 15426-2				
Application Standards	GS1 (including Digital Link codes and DataBar codes), MIL-STD 130, UID, UDI, HIBCC, ISO/IEC 15434, Russian Crypto-code, Custom Application Standards				
Supported Symbolologies	1D codes: Codabar, Code 39, Code 128, and Code 93, Interleaved 2 of 5, ITF-14, UPC/EAN/JAN 2D codes: Data Matrix (ECC 200), QR Code, microQR Code, PDF 417				

Communication Specifications

Specification	DataMan 395V Series			
Discrete I/O operating limits	High-speed Output 0,1,2,3	I _{MAX}	@ 12 VDC	50 mA
		R _{MIN}		200 Ω
	Input 0 (Trigger)	V _{IH}	±15 – ± 28 V	
	Input 1,2,3	V _{IL}	0 – ± 5 V	
		I _{TYP}	@ 12 VDC	2.0 mA
			@ 24 VDC	4.2 mA
Network Communication	2 Ethernet ports			
Ethernet	10/100/1000 BaseT with auto MDIX. IEEE 802.3			
RS-232	RxD, TxD according to TIA/EIA-232-F			
Protocols	TCP/IP, PROFINET, Ethernet/IP, ModBus TCP, SLMP, CC-Link IE Field Basic Supports DHCP, static, and link-local IP address and configuration. One port supports TSN networks.			

DataMan395V Series Verifier Image Sensor

Specification	DataMan 395V Omni	DataMan 395V Optima	DataMan 395V LBL	DataMan 395V DPM	DataMan 395V HD
Lens Type	25 mm fixed focal length, f/4 fixed aperture, C-mount lens	12 mm fixed focal length, f/4 fixed aperture, C-mount lens	12 mm fixed focal length, f/4 fixed aperture, C-mount lens	35 mm fixed focal length, f/4 fixed aperture, C-mount lens	75 mm fixed focal length, f/4 fixed aperture, C-mount lens
Image Sensor	2/3 in CMOS, global shutter				
Image Sensor Properties	3.45 x 3.45 μm square pixels				
Image Resolution (pixels)	2448 x 2048 (5 MP)				
Electronic Shutter Speed	19.1 μs		15 μs to 5000 μs Typically set at 30 μs by calibration process for ISO/IEC 15415.		
 Note: If you adjust the shutter speed, Cognex cannot guarantee that the verifier retains compliance.					

LED Wavelengths

The following table shows LED types and the related peak wavelengths.

LED	Wavelength
RED	λ dom (typ.): 660 nm

Dimensions

The following sections list dimensions of the verifier.

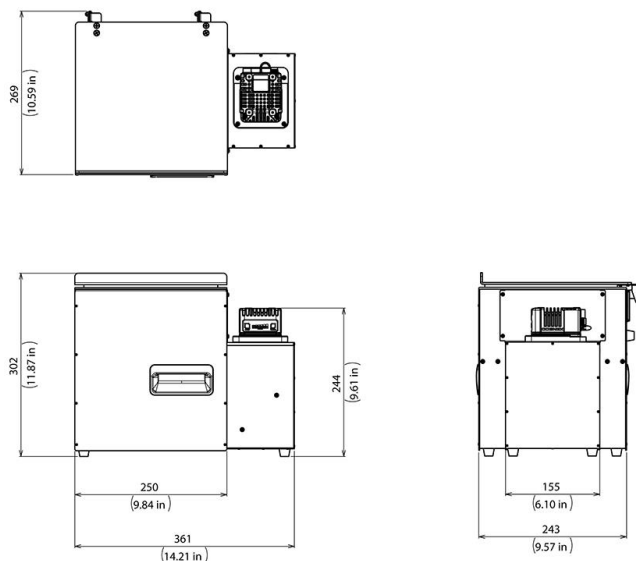
Note:



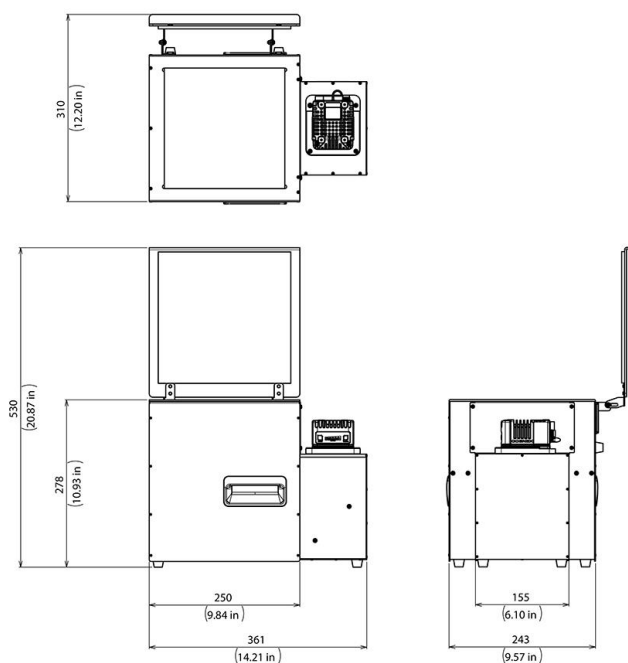
- Dimensions are in millimeters [inches] and are for reference purposes only.
- All specifications are for reference purposes only and can change without notice.

DataMan 395V Omni Dimensions

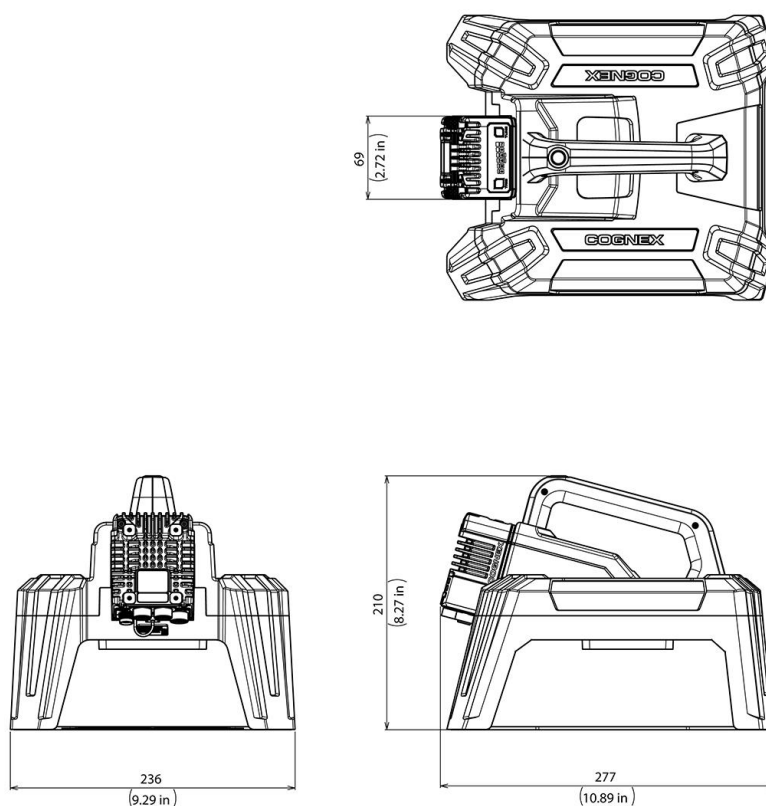
The following image shows the DataMan 395V Omni with the lid closed.



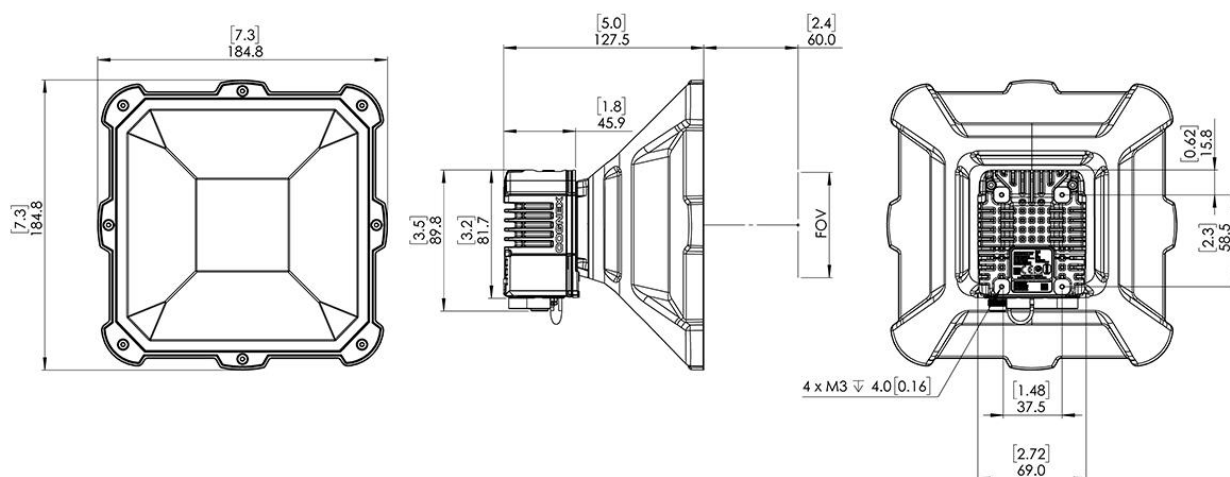
The following image shows the DataMan 395V Omni with the lid open.



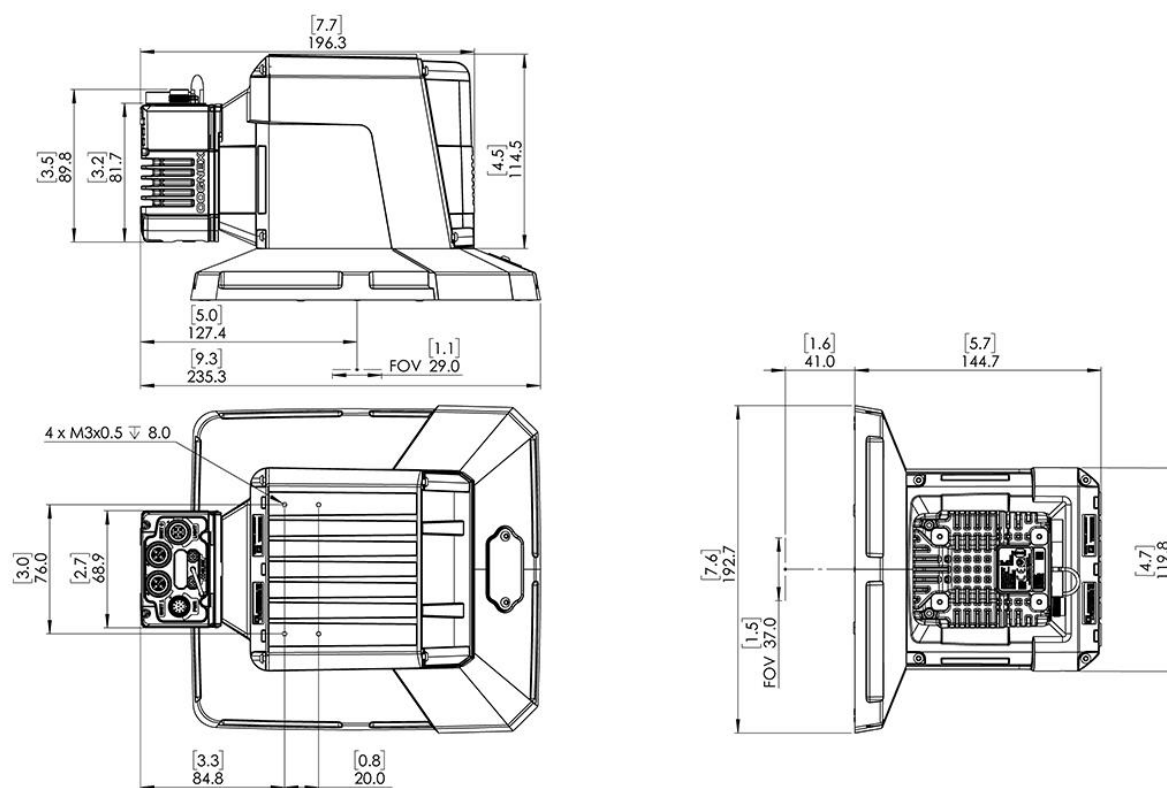
DataMan 395V Optima Dimensions



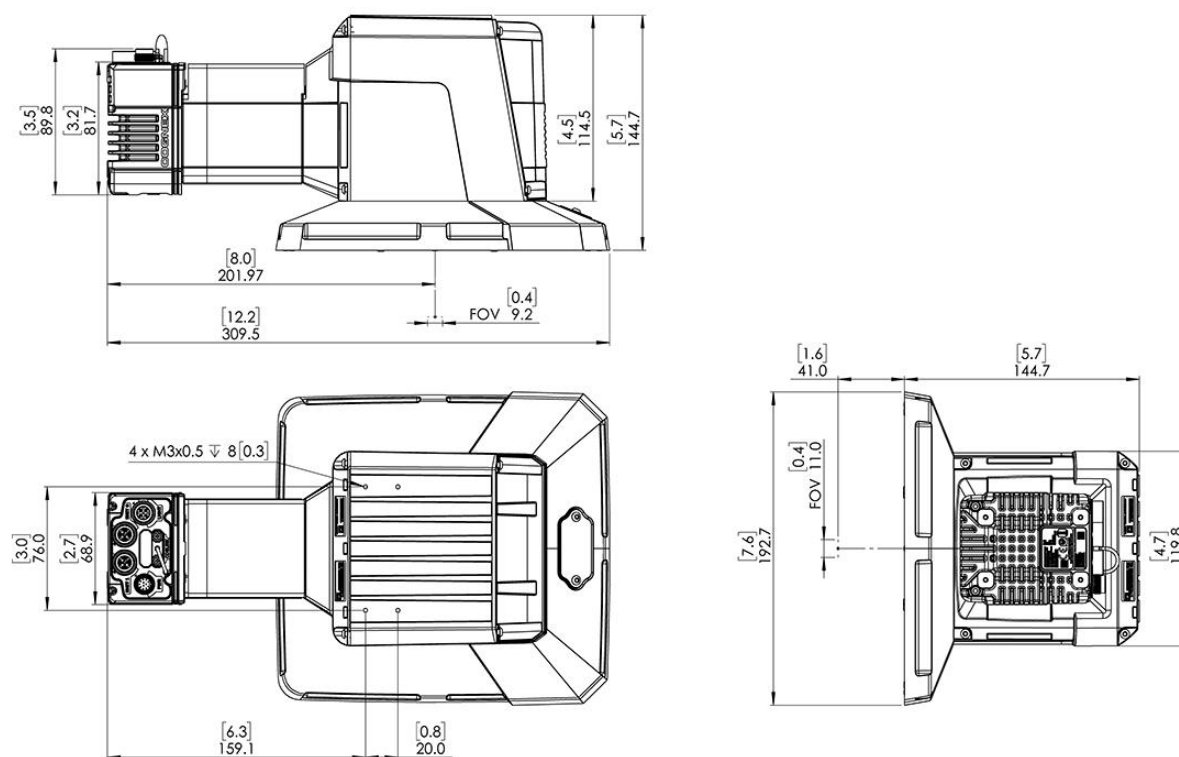
DataMan 395V LBL Dimensions



DataMan 395V DPM Dimensions



DataMan 395V HD Dimensions



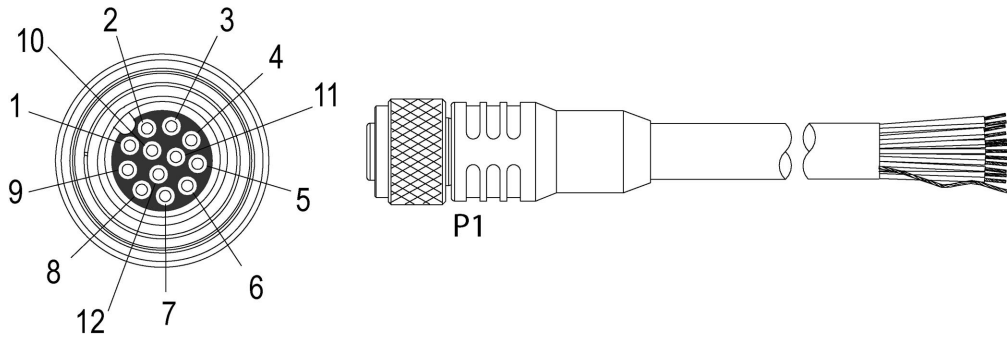
Cable Specifications

The following sections detail the specifications of the cables.

Breakout Cable

The Breakout cable provides connections to an external power supply, the acquisition trigger input, general-purpose inputs, high-speed outputs, and RS-232 serial communications. The Breakout cable is not terminated.

The Breakout cable can be connected to devices, such as a trigger sensor or strobe light.



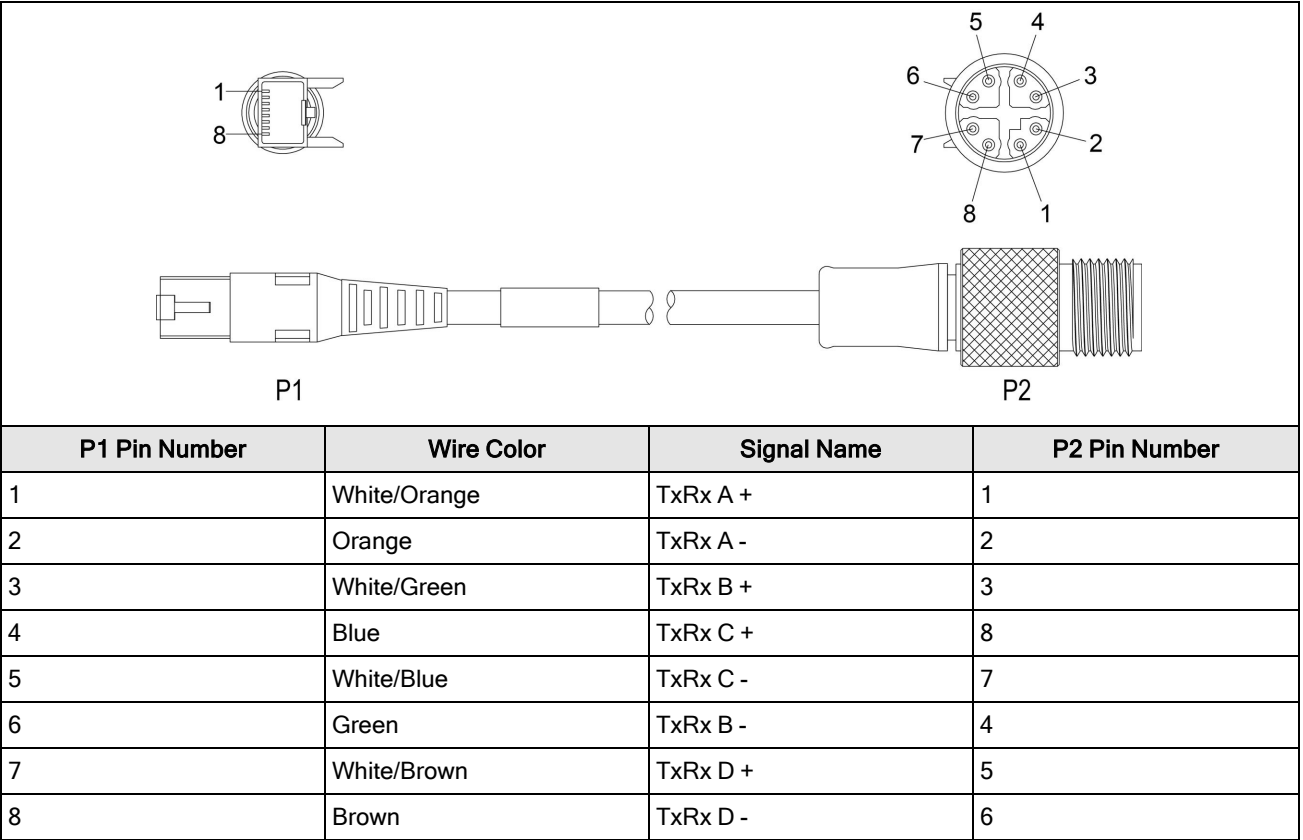
Pin#	Signal Names	Wire Color
1	IN 2 / HSOUT 2	Yellow
2	RS-232 TRANSMIT	White/Yellow
3	RS-232 RECEIVE	Brown
4	IN 3 / HSOUT 3	White/Brown
5	IN 1	Violet
6	COMMON IN	White/Violet
7	+24 V DC	Red
8	GND	Black
9	COMMON OUT	Green
10	TRIGGER	Orange
11	HSOUT 0	Blue
12	HSOUT 1	Grey

Note:

- Cables are sold separately.
- Perform wiring or adjustments to I/O devices when the verifier is not receiving power.
- You can cut exposed wires short or trim wire ends. You also can tie the wires back if you use a tie made of non-conductive material. Keep bare wires separated from the +24 V DC wire.
- When using the 15 meter Breakout cable, full 24 V DC voltage must be maintained at the input leads of the Breakout cable when the verifier is operating.

Ethernet Cable

The Ethernet cable provides Ethernet connectivity to the verifier. The Ethernet cable is used to connect the verifier to other network devices.



CAUTION: The Ethernet cable shield must be grounded at the far end. Whatever this cable is plugged into (typically a switch or router) should have a grounded Ethernet connector. A digital voltmeter should be used to validate the grounding. If the far end device is not grounded, a ground wire should be added in compliance with local electrical codes.

Note:

- Cables are sold separately.
- The wiring for this cable follows standard industrial Ethernet M12 specifications. It differs from the 568B standard.

I/O Specifications

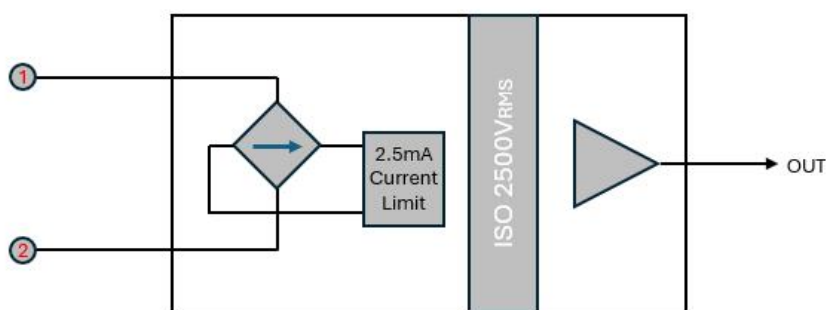
The following sections details the electrical specifications of the input and output lines of the verifier.

Acquisition Trigger Input

The verifier features one acquisition trigger input, which is optically isolated. You can configure the acquisition trigger input to trigger from an NPN (current sinking) or PNP (current sourcing) device.

- To trigger from an NPN type photoelectric sensor or PLC output, connect COMMON IN to +24 VDC and connect IN 0 to the output of the photoelectric sensor. When the output turns ON, it pulls TRIGGER down to 0 VDC, turning the opto-coupler ON.
- To trigger from a PNP photoelectric sensor or PLC output, connect IN 0 to the output of the photoelectric sensor and connect COMMON IN to 0 VDC. When the output turns ON, it pulls TRIGGER up to +24 VDC, turning the opto-coupler ON.

Note: The acquisition input is compliant to IEC 61131-2 Type 1, 2, 3. The current input limit is 2.5 mA. The voltage range is between 12 - 30 V. The maximum input frequency is 500 kHz, and depends on the length of the cable. The 500 kHz is valid with up to 15 meters long Cognex cables.

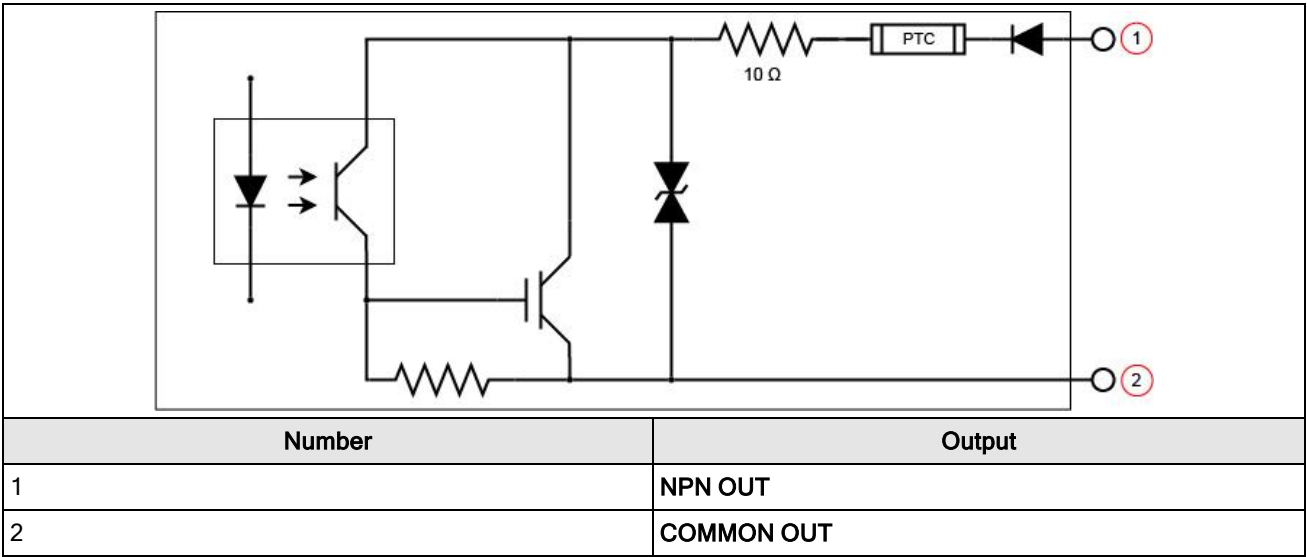


Number	Input
1	IN 0
2	COMMON IN

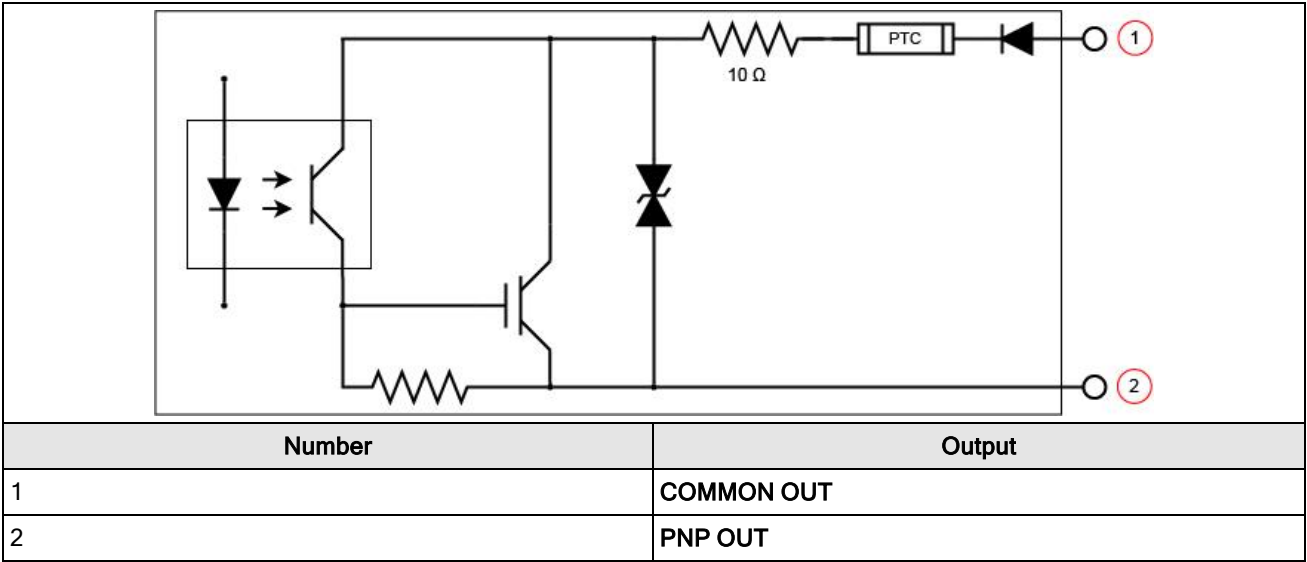
High-Speed Outputs

Specification	Description
Voltage	V_{MAX} : 26 VDC through external load V_{OL} : $\leq \pm 3$ V @ 50 mA
Current	I_{MAX} : 50 mA maximum sink or source current Each line is protected against over-current, short circuits and transients from switching inductive loads. High current inductive loads require an external protection diode.

For NPN lines, the external load must be connected between the output and the positive supply voltage (< 26 VDC). The output pulls down to less than 3 VDC when ON, which causes current to flow through the load. When the output is OFF, no current flows through the load.

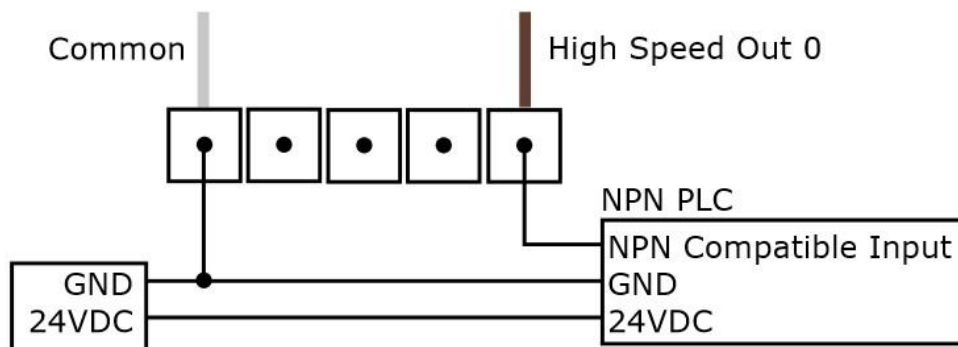


For PNP lines, the external load must be connected between the output and the negative supply voltage (0 VDC). When connected to a 24 VDC power supply, the output pulls up greater than 21 VDC when ON, and current flows through the load. When the output is OFF, no current flows through the load.

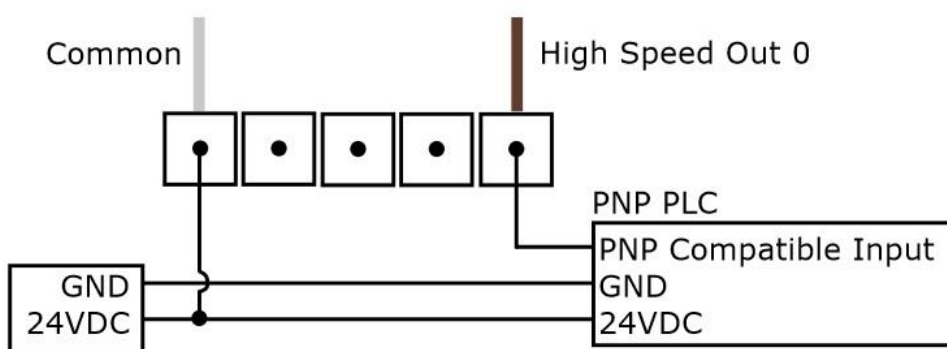


High Speed Output Wiring

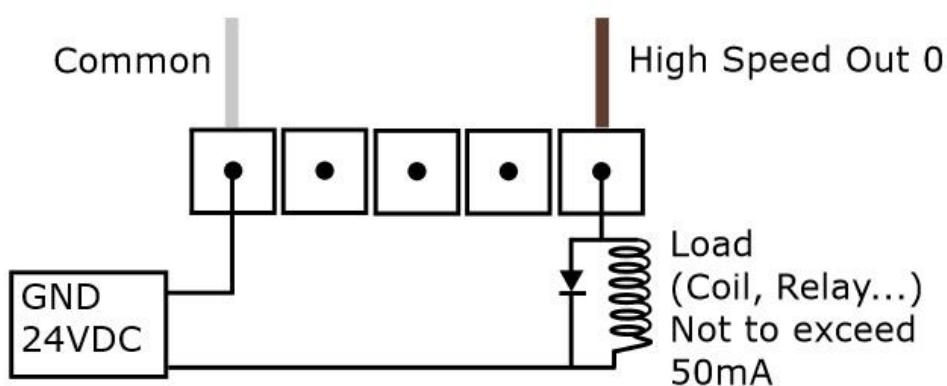
To connect to an NPN-compatible PLC input, connect one of the high-speed outputs of the verifier directly to the PLC input. When enabled, the output pulls the PLC input down to less than 3 VDC.



To connect to a PNP-compatible PLC input, connect one of the high-speed outputs of the verifier directly to the PLC input. When enabled, the output pulls the PLC input up to greater than 21 VDC.



To connect the high-speed outputs to a relay, LED or similar load, connect the negative side of the load to the output and the positive side to +24VDC. When the output switches on, the negative side of the load is pulled down to less than 3 VDC, and 21 VDC appears across the load. Use a protection diode for a large inductive load, with the anode connected to the output and the cathode connected to +24 VDC.

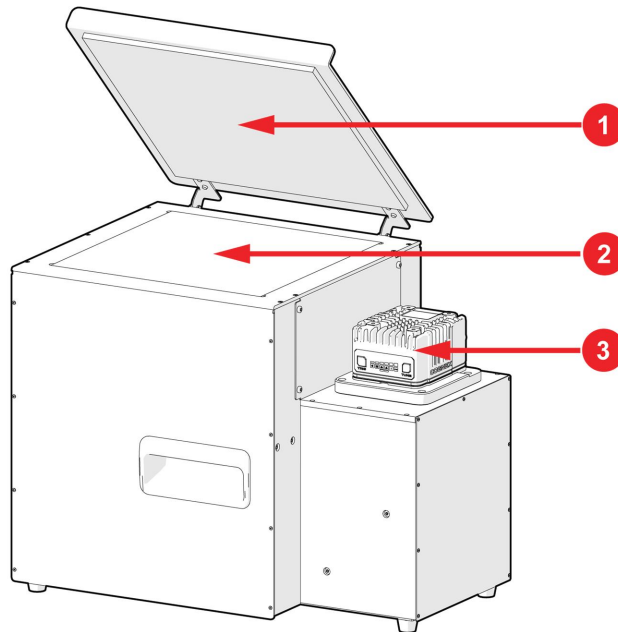


Setting Up Your DataMan Verifier

Read this section to learn how the verifier connects to its standard components and accessories.

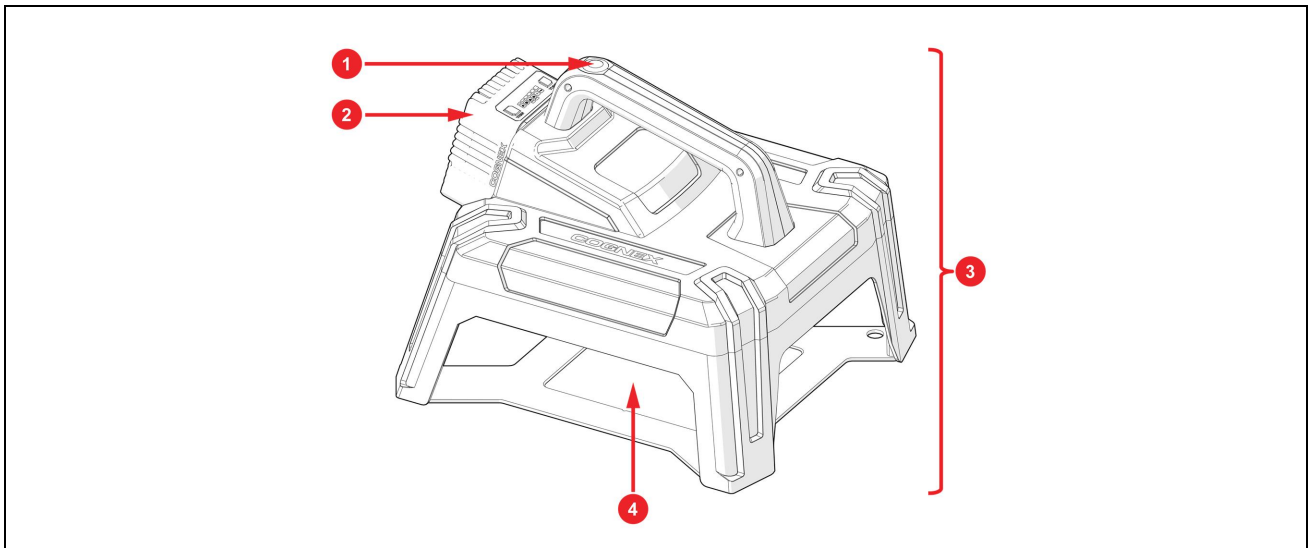
Verifier Layout

DataMan 395V Omni Layout



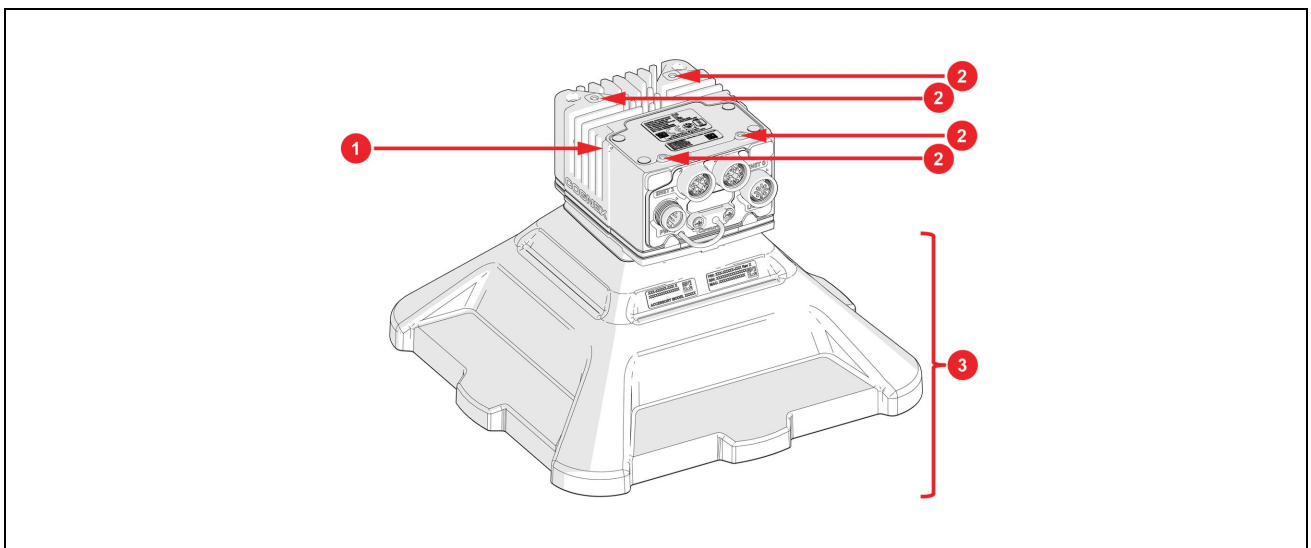
Number	Description
1	Lid
2	Verification surface
3	DataMan 395V verifier. For more information, see Layout of Buttons and Connectors on page 26 .

DataMan 395V Optima Layout



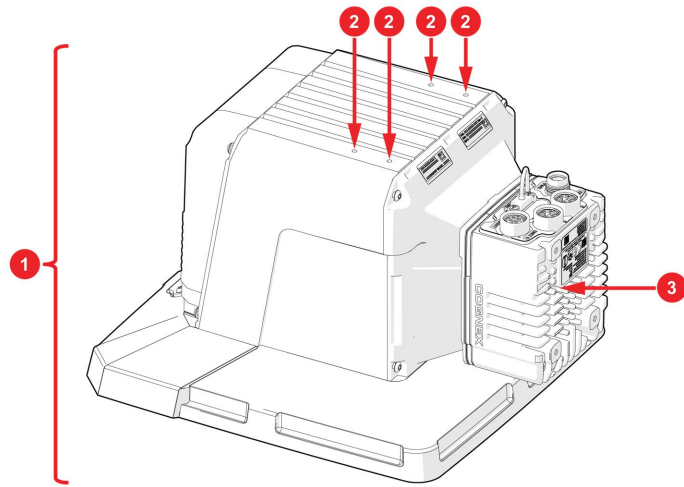
Number	Description
1	Trigger button
2	DataMan 395V verifier. For more information, see Layout of Buttons and Connectors on page 26 .
3	Verifier lighting module
4	Verification surface

DataMan395V LBL Layout



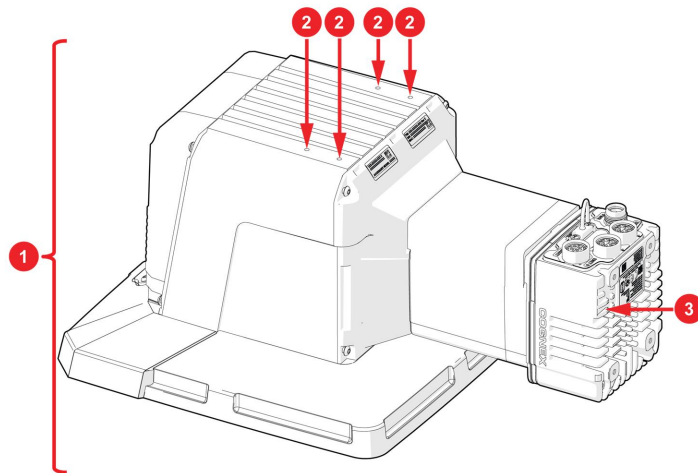
Number	Description
1	DataMan 395V verifier. For more information, see Layout of Buttons and Connectors on page 26 .
2	Mounting holes
3	Label Light attachment

DataMan395V DPM Layout



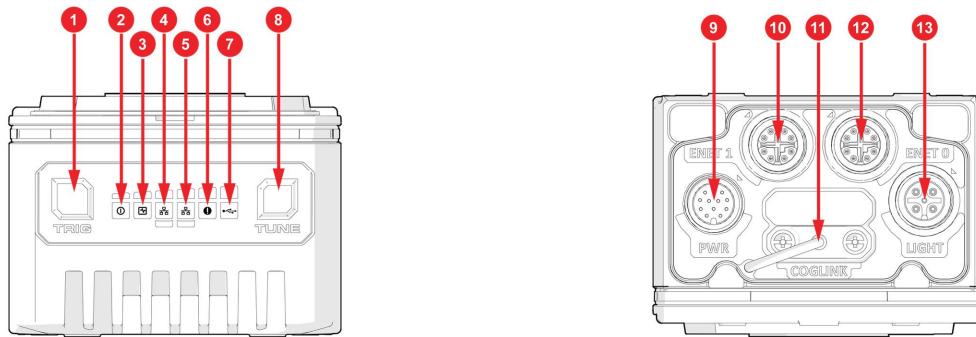
Number	Description
1	DPM Light Attachment
2	Mounting holes
3	DataMan 395V verifier. For more information, see Layout of Buttons and Connectors on page 26 .

DataMan395V HD Layout



Number	Description
1	HD light attachment
2	Mounting holes
3	DataMan 395V verifier. For more information, see Layout of Buttons and Connectors on page 26 .

Layout of Buttons and Connectors



Number	Description
1	Trigger button
2	Power LED indicator
3	Train status LED indicator
4	Ethernet 1 status LED
5	Ethernet 0 status LED
6	Error LED indicator
7	Coglink/USB-C status LED
8	Tune button
9	Power I/O Breakout cable connector
10	Ethernet connector 1
11	Coglink/USB-C connector
12	Ethernet connector 0
13	Light connector
Note: The Light Connector is disabled while the Label Light or DPM accessory is in place.	

Positioning your Verifier

The required positioning method depends on the verifier model that you use.

Positioning your DataMan 395V Omni

The DataMan 395V Omni model is a tabletop verifier for offline use.

1. Place the verifier on a flat surface.
2. Position the code you want to verify on the verification surface.



Tip: Position the code to be in the center of the verification surface. This ensures that the code is in focus and can be verified instantly.



Positioning your DataMan 395V Optima

The DataMan 395V Optima model is a handheld verifier for offline use.

1. Place the code you want to verify on a flat surface.
2. Place the verifier over the code.



Tip: Position the code to be visible under the verification surface. This ensures that the code is in focus and can be verified instantly.



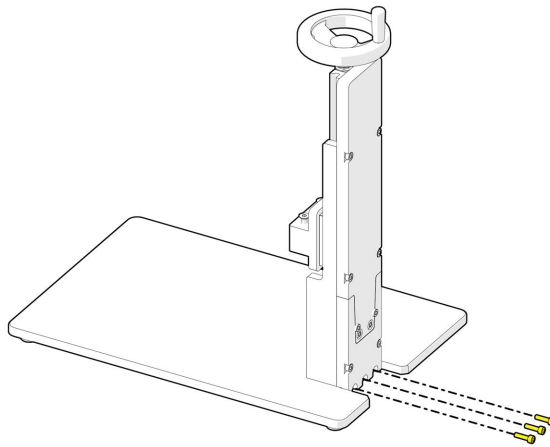
Mounting your DataMan 395V DPM or HD

The verifier provides mounting holes on the illumination for attachment to a mounting surface. Do not mount the DPM and HD models using the holes on the verifier body.

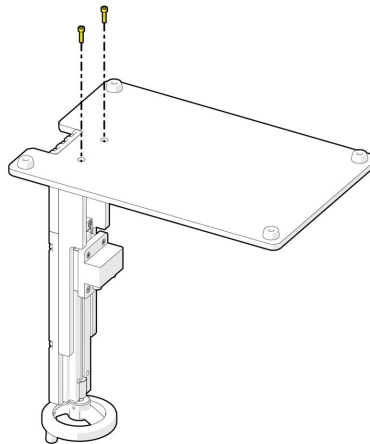
CAUTION: You must ground the verifier, either by mounting the verifier to a fixture that is electrically grounded or by attaching a wire from the mounting fixture on the verifier to frame ground or earth ground. If you use a ground wire, attach the wire to one of the four mounting points on the back plate of the verifier and not to the mounting points on the front of the verifier.

The DPM and HD models use the same mounting hole pattern. The following instructions are applicable to both.

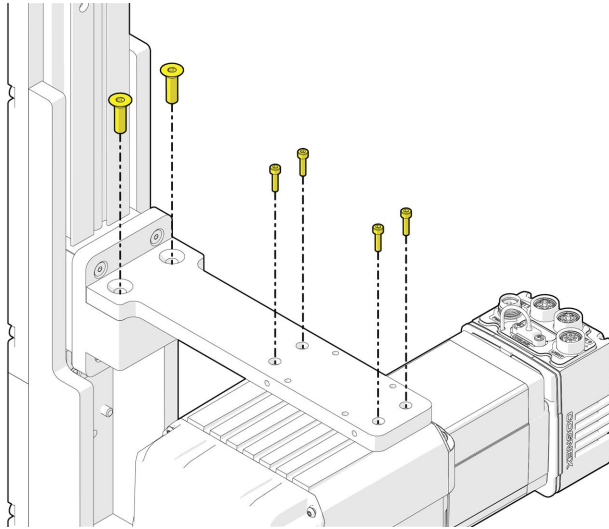
1. Attach the stand to the base plate.
 - a. Fasten three M5 X 18 socket head screws to the holes on the back of the stand.



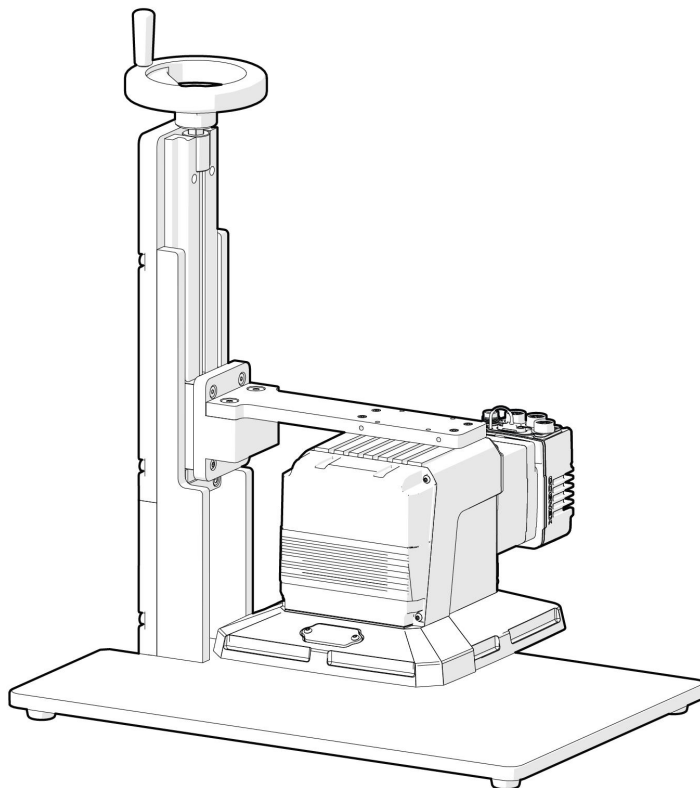
- b. Fasten two M5 X 18 socket head screws in the screw holes on the bottom of the base plate.



2. Secure the verifier to the stand.
 - a. Fasten the stand arm to the stand body using two M6 X 20 flat head screws.
 - b. Attach the verifier to the stand arm using four M3 X 12 socket head screws.



3. The mounting assembly is now complete:



Mounting your DataMan 395V LBL

The verifier provides mounting holes for attachment to a mounting surface.

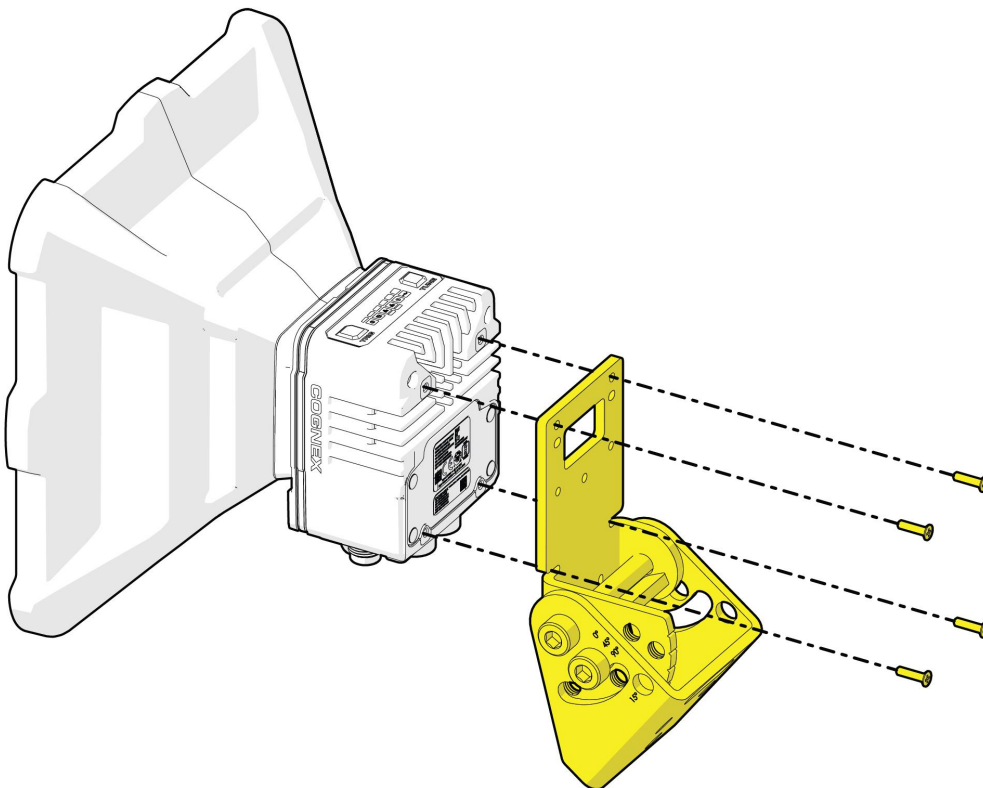
CAUTION: You must ground the verifier, either by mounting the verifier to a fixture that is electrically grounded or by attaching a wire from the mounting fixture on the verifier to frame ground or earth ground. If you use a ground wire, attach the wire to one of the four mounting points on the back plate of the verifier and not to the mounting points on the front of the verifier.

Mounting with Pivot Bracket

1. Align the pivot mounting bracket with the verifier.
2. Insert the screws into the mounting pilot holes and tighten them.

Note: Apply a maximum of 0.4 Nm torque when tightening the screws.

3. Place the verifier on a mounting surface and tighten the screws.

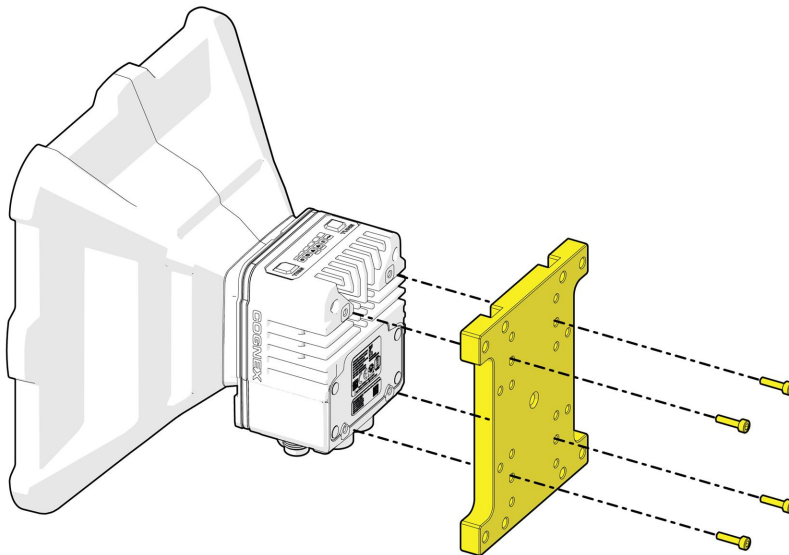
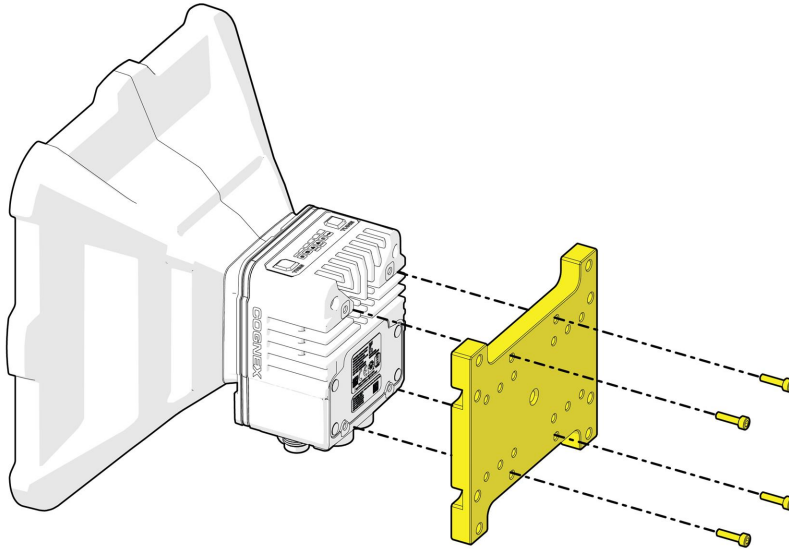


Mounting Bracket (BKT-INS-01)

1. Align the mounting bracket with the mounting holes on the verifier.

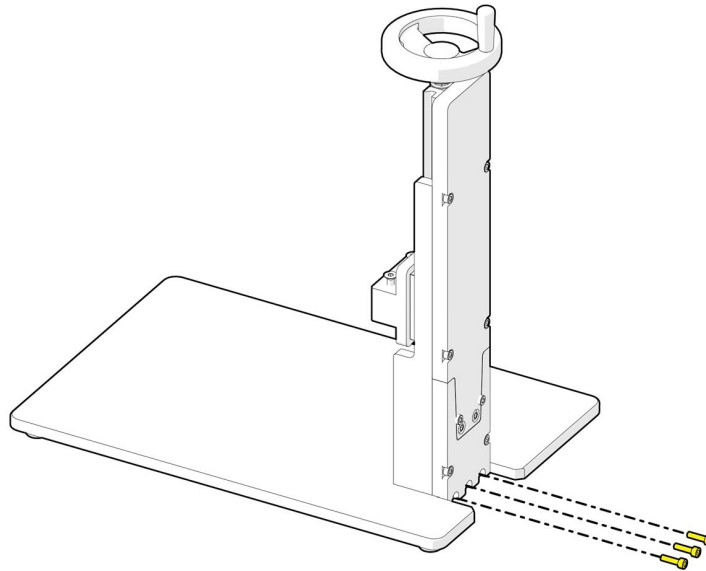
If using the M3 mounting holes, you can attach the mounting bracket in either orientation.

2. Insert the M3 screws into the mounting holes and tighten. The maximum torque is 0.90 Nm (8 in-lb).

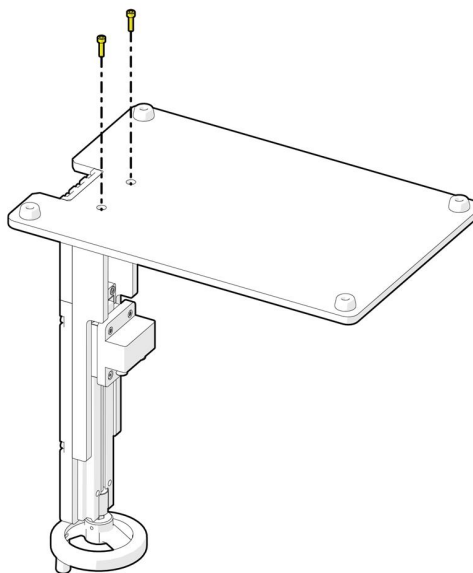


Mounting to the Stand Accessory

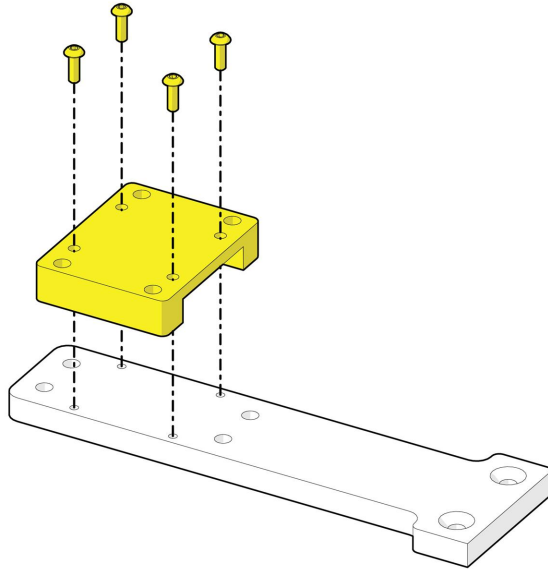
1. Attach the stand to the base plate.
 - a. Fasten three M5 X 18 socket head screws to the holes on the back of the stand.



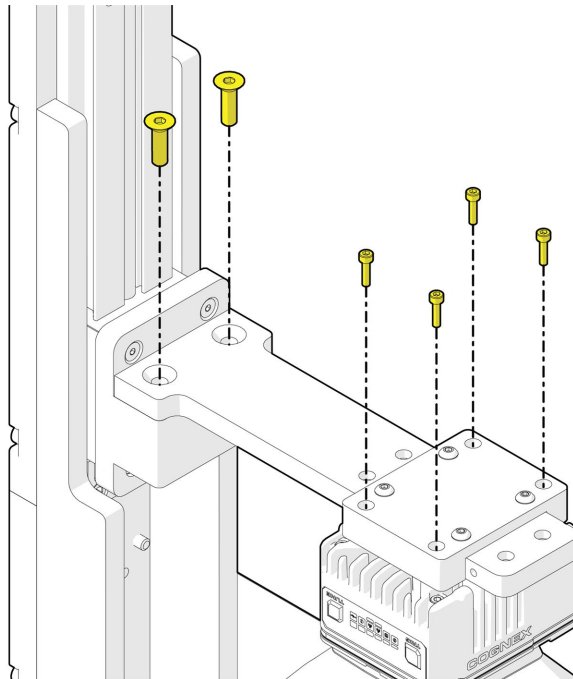
- b. Fasten two M5 X 18 socket head screws in the screw holes on the bottom of the base plate.



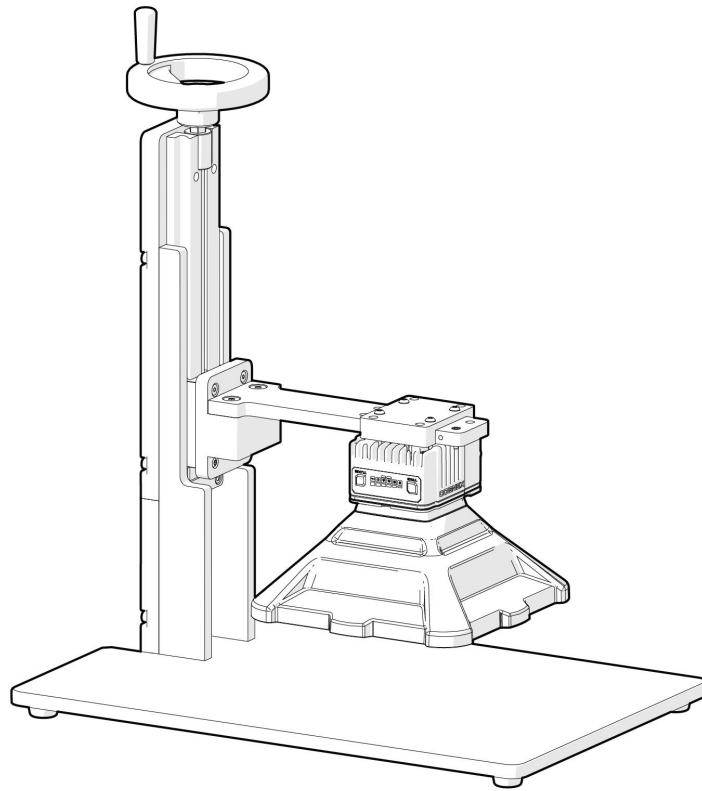
2. Attach the DMV-BRK-IS7905 mounting bracket to the stand arm.
 - a. Align the mounting bracket with the mounting holes on the stand arm.
 - b. Insert the M4 X 12 screws into the mounting holes and tighten. The maximum torque is 0.5 Nm (4.4 in-lb).



3. Secure the verifier to the stand.
 - a. Attach the verifier to the mounting bracket using four M3 X 12 socket head screws.
 - b. Fasten the stand arm to the stand body using two M6 X 20 flat head screws.



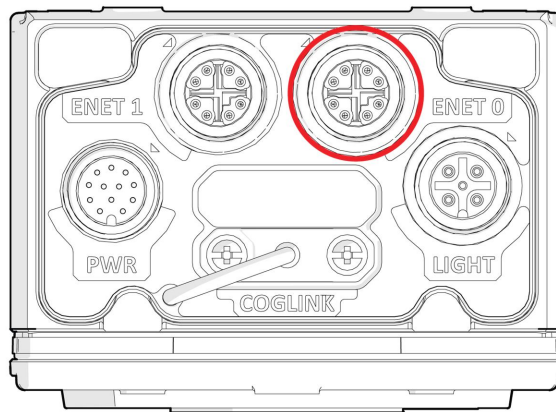
4. The mounting assembly is now complete:



Connecting the Ethernet Cable

CAUTION: The Ethernet cable shield must be grounded at the far end. Whatever this cable is plugged into (typically a switch or router) should have a grounded Ethernet connector. A digital voltmeter should be used to validate the grounding. If the far end device is not grounded, a ground wire should be added in compliance with local electrical codes.

1. Connect the M12 connector of the Ethernet cable to the verifier green ENET0 connector.



2. Connect the RJ-45 connector of the Ethernet cable to a switch/router or PC, as applicable.

Connecting the Power and I/O Breakout Cable

CAUTION: To reduce emissions, connect the far end of the Breakout cable shield to frame ground.

Note:



- Perform wiring or adjustments to I/O devices when the verifier is not receiving power.
- You can clip unused wires short or use a tie made of non-conductive material to tie them back. Keep bare wires separated from the +24 V DC wire.

1. Verify that the 24 V DC power supply is unplugged and not receiving power.
2. Attach the +24 V DC connector of the Power and I/O Breakout cable and Ground wires to the corresponding terminals on the power supply. For more information, see [Specifications on page 12](#).

CAUTION: Never connect voltages other than 24 V DC. Always observe the polarity shown.

3. Attach the M12 connector of the Power and I/O Breakout Cable to the 24 V DC connector of the verifier.



CAUTION: The cable connector is keyed to fit the connector on the Verifier. Forcing the connection can cause damage to the connectors.

4. Restore power to the 24 V DC power supply and turn it on if necessary.

Using your DataMan 395V Verifier Through USB

You can use the USB connector of the verifier in the following ways:

- Emulating serial (USB-COM) functionality

The verifier establishes the connection through emulated serial port.

- Emulating Ethernet functionality

The verifier establishes the connection through emulated Ethernet.

- As Human Interface Device (HID)

If you use the verifier in HID mode, the device serves as an emulated keyboard.



Note: Do not power the verifier exclusively over USB. Any load to the system might cause it to reboot.

Emulating Serial Functionality

If you connect a USB-C cable, you can see a COM port in the Windows Device Manager as a generic USB-COM port. The client application must have DTR (Data Terminal Ready) enabled.

To emulate serial functionality:

1. Set the **USB Connection** properties in the **Serial** tab of the **Communication Settings** panel in DataMan Setup Tool.
2. Open the Windows Device Manager to identify the proper device.
3. Enable the **Serial-over-USB** option in DataMan Setup Tool if it is disabled.

Emulating Ethernet Functionality

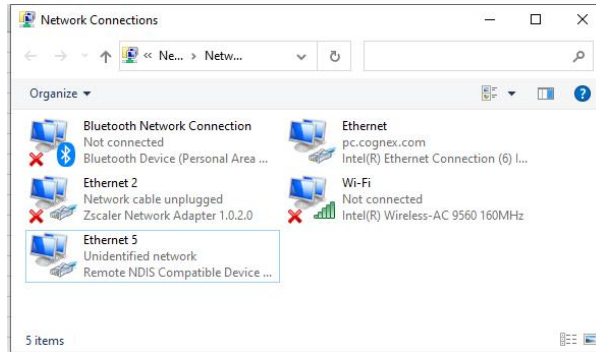
To emulate Ethernet-over-USB functionality, configure the connection between the PC and the verifier.

The DataMan 395V has the fixed IP 192.168.111.2/24 through an emulated Ethernet connection.

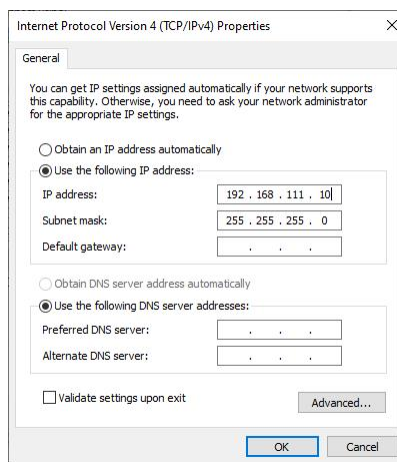
Configure the PC-emulated Ethernet Driver to be in the Same LAN

1. Connect the PC to the verifier with a USB-C cable.
2. Open **Control Panel** and select **Network and internet**.
3. Select **Network and Sharing Center**, then select **Change adapter settings**.

4. Identify the virtual adapter. On the example image below, it is Ethernet 5.



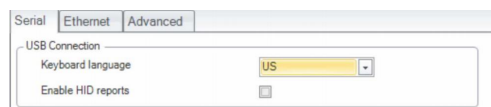
5. Right-click on the virtual adapter and select **Properties**.
6. Assign a fixed IP to the network adapter starting with 192.168.111.



USB-Keybaord (HID) Functionality

To use the verifier as an emulated keyboard, set the language of the keyboard in the software. HID reports use the keyboard language set in the dropdown menu.

To enable HID reports with the DataMan Setup Tool, check the **Enable HID reports** checkbox on the Communications application step:



Note:



- Communication through HID reports is similar to using a physical keyboard.
- Using keyboard emulation with applications supporting hotkeys can result in unexpected behavior, depending on the data of the read codes.

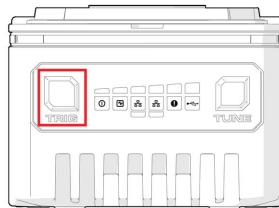
Using Your DataMan Verifier

This section provides information on triggering, industrial protocols, as well as accessing and using the verifier through DataMan Setup Tool and the WebUI.

Triggering the Verifier

You can use any of the following methods to trigger image acquisition on your verifier.

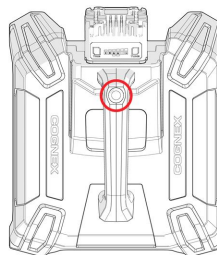
- Press the Trigger on the verifier.



- Send a pulse on the I/O cable.
 - Trigger + (orange or red wire)
 - Trigger - (black wire)
- Send a serial trigger command over the RS-232 connection.
- Press **CTRL+T** on the keyboard while the DataMan Setup Tool has the input focus.
- Click the **Trigger** button in the DataMan Setup Tool or in the WebUI.

Using the Optima Trigger Button

The DataMan 395V Optima features a trigger button on the handle that can speed up your handheld verification workflow.



The button functions as follows:

- If the verifier is not in **Live Mode**, switches to **Live Mode**.
- If the verifier is in **Live Mode**, triggers image acquisition for verification.



Tip: This function is available in both the WebUI and in DataMan Setup Tool.

Industrial Protocols

The verifier supports the following industrial protocols:

- EtherNet/IP™
- PROFINET
- SLMP Protocol
- Modbus TCP
- CC-Link IE Field Basic

Select industrial protocol samples and tools you want to use when you install the DataMan Setup Tool.

After enabling the selected industrial protocol, a reboot is required for the changes to take effect. Enable an industrial protocols on the verifier with the following options:

- Enable the protocols using the **Industrial Protocols** pane of the DataMan Setup Tool, under **Communications**.
- Scan the appropriate **Reader Configuration codes**. For more information, see *Reader Configuration Codes* available through the Windows **Start** menu, the DataMan Setup Tool **Help** menu, or DataMan documentation available on the [Cognex support site](#).
- Send the appropriate **DMCC** command. For more information, see *Command Reference* available through the Windows **Start** menu or the DataMan Setup Tool **Help** menu.

For more information on using the industrial protocols, see the *DataMan Industrial Protocols Manual* available through the Windows **Start** menu, the DataMan Setup Tool **Help** menu, or DataMan documentation available on the [Cognex support site](#).

Verification Workflow

Using the DataMan 395V verifier consists of the following high-level steps:

1. [Connect to Verifier Software on page 42](#)
2. [Calibrate Verifier on page 42](#)
3. [Configure Grading and Application Standards on page 43](#)
4. [Configure Verification Report on page 46](#)
5. [Verify Barcode on page 46](#)
6. [Analyze the Results on page 47](#)

About Verification

Barcode verification is the process of grading the quality of 1D and 2D codes to globally accepted ISO standards using a device called a barcode verifier. A barcode verifier assigns an overall grade to a code based on measurements of several quality parameters. The grade ranges from A to F, with A being the best grade. The quality parameters for code grading for different codes are defined by ISO standards:

- ISO 15416 for 1D barcodes
- ISO 15415 for 2D barcodes printed on a label
- ISO/IEC TR 29158, also known as AIM DPM, for 2D Direct Part Mark (DPM) barcodes

Depending on the code, the verifier measures different quality parameters, for example:

- Symbol contrast
- Modulation
- Fixed pattern damage
- Grid non-uniformity

Application standards define the rules for verifiers to follow for grading codes, for example, minimum acceptable grade and required lighting. The following are examples of application standards of different industries:

- GS1 is a standard used in retail, transportation, and food service industries.
- Unique Identifier (UID) for MIL-STD-130 is a standard used for tracking items for the US Department of Defense.
- Unique Device Identification (UDI) is a standard for all medical services, mandated by the FDA.

A standard for barcode verifiers is ISO/IEC 15426-2, which specifies the requirements for barcode verifiers. For more information, see [ISO Compliant Verification Requirements on page 41](#)

Not all applications are able to conform to ISO standards due to mounting restrictions or barcode placement. Standards-Based Grading (SBG) is a solution that approximates an ISO-compliant barcode verification with flexibility. To find out what setup you need for your verifier and find out more about barcode verification, visit the [Cognex blogs](#).

ISO Compliant Verification Requirements

The ISO/IEC 15426-2 is a conformance standard that specifies the requirements for verifiers to comply with ISO 14515. Conformance calibration cards are used to calibrate verifiers to this standard, which contain intentional errors. With calibration, Standards-Based Grading can approximate the conditions for an ISO-compliant setup.

The verifier must meet the following requirements for ISO 15426-2 2D matrix codes:

- Accommodate Reflectance Calibration based on two points: Rmax and Rmin.
- Collect reflectance measurements twenty times past the quiet zones.
- Establish a reference grayscale image and binarized image as described in ISO 15415.
- Decode images according to the reference decode algorithm spelled out in the bar code specification.
- Report individual values for each of the grades spelled out in ISO 15415.
- Determine and report an overall symbol grade.
- Report the decoded data.
- Be able to do a conformance test within certain percentages for all test symbols on a certified test card with the following parameters:
 - Rmax +/- 5%
 - Rmin +/- 3%
 - UEC 0,0
 - GNU +/- 0,06
 - ANU +/- 0.02
 - Contrast Uniformity CU +/- 0,08 of the Mod Value
 - FPD per grade

Requirements for the verifier to be compliant with ISO 15426-2:

- Able to be calibrated with two calibration points: Rb & Rs.
- Collect reflectance measurements across multiple scans.

- Create an SRP.
- Analyze the SRP.
- Report Individual SRP scan grades.
- Determine an overall symbol grade based on averages of the individual SRP grades and include aperture and wavelength in the overall grade.
- Report Data.
- Report all symbol characters, such as Function One and Code 128 encoding structure.
- Conform to a conformance test using industry standard test cards with the following parameters:
 - Rmax +/- 5%
 - Decodability +/- .08
 - Defect +/- .08
 - Other manufacturer test symbol values on the test card

Connect to Verifier Software

The DataMan 395V supports multiple user interfaces. Chose one of the following options depending on your use case:

- The WebUI offers a streamlined guided workflow without needing to install any additional software. For more information, see [Verification Using the WebUI on page 54](#).
- The TruCheck Verification window in DataMan Setup Tool provides access to advanced verification settings. The TruCheck Verification relies on the DataMan Setup Tool for additional functionality. For more information, see [Verification Using the TruCheck Verification Window on page 79](#).

Calibrate Verifier

Overview

Calibration sets reflectance and spatial references, in the form of grey scale and pixel size, of the verifier to enable measurements of contrast and code dimensions. You must calibrate the verifier with a code that has known **RMin** and **RMax** values, for example, the DMV-DMCC Cognex Calibration Card.

Calibration Card

Conformance calibration cards are an industry tool designed to support the proper calibration of verifiers. The card contains Conformance Test Symbols with intentional imperfections that can check the reporting capabilities of the verifier, and document conformance to industry standards such as ISO 15415, ISO 15416, and GS1 specifications.

See [Calibration Cards](#) for the Cognex Calibration Cards.

Note: Store the card away from dust and direct sunlight when not in use to avoid compromising the calibration symbol. Calibration cards expire after 2 years from the in-use date.

Calibration Guidelines

For ISO-compliant barcode verification, make sure that the verifier is in a calibrated state. Cognex recommends calibrating your verifier using a NIST-traceable calibration card.

Calibration does not require a specific symbology. You can calibrate your DataMan 395V verifier using either type of calibration target, and the verifier is calibrated for both 1D and 2D barcodes.

In an uncalibrated state, the verifier does not report the following:

- Aperture and Symbol Contrast (SC) for ISO/IEC 15415/15416 applications
- Minimum Reflectance (MR) for ISO/IEC TR29158 (AIM-DPM) applications

In an uncalibrated state, the verifier uses the default aperture selection without including it in the report: **Auto 50%** for 1D applications or **Auto 80%** for 2D applications.

Troubleshooting

The calibration fails if the verifier is not able to detect the calibration target. Make sure that the following conditions are met:

- A valid, readable barcode is visible within the Field of View and in focus.
- The selected Region of Interest includes the barcode that you use for calibration.
- The calibration barcode symbology type is supported and enabled.
- The verifier is not set for multiple verifications.
- Filtering is disabled.

Calibration Frequency

The **Last Calibrated** field shows the time passed since the verifier has been calibrated.

Calibrate your verifier as needed to ensure accurate verification results:

- Calibrate monthly for laboratory or QA environment, which is free of dust, vibration, bright sunlight, or oil particulates.
- Calibrate weekly for production environments where contaminants exist.
- Create a custom calibration schedule where internal quality guidelines demand more frequent calibration.



Tip: You can set a calibration reminder in the TruCheck Verification. For more information, see [Calibration Settings on page 87](#).

Configure Grading and Application Standards

The selected grading and application standard determine the code quality parameters assessed during the verification process.

Grading Standards

The International Organization for Standardization (ISO) defines globally recognized standards that specify how barcode quality is measured, graded, and verified.

The DataMan 395V verifier supports the following grading standards:

- **ISO 15415:** Defines methods for measuring and grading the print quality of 2D barcodes on labels.
- **ISO 15416:** Defines methods for measuring and grading the print quality of 1D barcodes on labels.
- **ISO 29158 (AIM-DPM):** Defines methods for measuring and grading the quality of 2D Direct Part Marking (DPM) codes.

For more information, visit cognex.com for the *Introduction to Barcode Verification Guide*.

Application Standards

Application Standards configure the verifier to grade according to predefined rules established by an industry standards body or other industry requirements.

The DataMan 395V verifier supports the following application standards:

- **GS1:** The GS1 application standard follows GS1 General Specification guidelines in code verification.
- **HIBCC:** The HIBCC application standard checks against the HIBCC quality standard to ensure that healthcare barcodes comply with ANSI-accredited and ISO/IEC print quality specifications.
- **UID (MIL-STD-130):** The UID (MIL-STD-130) application standard reports the quality standard according to the MIL-STD 130 specifying UID marks Construct 1 and Construct 2 that use data structure and code grade for verification.
- **UDI (GS1 or HIBCC):** The UDI (GS1 or HIBCC) application standard checks symbols that meet UDI requirements for medical devices using either GS1 or HIBCC guidelines.
- **Custom:** Choose the **Custom** option when you are grading a code that does not adhere to predefined industry conformance standards.
- **Auto:** Choose the **Auto** option to allow the verifier to select the correct application standard based on the format of the data encoded in the symbology. If the verifier detects GS1, HIBCC, or MIL-STD 130 standards within a symbology during verification, the verifier uses the correct application standard.
- **Cryptocode:** The **Cryptocode** application standard checks symbols that meet Russian Cryptocode standard or other Cryptocode applications.

Custom Application Standard

The 395V DataMan verifier is capable of grading codes that do not adhere to predefined industry conformance standards. This means that you can customize the verification process with specific settings for the following:

- Grading Standard: ISO/IEC 15415 or ISO/IEC 29158
- Minimum and Maximum X-dimension
- Overall Pass Grade
- Data Format Check
- Aperture Size

Data Format Check

You can apply a specific **Data Format Check** criteria to the data content of the code or leave the option as **None**. If you apply a specific **Data Format Check**, a *Data Format Check* grading box becomes available on the Main tab to show the Pass or Fail grade. The report contains a *Data Format Check* table showing detailed parsing information.

The following specific **Data Format Check** criteria are available:

- **GS1:** This option checks the format of the data against GS1 formatting rules. GS1 codes generally begin with a `Function 1 <F1>` character.
- **HIBCC:** This option checks the format of the data against HIBCC formatting rules. HIBCC codes generally begin with a `+` character.
- **ISO/IEC 15434:** This option checks data for many industry standards which encode information using ISO/IEC 15434 data structures. ISO/IEC 15434 codes generally begin with the sequence `] ]><RS>nn<GS>` where `nn` are two digits which are typically `05`, `06` or `12`. MIL-STD-130 and some shipping container applications use this formatting style.

Aperture Setting

Aperture setting refers to a synthetic aperture as opposed to an optical aperture. Aperture is a circular region imposed on the pixels which comprise the individual modules making up the code. This process is mandated by the ISO/IEC 15415 and 15416 standards.

The **Aperture Size** setting is compatible with ISO/IEC 15415 only. AIM-DPM grading includes a blurred reference image, similar to ISO/IEC 15415. The AIM-DPM grading method dictates the aperture size to be either 50% or 80% of the symbol X-dimension.

Larger aperture sizes reduce:

- Sensitivity to printing defects
- Ability to resolve small elements in a code

The size of the aperture is limited by the X-dimension of your symbols, or the X-dimension of your symbols is limited by the size of your aperture. Choose aperture size in application specification, quality specification or both. If you do not know the correct aperture size to select, choose **Auto** and the verifier uses guidelines in ISO/IEC 15415 to choose an aperture size based on the X-dimension of the code.

The following custom aperture size options are available:

- **User Set:** The application allows you to specify the **Aperture Size** in the dropdown menu.
- **Auto 50% / 80%:** The application automatically sets an aperture size based on 50% of the X-dimension for 1D symbologies and 80% of the X-dimension for 2D symbologies.
- **Auto Aperture:** The application automatically sets an aperture size based on the X-dimension of the code.

Auto Aperture for 1D Barcodes

The application automatically sets an aperture size based on the X-dimension in accordance with the suggestion in ISO/IEC 15416. For the Generic Application Standard, the following table applies for most symbologies:

X-Dimension	Aperture
≤ 7.0 mil	03 (3 mil)
$7.1 \text{ mil} < x \leq 13 \text{ mil}$	05 (5 mil)
$13 \text{ mil} < x \leq 25 \text{ mil}$	10 (10 mil)
$> 25 \text{ mil}$	20 (20 mil)
For UPC/EAN, regardless of X-dimension or magnification	06 (6 mil)

You can override these rules by determining a specific aperture directly for any application that requires a specified aperture. An application specification (such as GS1 Gen Spec, or MIL-STD 129) specifies an aperture value, which can be different than what the rules in the table would yield.

Auto Aperture for 2D Barcodes

The application automatically sets an aperture size based on the X-dimension in accordance with the suggestion in ISO/IEC 15415. For the Generic Application Standard, the following table applies for most symbologies.

X-Dimension	Aperture
≤ 6 mil	02 (2 mil)
$6 \text{ mil} < x \leq 7.5 \text{ mil}$	03 (3 mil)
$7.5 \text{ mil} < x \leq 10 \text{ mil}$	05 (5 mil)
$10 \text{ mil} < x \leq 20 \text{ mil}$	08 (8 mil)
$20 \text{ mil} < x \leq 30 \text{ mil}$	16 (16 mil)
$\geq 30 \text{ mil}$	20 (20 mil)

Dot Peen

Use the **Dot Peen** option for codes created through a process where dots are peened onto a metal surface. Select **Dot Peen** to use the AIM-DPM Stick algorithm to connect dots.

To configure dot peen settings for a **Custom** application standard:

1. Select **ISO/IEC 29158 (AIM-DPM)** as the **Grading Standard**.
2. Set the minimum X-dimension value with the **Min X-Dimension (mils)** setting.
The lowest possible value is 0.1 mil. Any code that falls below the minimum X-dimension receives a grade of Fail (`X-Dimension out of Range`). If you do not specify a minimum X-dimension, the application default is 5 mils.
3. Set the highest possible X-dimension value with the **Max X-Dimension (mils)** setting.
The highest value that can be set is 130 mils. Any code that is above the maximum X-dimension receives a grade of Fail (`X-Dimension out of Range`). If you do not specify a maximum X-dimension, the application defaults to 30 mils.
4. Select a minimum **Pass Grade** based on a letter and a number which is $C > 1.5$
Any verified code that does not receive an Overall Grade above the Pass Grade minimum receives a grade of Fail for Pass Grade.

Configure Verification Report

You can compile the result of each verification into a formal verification report in HTML and PDF format. The report contains assessed code quality parameters of the given code.

Report generation depends on the connected user interface:

- The WebUI automatically generates a verification report for each trigger.
- The TruCheck Verification window allows you to enable and disable report generation, and to customize what is included in the report.

The following options are available to obtain a verification report:

- View it on the user interface
- Download it manually
- Set up automatic transfer over FTP

Verify Barcode

To verify a barcode with the DataMan 395V verifier:

1. Connect to the verifier.
2. Enable Live Mode.
3. Position the code to be in focus.
4. Specify the Region of Interest. For more information, see [Select Region of Interest on page 46](#).
5. Trigger the verifier.

For instructions on using a specific UI, see the following sections:

- [Verify Barcode Using the WebUI on page 61](#)
- [Verify Barcode Using the TruCheck Verification Window on page 107](#)

Select Region of Interest

The Region of Interest (ROI) specifies the part of the image used for verification.

Requirements for selecting the ROI on the image are the following:

- Specify a small sampling area, to speed up the verification process on verifiers with large fields of view,
- Restrict a region for image brightness adjustments when grading according to AIM-DPM (ISO/IEC 29158).
- Specify a barcode for verification when more than one barcode is present in the field of view.

1D and 2D barcodes requires different considerations when selecting the ROI:

- For Data Matrix symbols and QR Codes, specify the region around the outside perimeter including quiet zones of the code to capture the entire finder pattern within the selection to properly grade the code.
- When verifying a 1D symbol, select a region that includes the full width of the barcode including both quiet zones.

If you do not specify a region, the whole image is used for verification.

Analyze the Results

The verifier returns a detailed code quality analysis after trigger.

The list of quality parameters depend on the grading standard you use. For a detailed description of the available code quality parameters, see the following sections:

- [ISO/IEC 15415 Quality Parameters on page 47](#)
- [ISO/IEC 15416 Quality Parameters on page 50](#)
- [ISO/IEC TR 29158 AIM-DPM-1-2006 Quality Parameters on page 53](#)

ISO/IEC 15415 Quality Parameters

The ISO/IEC 15415 standard defines the grading standards for 2D codes.

Quality Parameter	Parameter Description	Value Description	Grading
Unused Error Correction (UEC)	Measures the remaining capability for error correction that is available for further incorrect modules.	The value is the percentage of the remaining error correction capability.	A > 62 B 50 – 61 C 37 – 49 D 25 – 36 F < 25
Symbol Contrast	The parameter measures the contrast between the brightest space and the darkest bar.	The value is a percentage of contrast. It ranges from 100, which is the highest contrast, to 0, which is the lowest contrast.	A > 70 B 55 – 70 C 40 – 55 D 20 – 40 F < 20

Quality Parameter	Parameter Description	Value Description	Grading
Print Growth (PG)	Measures the deviation from the original, intended sizes of the modules.	A percentage of deviation from the original size of modules.	4.0 <= 10
	 Note: The Print Growth (PG) quality parameter is only present from ISO/IEC 15415:2024.		3.9 – 10.1 – 3.0 28 2.9 – 28.1 – 2.0 34 1.9 – 34.1 – 1.0 40 0.9 – 40.1 – 0.1 60 0.0 > 60
Modulation (MOD) and Reflectance Margin (RM)	Measures the amount of reflectivity of the modules. The grade is calculated using a formula that compares the reflectivity of each module to the global threshold and the overall symbol contrast.	A percentage of modulation.	A > 50 B 40 – 49 C 30 – 39 D 20 – 21 F < 20
	 Note: The Reflectance Margin (RM) quality parameter is not displayed in ISO/IEC 15415:2024.		
Axial Nonuniformity (ANU)	Measures the overall aspect ratio of the symbol and checks for uneven scaling of the modules.	A percentage of deviation from a square shape of the modules.	A <= 6 B 6 – 7 C 8 – 9 D 10 – 11 F >= 12
Grid Nonuniformity (GNU)	Measures the biggest deviation from the calculated center of the module and the ideal location for the center of the module.	Deviation from the center in percentage of module size.	A <= 38 B 39 – 50 C 51 – 63 D 64 – 74 F >= 75
Fixed Pattern Damage (FPD)	The overall grade of the fixed pattern components.	N/A	It is equal to the lowest grade among LLS, BLS, LQZ, BQZ, TQZ, and RQZ.
Left 'L' Side (LLS)	Measures imperfections in the 'L' finder pattern. The parameter checks the pattern for the following: - The gaps must be three modules or less. - The gaps must be separated by at least four correct modules.	The percentage of incorrect modules.	A 0 B 1 – 9 C 10 – 13 D 14 – 17 F < 17

Quality Parameter	Parameter Description	Value Description	Grading
Bottom 'L' Side (BLS)	Measures imperfections in the 'L' finder pattern. The parameter checks the pattern for the following: - The gaps must be three modules or less. - The gaps must be separated by at least four correct modules.	The percentage of incorrect modules.	A 0 B 1 – 9 C 10 – 13 D 14 – 17 F < 17
Left Quiet Zone (LQZ)	Measure imperfections in the quiet zone, which is a one-module area on either side of the code.	The percentage of incorrect modules.	A 0 B 1 – 9 C 10 – 13 D 14 – 17 F < 17
Bottom Quiet Zone (BQZ)	Measure imperfections in the quiet zone, which is a one-module area on either side of the code.	The percentage of incorrect modules.	A 0 B 1 – 9 C 10 – 13 D 14 – 17 F < 17
Top Quiet Zone (BQZ)	Measure imperfections in the quiet zone, which is a one-module area on either side of the code.	The percentage of incorrect modules.	A 0 B 1 – 9 C 10 – 13 D 14 – 17 F < 17
Right Quiet Zone (RQZ)	Measure imperfections in the quiet zone, which is a one-module area on either side of the code.	The percentage of incorrect modules.	A 0 B 1 – 9 C 10 – 13 D 14 – 17 F < 17
Top Transition Ratio (TTR)	Measures the imperfections in the transition from the clock track to the adjoining quiet zone.	The ratio of the number of transitions from light to dark or dark to light in the quiet zone divided by the number of transitions in the clock track.	A < 6 B 7 – 8 C 9 – 10 D 11 – 12 F > 12

Quality Parameter	Parameter Description	Value Description	Grading
Right Transition Ratio (RTR)	Measures the imperfections in the transition from the clock track to the adjoining quiet zone.	The ratio of the number of transitions from light to dark or dark to light in the quiet zone divided by the number of transitions in the clock track.	A < 6 B 7 – 8 C 9 – 10 D 11 – 12 F > 12
Top Clock Track (TCT)	Measures the imperfections in the clock track. Three out of five modules in every five modules in the clock track must be correct for the passing grade.	N/A	A grade of the highest modulation level for which the test passes.
Right Clock Track (RCT)	Measures the imperfections in the clock track. Three out of five modules in every five modules in the clock track must be correct for the passing grade.	N/A	A grade of the highest modulation level for which the test passes.
Average Grade (AG)	Average grade of damage across the finder pattern.	The average value of the following: - Lowest of values associated with the clock track segment: TCT, TTR, TQZ, TCT, RTR, and RQZ. - LLS - BLS - LQZ - BQZ	A 4.0 B 3.5 – 3.9 C 3.0 – 3.4 D 2.5 – 2.9 F ≤ 2.5
Decode	The parameter checks whether the code can be decoded based on a specific formula.	The value is a score out of ten.	Pass/Fail grade (A or F, respectively).

ISO/IEC 15416 Quality Parameters

The ISO/IEC 15416 standard defines the grading standards for 1D barcodes.

Quality Parameter	Parameter Description	Value Description	Grading
Edge	Edge determination. The parameter checks that the verifier detects each edge between bars and spaces. The edges can blur due to splitting of bars or ink splattered into spaces.	The Edge value is the number of bars and spaces without quiet zones.	Pass/Fail grade (A or F, respectively). Pass grade if the number of bars and spaces is correct.

Quality Parameter	Parameter Description	Value Description	Grading
Reflectance Light / Reflectance Dark (RI/Rd)	The ratio of minimum reflectance. The parameter checks whether the darkness of the bars is sufficient. The light reflected by the bars must be less than half of the light reflected by the spaces.	The first value represents the lightest value in spaces. The second value represents the darkest value in bars.	Pass/Fail grade (A or F , respectively). Pass grade if the reflectance is sufficient.
Symbol Contrast (SC)	The parameter measures the contrast between the brightest space and the darkest bar.	The value is a percentage of contrast. It ranges from 100, which is the highest contrast, to 0, which is the lowest contrast.	A > 70 B 55 – 69 C 40 – 54 D 20 – 39 F < 20
Minimum Edge Contrast (MinEC)	The parameter checks the contrast between bars and spaces. As opposed to symbol contrast, minimum edge contrast checks for the worst contrast difference between each bar and space.	The value is a percentage of edge contrast.	Pass/Fail grade (A or F , respectively). Pass grade if the value exceeds 15%.
Modulation (MOD)	The parameter checks the edge contrast as the ratio of the minimum edge contrast and symbol contrast. It represents the consistency of the darkness of the bars and the lightness of the spaces.	The value is a percentage of modulation.	A >= 70 B 60 – 69 C 50 – 59 D 40 – 49 F < 30
Defect (Def)	The parameter checks for defects in bars and spaces. Out of all the changes in reflectance in bars and spaces, Defect takes the highest value, which is the worst one and could influence the readability of the code the most.	The value is a percentage of the worst change in reflectance of a single bar or space.	A <= 15 B 16 – 20 C 21 – 25 D 26 – 30 F > 30
Decode (DCD)	The parameter checks whether the code can be decoded based on a specific formula.	The value is a score out of ten.	Pass/Fail grade (A or F , respectively).
Decodability (DEC)	The parameter determines how accurate the bar and space widths are and how easy it is to determine the widths. The lower the score, the more inconsistent and distorted the bar and space widths are.	The value is a percentage of the overall tolerance range for a bar or space range that is accurate.	A >= 62 B 50 – 61 C 37 – 49 D 25 – 36 F < 25

Quality Parameter	Parameter Description	Value Description	Grading
Minimum Quiet Zone (MinQZ)	The quiet zone represents the empty spaces to the left and right of the code. Different symbologies have different requirements for the minimum quiet zone.	The value is the width of the blank spaces on either side of the code, measured in modules.	Pass/Fail grade (A or F , respectively). Pass grade depends on the symbology.

ISO/IEC TR 29158 AIM-DPM-1-2006 Quality Parameters

The ISO/IEC TR 29158 standard is an extension of ISO/IEC 15415 for Direct Part Marking use case.

Quality Parameter	Parameter Description	Value Description	Grading
Cell Contrast (CC)	The relative contrast value between bars and spaces. It is the mean value of the light and dark elements.	A percentage of contrast value.	A ≥ 30 B 25 – 29 C 20 – 24 D 15 – 19 F < 15
Cell Modulation (CMOD)	Measures the amount of reflectivity of the modules. The grade is calculated using a formula that compares the reflectivity of each module to the global threshold and the overall symbol contrast. Each module is graded based on the reflectivity of the modules, then error correction capability is calculated to negate one or few elements with low values.	A percentage of modulation.	
Distributed Damage Grade (DDG)	Average grade of the fixed pattern elements.	N/A	The result of fixed pattern damage patterns.
Minimum Reflectance (MR)	The minimum reflectance between light and dark elements.	A percentage of the lowest value of reflectance between dark and light elements.	For ISO/IEC TR 29158:2011: Pass/Fail grade (A or F , respectively). The value must be at least 5% for a pass grade. For ISO/IEC TR 29158:2020 and later: 4.0 ≥ 20 3.5 – 15 – 4.0 19.9 2.5 – 10 – 3.4 14.9 1.5 – 5 – 2.4 9.9 1.4 – < 5 0.0
Decode	The parameter checks whether the code can be decoded based on a specific formula.	The value is a score out of ten.	Pass/Fail grade (A or F , respectively).

Verification Using the WebUI

Using the DataMan 395V verifier with the WebUI consists of the following high-level steps:

1. [Connect to WebUI on page 54](#)
2. [Calibrate the DataMan 395V Using the WebUI on page 57](#)
3. [Configure Application Settings Using the WebUI on page 58](#)
4. [Generate Verification Report in the WebUI on page 59](#)
5. [Verify Barcode Using the WebUI on page 61](#)
6. [Examining the Results in the WebUI on page 62](#)

Connect to WebUI

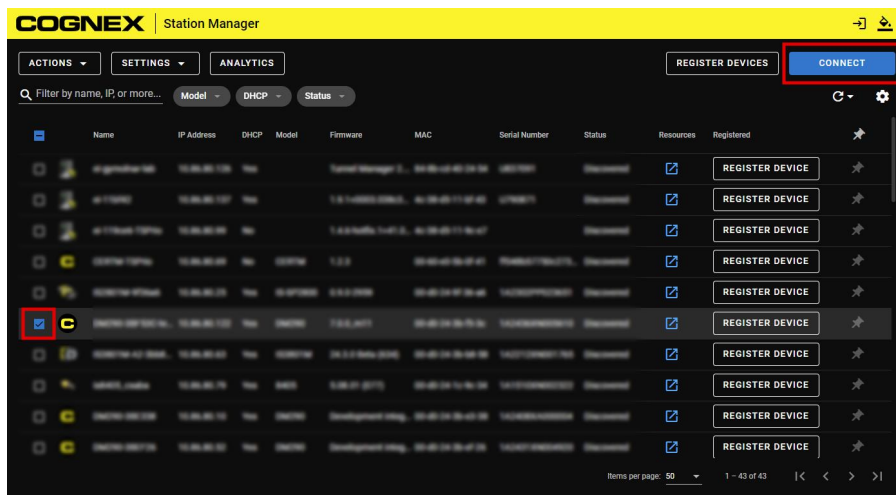
Connect to the WebUI using one of the following options:

Web browser

1. Open a web browser.
2. Enter any of the following details:
 - The IP address of your verifier.
 - Serial number: found on the label of the verifier, followed by `.local`. For example, `1A2436XN005610.local`.
 - MAC address: found on the label of the verifier, followed by `.local`. For example, `00D0243BF53C.local`.
 - Host name: the default host name is `DM395V` and the first six characters of the MAC address, followed by `.local`. For example, `DM395V-00D024.local`.

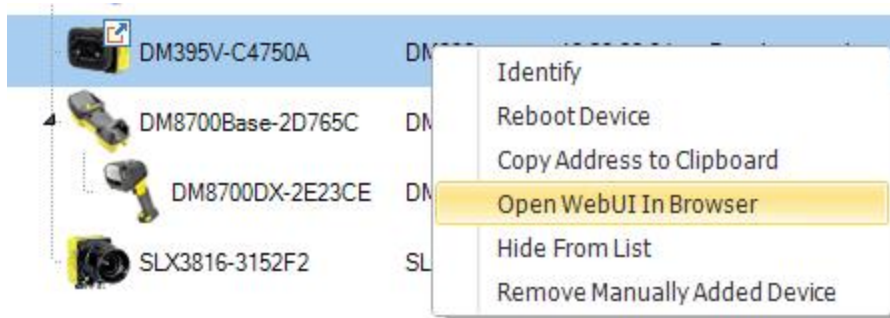
Station Manager

1. Download the Station Manager from <https://support.cognex.com/en/products/station-manager>.
2. Install and launch Station Manager.
3. Find and select your verifier.
4. Click **Connect** and set up.



DataMan Setup Tool

1. Open the **Connect** page of DataMan Setup Tool.
2. Right-click on your verifier and select **Open WebUI In Browser**.



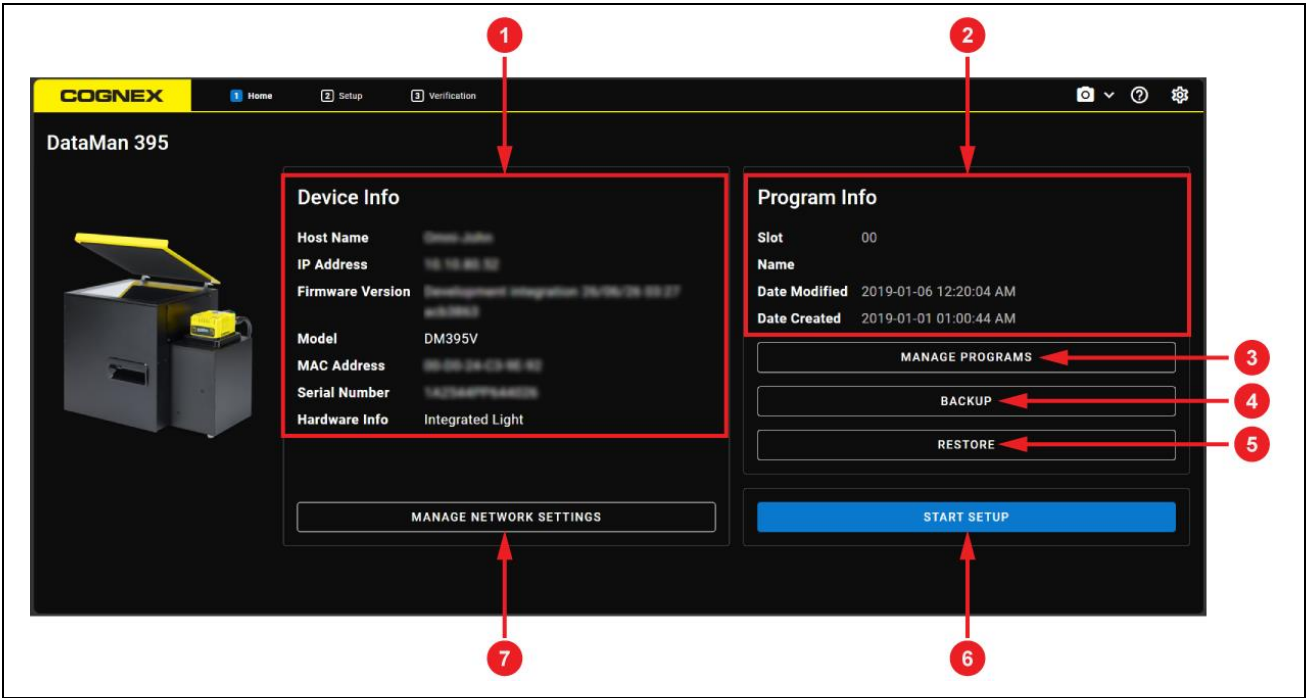
Application Steps

WebUI provides a workflow that allows you to set up your verifier through a series of guided steps.

1. The **Home** step provides an overview of your verifier and serves as a central hub for verifier management and configuration.
2. The **Setup** step allows you to perform calibration and to configure verification and data transfer settings on your verifier.
 - a. The **Calibration** substep allows you to establish a baseline for evaluating symbol contrast and X-dimension during code verification.
 - b. The **Code Quality** substep allows you to configure the code quality standard used during verification.
 - c. The **File Transfer** substep allows you to configure how verification reports are transferred to an external server.
3. The **Verification** step allows you to view live verification results and to generate verification reports.

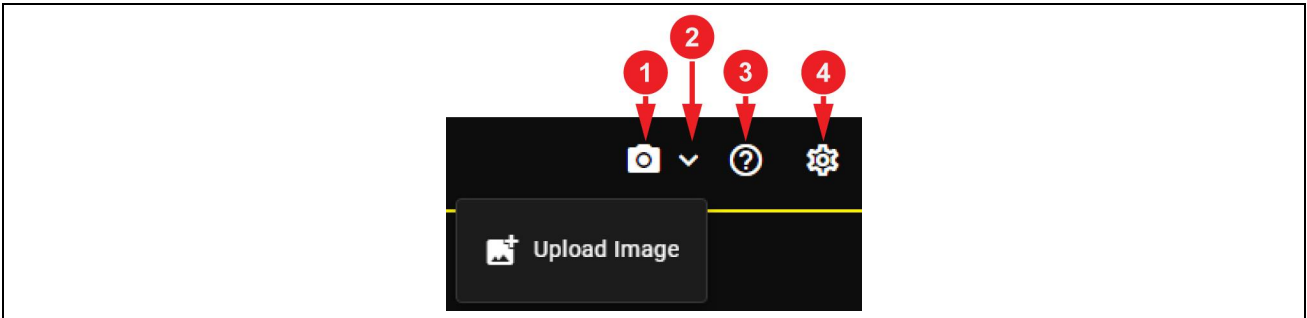
Home

The **Home** step provides an overview of your verifier and serves as a central hub for verifier management and configuration.



Number	Element
1	Information about the verifier.
2	Information about the currently active program on the verifier.
3	The Manage Programs button opens the window where you can manage the programs on the verifier. For more information, see Program Management on page 67 .
4	The Backup button opens the window to save a backup file.
5	The Restore button opens the window to upload the selected backup file.
6	The Start Setup button takes you to the Setup step, where you can perform the initial calibration and configuration for your application.
7	The Manage Network Settings button opens the connectivity settings panel.

The top right corner has the following options:



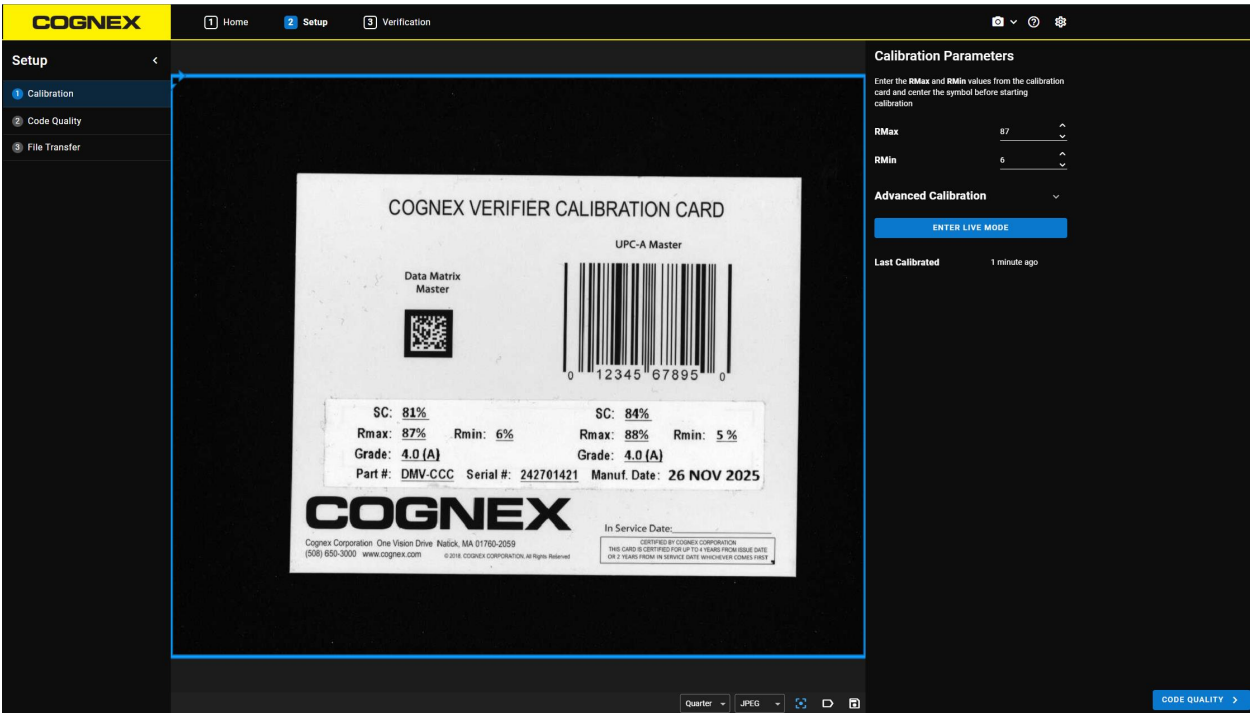
Number	Element
--------	---------

	
1	The Trigger button manually triggers the verifier.
2	The dropdown provides the option to upload an image from your computer. Click Upload Image to open the file browser, and select the image you want to upload for processing.
3	The available help information, including page help and documentation: • Click Page Help to get additional information for the step that you are on. • Click Getting Started Guide to open an external website with extended help materials. • Click Launch Help Walkthrough to get an interactive overview of the given step.
4	The Settings panel. For more information, see Settings on page 63 .

Calibrate the DataMan 395V Using the WebUI

The **Calibration** substep allows you to establish a baseline for evaluating symbol contrast and X-dimension during code verification.

Calibration sets reflectance and spatial references, in the form of grey scale and pixel size, of the verifier to enable measurements of contrast and code dimensions. You must calibrate the verifier with a code that has known **RMin** and **RMax** values, for example, the DMV-DMCC Cognex Calibration Card.

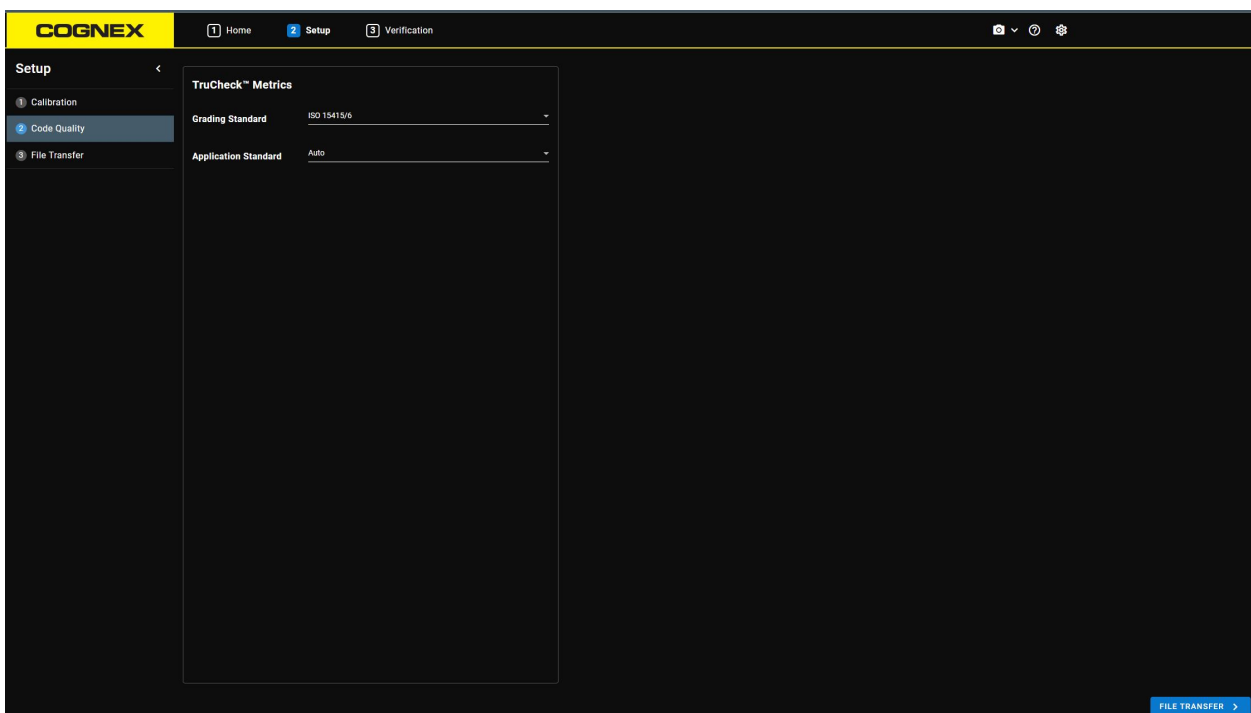


To calibrate the verifier:

1. Place a Cognex calibration card in the Field of View of the verifier.
2. Enter the **RMax** and **RMin** values on the card.
3. If you use a non-NIST-traceable calibration symbol, click **Advanced Calibration** and enter the **Custom X Dimension (mils)** value.
4. Click **Enter Live Mode**.
5. Draw the Region of Interest around the code you want to use for calibration.
6. Click **Calibrate** to start calibration.
7. After the process finishes, click **Save Calibration**.

Configure Application Settings Using the WebUI

The **Code Quality** substep allows you to configure the code quality standard used during verification.



To configure application settings:

1. Navigate to the **Code Quality** substep.
2. Select the **Grading Standard** you want to verify against.
3. Select an **Application Standard** to configure the verifier to grade according to predefined rules.

You can also let the verifier detect the application standard, or define your own:

- **Auto:** Choose the **Auto** option to allow the verifier to select the correct application standard based on the format of the data encoded in the symbology. If the verifier detects GS1, HIBCC, or MIL-STD 130 standards within a symbology during verification, the verifier uses the correct application standard.
- **Custom:** Choose the **Custom** option when you are grading a code that does not adhere to predefined industry conformance standards.

Generate Verification Report in the WebUI

Report Generation

The WebUI automatically generates verification reports. The reports are available on the **Report** tab of the **Verify** substep.

COGNEX

1 Home 2 Setup 3 Verification

Parameters Report

Verification Report
 Unit Serial: 1A2547PP085977
 Firmware Version: Development integration 26/06/09 17:09 788edb3
 Last Calibrated: Mon 22-Jun-2026 10:21 AM

Report Summary

Data	WEBCAN 020 CAL
Symbology	DataMatrix
Device Name	DM395V-C4750A

Verification Grades

Standard	Grade	Aperture	Wavelength	Lighting	Formal Grade
ISO 15415:2024	4.0 (A)	08	660	45Q	4.0/08/660/45Q
Auto	Pass				

Image

General Characteristics

Matrix Size	16x16 (Data: 14x14)
Horizontal BWG	0%
Vertical BWG	0%
Encoded characters	16
Total Codewords	24
Data Codewords	12
Error Correction Budget	12
Errors Corrected	0
Error Capacity Used	0
Error Correction Type	ECC 200
Image	White on black
Nominal X Dim	19.5 mil
Pixels per Module	7.72
Contrast Uniformity	80 at module(2,4)
MRD	64% (74% - 10%)

DataMatrix Quality Parameters

Parameter	Value	Grade	Pass/Fail
1. Unused Error Correction (UEC)	100.0%	4.0	A PASS
2. Symbol Contrast (SC)	Ri/Rd (82/6)	76%	4.0 A PASS
3. Modulation (MOD)		4.0	A PASS
4. Axial Nonuniformity (ANU)	0.7%	4.0	A PASS
5. Grid Nonuniformity (GNU)	1.0%	4.0	A PASS
6. Fixed Pattern Damage (FPD)		4.0	A PASS
7. Left 'L' Side (LLS)		4.0	A PASS
8. Bottom 'L' Side (BLS)		4.0	A PASS
9. Left Quiet Zone (LQZ)		4.0	A PASS
10. Bottom Quiet Zone (BQZ)		4.0	A PASS

DOWNLOAD REPORT

SAVE AS PDF

To view and download the verification report:

1. Navigate to **Verify > Report** to see the full verification report.
2. Click the **Download Report** button to download the verification report in HTML format.
3. Click the **Save as PDF** button to download the verification report in PDF format.

Report Transfer

You can configure the verifier to automatically transfer code quality verification reports from its memory to a destination on your network. The settings in the **File Transfer** substep allow you to configure file transfer using the following methods:

- **FTP:** The verifier transfers files to an FTP server you set up on your network, for example, using FileZilla. This option uses insecure HTTP, which means that the data is not encrypted.
- **FTP Mitsubishi GOT:** The verifier transfers files through the FTP Server/Client function built into Mitsubishi hardware. This option enhances FTP file transfer on Mitsubishi GOT and other FTP servers by allowing:
 - Idle timeout through periodic NOOPs
 - Optional timeout to close an idle control connection
 - Mitsubishi GOT write mode support
- **SFTP:** Same as the FTP option but with secure file encryption. Use this option when transferring files to the cloud or over untrusted networks.

Cognex recommends using SHA-256 fingerprints for SFTP communication. SHA-1 and MD5 are also available for legacy applications, but are cryptographically weak.

The screenshot shows the COGNEX DataMan Verifier software interface. The top navigation bar includes 'Home', 'Setup', and 'Verification'. The 'Setup' menu is expanded, showing 'Calibration', 'Code Quality', and 'File Transfer'. The 'File Transfer' sub-menu is active, displaying the 'Verification Report Transfer' configuration window. This window allows users to configure the transfer of verification reports to a server. The configuration options include: Storage (FTP), Server Address (with a port field set to 21), Username, Password (with a note that it will be sent via insecure HTTP), Idle Timeout (checkbox), Transfer Reports (checkbox), File Name (Verifier_report.html), and Units (mil).

The **Verification Report Transfer** option allows you to send a report with code quality details to an FTP server. Every trigger generates a new report file.

The following options are available:

- **Storage:** the transfer method you want to configure for result data transfer. TCP is not supported.
- **Server Address:** the address and port number of the FTP server.
- **SFTP Fingerprint** (only available with SFTP option): the unique hash of the public key for the SFTP server.
- **Username:** the name of the user that the verifier can use to access the FTP server.
- **Password:** the password for the user that the verifier can use to access the FTP server.
- **Idle Timeout:** enable or disable an idle timeout, defined in seconds.
- **Transfer Reports:** enable or disable transferring reports.
- **File Name:** allows you to specify the name of the file that collects the results.
- **Units:** specifies the unit of measurement used for dimensional values in the transferred data. Select **mm** (millimeters), **mils** (thousandths of an inch), or **µm** (micrometers).

Verify Barcode Using the WebUI

The **Verification** step allows you to view live verification results and to generate verification reports.

The screenshot displays the Cognex WebUI interface in the 'Verification' step. The main area shows a 'COGNEX VERIFIER CALIBRATION CARD' with a Data Matrix Master and a UPC-A Master barcode. Below the barcode, verification results are displayed for both codes.

Parameter	Value
SC	81%
Rmax	87%
Rmin	6%
Grade	4.0 (A)
Part #	DMV-CCC
Serial #	242701421
Manuf. Date	26 NOV 2025

Parameter	Value
SC	84%
Rmax	88%
Rmin	5%
Grade	4.0 (A)

At the bottom of the screen, there are buttons for 'Quarter', 'JPEG', and a download icon.

On the right side, a 'GO LIVE' button is visible above a table of verification results.

Overall Grade	Unused Error Correction (UEC)	Value
4.0 (A)	Symbol Contrast (SC)	100.0% 4.0
Pass	Modulation (MOD)	4.0
	Axial Nonuniformity (ANU)	0.6% 4.0
	Grid Nonuniformity (GNU)	1.5% 4.0
	Fixed Pattern Damage (FPD)	4.0 4.0
	Left 'L' Side (LLS)	4.0
	Bottom 'L' Side (BLS)	4.0
	Left Quiet Zone (LQZ)	4.0
	Bottom Quiet Zone (BQZ)	4.0
	Top Quiet Zone (TQZ)	4.0
	Right Quiet Zone (RQZ)	4.0
	Top Transition Ratio (TTR)	0% 4.0
	Right Transition Ratio (RTR)	0% 4.0
	Top Clock Track (TCT)	4.0
	Right Clock Track (RCT)	4.0
	Distributed FPD (DFPD)	4.0 4.0
	DECODE	4.0
	Print Growth	2% 4.0

To verify a barcode:

1. Navigate to the **Verification** step.
2. Click **Enter Live Mode**.
3. Draw the Region of Interest around the code you want to use for calibration.
4. Click **Verify**.

When the process finishes, the results become available:

- The **Parameters** tab displays the results of the verification.
- The **Report** tab to see the full verification report.

Image Viewer

The screen shows the last image of the verifier, or the image acquired for the selected read. You can move the image within the screen, and zoom with the mouse wheel.

Configure the displayed image with the buttons on the bottom of the screen:

- Choose the image resolution and format.
- Fit the image to the screen.

- Turn labels on or off.
- Download the latest image in full resolution.

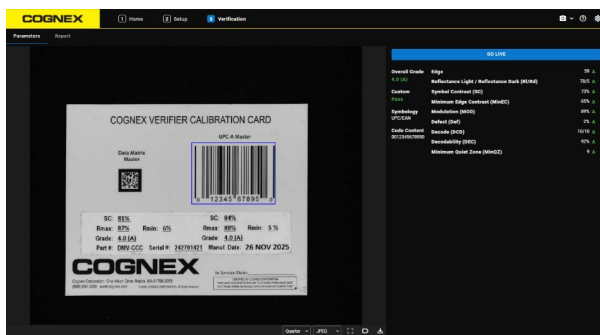
Examining the Results in the WebUI

To examine verification results in the WebUI, navigate to the **Verification** application step, and trigger the verifier.

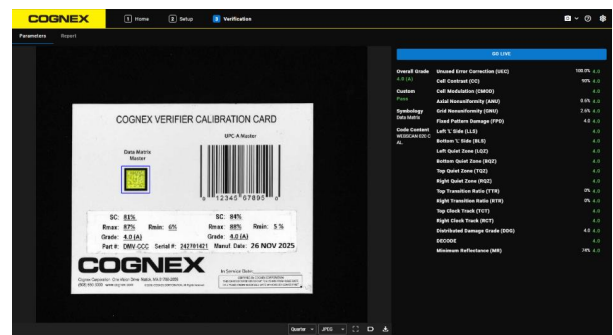
The result table on the left side of the window always displays the following information:

- **Overall Grade:** The overall grade results for the barcode as both a letter grade (A) and numeric grade (4.0).
- The configured **Application Standard** and a **Pass** or **Fail** grade for the verified barcode.
- **Symbology:** The name of the type of barcode (for example, *Data Matrix* or *Code 128*).
- **Code Content:** The decoded result string.

Depending on whether you verify a 1D or a 2D code, the table also contains information specific to that code type:

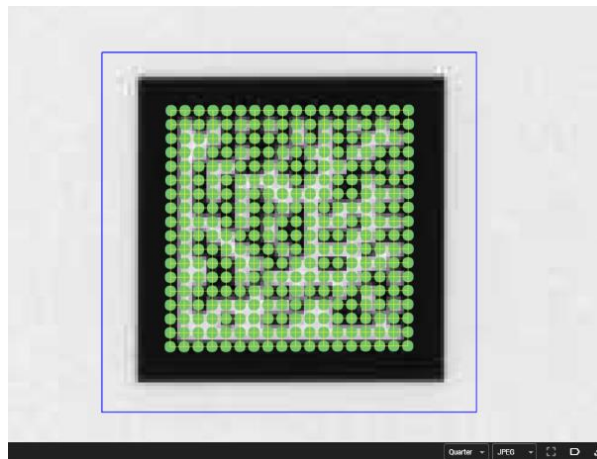


1D verification results



2D verification results

For 2D barcodes, the image viewer also displays a modulation table overlaid on the image. The color of each circle, ranging from green to red, represents the modulation value of the corresponding code module.



For more information on how to interpret the results, see the following sections:

- [ISO/IEC 15415 Quality Parameters on page 47](#)
- [ISO/IEC 15416 Quality Parameters on page 50](#)
- [ISO/IEC TR 29158 AIM-DPM-1-2006 Quality Parameters on page 53](#)

Settings

Overview

In the **Overview** tab of **Settings**, you can set up the language and theme of the WebUI. You can also customize the behavior of the in-application help.

Configure the language and appearance of the WebUI

☐  Deutsch
 ☒  English
 ☐  Español

☒  Language
 ☐  Français
 ☐  Italiano
 ☐  日本語

☐  한국어
 ☐  Polski
 ☐  Português do Brasil

☐  中文

☒  **COGNEX DARK**
☐  **COGNEX LIGHT**

< > Codepage Symbology Default 
☐ Ignore ECI Indicators

☒  Help
 ☐ Show walkthrough content on first visit

RESET SEEN WALKTHROUGHS

Configure Codepage

You can change the codepage to be able to decode non-ASCII characters.

Click **Symbology Default** to open the drop-down of available codepages and select one of the options. Read at least one non-ASCII code and use the **Decoded Result** column to help determine which codepage is the right one for your reading. You can also use the **Filter** field to narrow down the list of available options or disable the **Show Invalid Decodings** checkbox to only show valid codepages.

<> Codepage

Filter

☐ Ignore ECI Indicators

X

☐ Show Invalid Decodings

< Latest Result >

Codepage	Decoded Result
☒ Symbology Default Generally ISO-8859-1	\000026Đ°Đ¾Đ°ÑĐ¼ĐμĐ½ÑĐ°ÑĐ,Ñ,QI
Unicode	
☒ UTF-8 Variable Width Unicode	\000026документация,QR,026д
☐ UTF-16 16-bit Unicode	ぜ〜(日)퀵김킴툼긱킵탁긱툼큐툽H劍 °堀툽
☐ UTF-32 32-bit Unicode	❖❖❖❖❖❖❖❖❖❖
☐ UTF-16BE Big Endian 16-bit Unicode	檀〜ぐ嬢돔뻐왈뫏븸뺨뺩뺪뺭뺮뺯뺰뺱뺲뺳뺴뺵뺶뺷뺸뺹뺺뺻뺾뺿
☐ UTF-16LE Little Endian 16-bit Unicode	ぜ〜(日)퀵김킴툼긱킵탁긱툼큐툽H劍 °堀툽
☐ UTF-32BE Big Endian 32-bit Unicode	❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖
☐ UTF-32LE Little Endian 32-bit Unicode	❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖

By default, the WebUI recognizes Extended Channel Interpretation (ECI) indicators compliant with AIM ECI standards. When reading compliant codes, this allows the WebUI to automatically identify and use the correct codepage. Check the **Ignore ECI Indicators** box to disable support for ECI indicators, so the WebUI uses the configured codepage instead.

Note: The WebUI has limited support for non-codepage ECI indicators. The WebUI still attempts to display codes with these indicators, but correct interpretations are only possible in the expected downstream program.

Licenses

In the **Licenses** tab of **Settings**, you can view and manage the Feature Keys of your verifier.

To get access to a feature, click **Create Feature License Request** and submit the file to Cognex. Click **Import New Feature License** to upload the returned key.

Current Licenses IDQuick, IDMax, BarCode, PostalCode, 2DCode, Validation, ImageDownload, Ethernet, FFP, Scripting, PowerGrid, ImageFiltering, Omnidirectional, LadderAndPicket, DirectLight

CREATE FEATURE LICENSE REQUEST

Import New Feature License 

Ready

SUBMIT FILE

Date & Time

In the **Date & Time** tab of **Settings**, you can configure date and time settings for your verifier by clicking on **Enable Date & Time Settings**.

Configure the date and time settings of the device

Enable Date & Time Settings ☒

Current Time 2/17/2019, 6:16:51 AM

Timezone UTC 

SNTP Servers IP Address or Host Name

=

=

If you choose **SNTP Service**, you can configure clock time sources between your servers. Choose **Timezone** and enter the IP Addresses or Host Names of the servers.

Password Protection

In the **Password Protection** tab of **Settings**, you can set up a password for the verifier. When you enable password protection and lock the WebUI, users cannot modify the verifier configuration without a password. Use this feature to protect your settings from unwanted changes.

Turning on Password Protection

To turn on password protection:

1. Enable the **Password Protection** toggle.
2. Enter the new password in the **New Password** and **Confirm Password** fields.
3. Click **Save Password**.

Locking the User Interface

To lock the user interface:

1. Turn on password protection.
2. Click on the lock icon at the top right of the screen. The **Lock the User Interface** dialog appears.

3. Click **Lock**.

The user interface is locked, and you can only view the **Runtime** step.

To unlock the user interface:

1. Exit the **Runtime** step.

The **Authentication Required** dialog appears:

2. Fill in the **Password** field and click **Unlock**.

Note: The WebUI locks you out after a few minutes of inactivity.

Forgotten Password

Reset your DataMan verifier to factory settings.

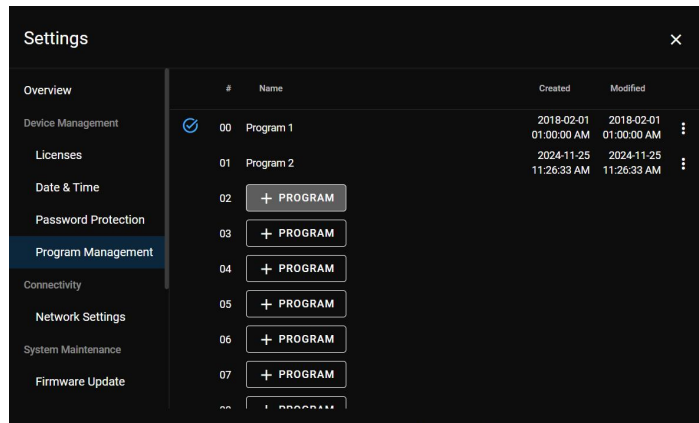
Removing the Password

Disable the **Password Protection** toggle, then click **Turn off** on the pop-up.

Program Management

The **Program Management** tab of **Settings** allows you to see information about and perform actions relating to your programs. A blue checkmark appears next to the current active program.

A program is a collection of device-level configuration settings, including one or more read setups, application details, and communication setup.



The following actions are available by clicking on the **three dots** next to each program:

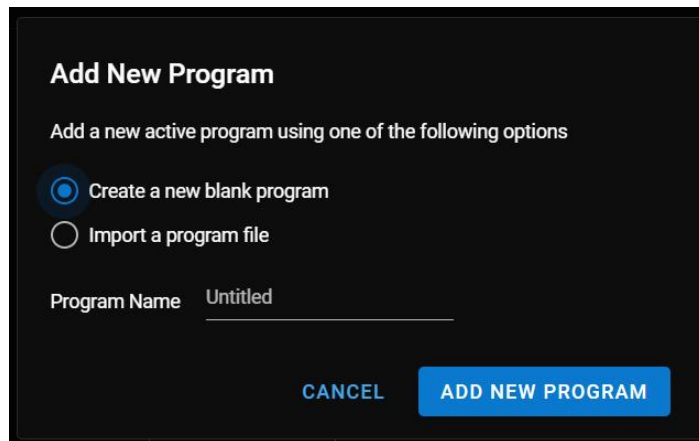
- Set as active
- Rename
- Clone
- Swap slots
- Export
- Delete

When cloning a program, the program name is kept by default, and you can change the name in the cloning window. Multiple programs can have the same name.

You can see the slot number, example images, and creation and modification dates of your previously created programs. The programs are sorted by slot number in ascending order by default, but you can click on any column to sort the programs by that value. The arrow next to **#** (slot number), **Name**, **Created**, or **Modified** signifies what metric the programs are sorted by and whether it is in ascending or descending order.

Add New Program

You can create a new program by clicking **+ Program** and choosing an **Add New Program** option:



The following options are available when adding a new program:

- **Create a new blank program:** the new program has all the default settings and no program name. You can change the default name by typing in the **Program Name** field.
- **Import a program file:** choose and import a previously exported program file. The new program copies all settings, including program name and the creation date of the exported program.

Click **Add New Program** to create the program.

Program Management with DMCC

You can also set the active program with the PROGRAM.ENABLE command, using the following syntax:

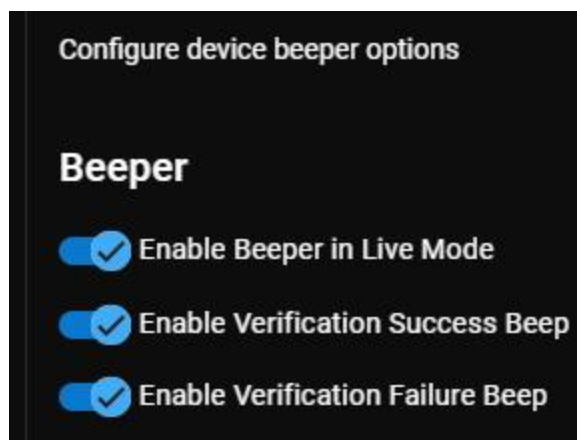
Name	Type	Range	Meaning
slot	int	[0-19]	program slot

For example, use the following command to update the current program to program slot 1:

```
SET PROGRAM.ENABLE 1
```

Beeper

In the **Beeper** tab of **Settings**, you can configure audible feedback for your verifier.



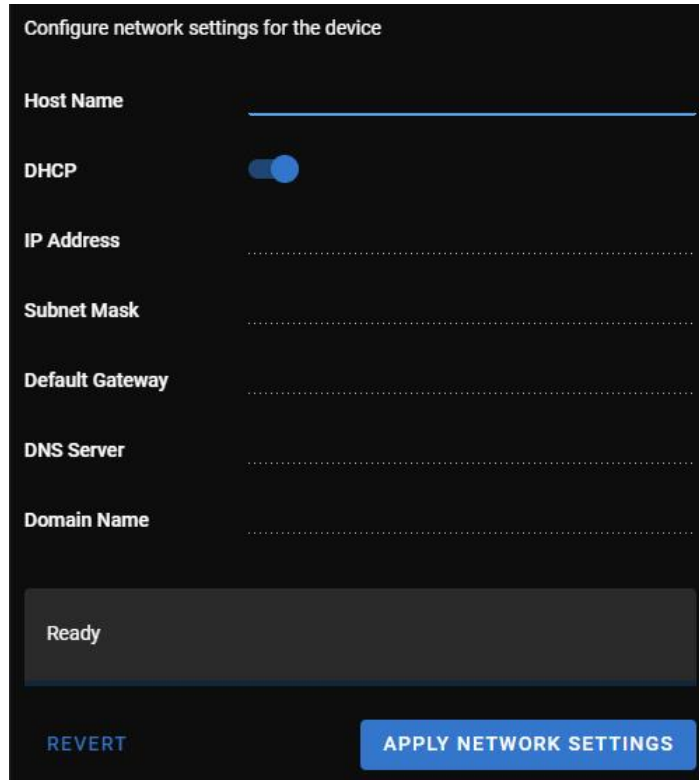
You have the following options to customize the verifier sounds:

- Turn on the **Enable Beeper in Live Mode** toggle to enable the verifier to emit sound after a successful verification when in Live mode.

- Turn on the **Enable Verification Success Beep** toggle to enable the verifier to emit sound after a successful verification.
- Turn on the **Enable Verification Failure Beep** toggle to enable the verifier to emit sound after a failed verification.

Ethernet 0 Settings

In the **Ethernet 0 Settings** tab of **Settings**, you can configure network settings for the ENET 0 port of your verifier.



Configure network settings for the device

Host Name

DHCP ☒

IP Address

Subnet Mask

Default Gateway

DNS Server

Domain Name

Ready

REVERT APPLY NETWORK SETTINGS

To save network settings, click on **Apply**.

Note: When using two Ethernet ports, you cannot assign both to a DHCP server. If you try to set both ports to DHCP, the verifier automatically disables the ENET1 port.

By default, the verifier uses the ENET 0 port for Industrial Ethernet, and data communication and configuration. If you enable industrial protocols on the [Ethernet 1 Settings on page 70](#) tab, the verifier automatically disables industrial protocol communications on the ENET 0 port.

Ethernet 1 Settings

In the **Ethernet 1 Settings** tab of **Settings**, you can configure network settings for the ENET 1 port of your verifier.

Click the **Enable** toggle to enable network communication on the ENET 1 port. To save network settings, click on **Apply**.

Note: When using two Ethernet ports, you cannot assign both to a DHCP server. If you try to set both ports to DHCP, the verifier automatically disables the ENET1 port.

You can configure global Ethernet settings, including host name, default gateway, DNS server, and domain name on the [Ethernet 0 Settings on page 69](#) tab.

By default, the verifier uses the ENET 0 port for Industrial Ethernet, and data communication and configuration. Click the **Use Ethernet 1 for Industrial Ethernet communication** toggle to enable industrial protocols on the ENET 1 port. This setting automatically disables industrial protocol communications on the ENET 0 port.

Firmware Update

In the **Firmware Update** tab of **Settings**, you can update the firmware of your verifier by uploading the firmware file from your PC and then clicking on **Update Firmware**.

Turn on the **Backup** toggle to save a backup file before the update.

Update the device firmware

Host Name TestDoc-Server

Current Firmware Version 24.1.0-4935

Backup ☒

Select Firmware File 

Ready

UPDATE FIRMWARE

Services & Ports

In the **Services & Ports** tab of **Settings**, you can enable or disable major APIs and interfaces of the verifier. Disabling unused interfaces does not affect normal verifier operation. The list of configurable interfaces depends on your verifier model and configuration.

Note: Disabling most services might leave physical access as the only method to access the verifier. Follow the factory reset procedure to access a hardened device with a lost password.

Enable or disable device functions

Service Name ↑	Enabled	Configurable Ports
DMCC	☒	
Enterprise Connectivity	☒	
IP Address Recovery	☐	
RP Codes	☒	
Scripting	☐	
Serial	☒	
Serial Over USB	☒	
SetupTool	☒	

Ready

REVERT
APPLY SETTINGS

You can enable or disable the following functions:

Name	Action	Available in Emergency Boot Mode	Notes	Additional Documentation
DMCC	Enables DataMan Control Commands (DMCCs) for configuring and controlling your verifier from a COM port.	No	DMCCs have non-compliant authorization control.	<i>Command Reference</i>
Enterprise Connectivity	Enables communication using the MQTT protocol.	No	N/A	N/A
IP Address Recovery	Enables you to change the IP address of the verifier outside of the WebUI. For example, from the Repair and Support page of DataMan Setup Tool, or through Station Manager.	No	Uses port 1069.	<i>Troubleshooting a Network Connection</i> section of the <i>DataMan Communications and Programming Guide</i>
RP Codes	Enables the use of Reader Programming Codes, which are special Data Matrix codes to configure your verifier without the DataMan Setup Tool or the WebUI.	Yes	N/A	<i>DataMan Configuration Codes</i>

Name	Action	Available in Emergency Boot Mode	Notes	Additional Documentation
Scripting	Enables the execution of custom scripts uploaded to the verifier.	Yes	Scripting is not available on the WebUI.	<i>Scripting</i> section of the <i>DataMan Communications and Programming Guide</i>
Serial	Enables serial communication.	Yes	Requires access to the physical lines on the M12 connector.	N/A
Serial Over USB	Enables serial communication through USB with a virtual COM port.	Yes	Requires a USB cable connected to the verifier.	<i>Emulating Serial Functionality</i> in the <i>Reference Manual</i> of your verifier
SetupTool	Enables communication with the verifier through the DataMan Setup Tool.	No	DataMan Setup Tool has non-compliant authorization control.	<i>Setup Tool Reference Manual</i>
HTTP	Enables access to the WebUI over an unsecured HTTP connection.	No	N/A	N/A
HTTPS	Enables access to the WebUI over an encrypted HTTPS connection.	No	N/A	N/A

Backup Device

In the **Backup** tab of **Settings**, you can save the verifier configuration to a backup file by clicking on **Save Backup**.

Save the device configuration to a backup file

Host Name

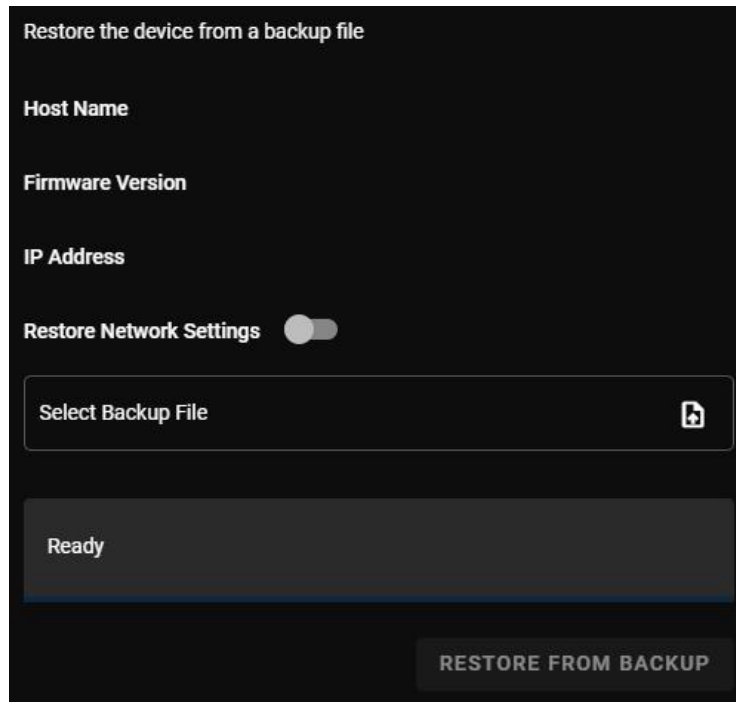
Firmware Version

Ready

SAVE BACKUP

Restore Device

In the **Restore Device** tab of **Settings**, you can restore the verifier from a backup file by selecting your backup file and clicking on **Restore**.



Restore the device from a backup file

Host Name

Firmware Version

IP Address

Restore Network Settings ☐

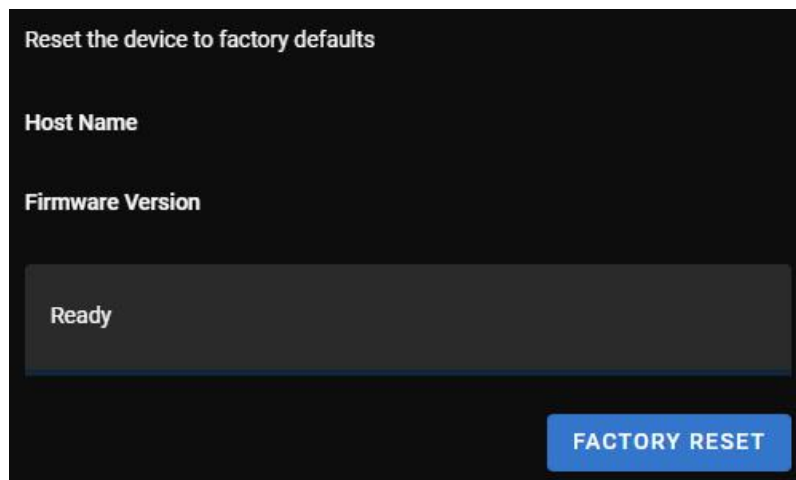
Select Backup File 

Ready

RESTORE FROM BACKUP

Factory Reset

In the **Factory Reset** tab of **Settings**, you can reset the verifier to factory settings by clicking **Factory Reset**.



Reset the device to factory defaults

Host Name

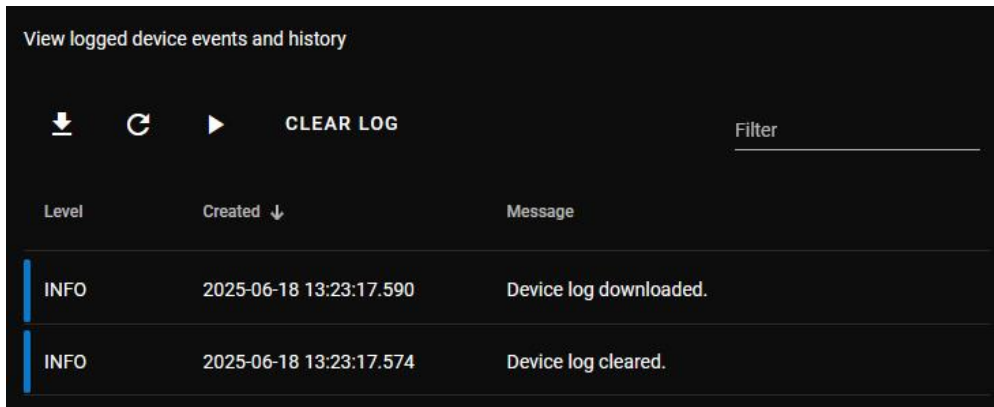
Firmware Version

Ready

FACTORY RESET

Device Log

In the **Device Log** tab of **Settings**, you can access the device log of your verifier.



The verifier generates logged events with timestamps. The WebUI displays these events in the device log.

The verifier fetches the device log automatically when you open the **Device Log** tab. Click **Refresh** to retrieve any updates manually, or the **Play** button to start receiving updates automatically.

The device log contains the following message types:

- **Info**: general information about the verifier.
- **Warning**: a non-critical issue.
- **Error**: a problem that needs to be resolved.

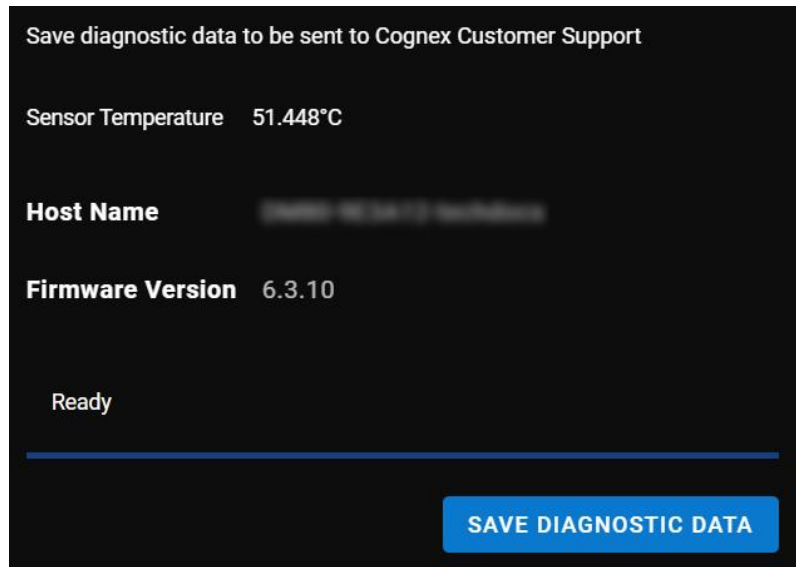
Note: Error events trigger the error LED on the verifier. Configure the pulse duration of the error LED on the **Outputs** substep.

The following actions are available in the **Device Log** tab:

- **Download**: download the log in .csv format.
- **Refresh**: get the latest log entries.
- **Clear**: remove all entries from the log.
- **Filter**: input any string to filter the displayed log entries.
- **Sort**: click on a column header to sort the log entries in descending or ascending order.

Field Diagnostics

In the **Field Diagnostics** tab of **Settings**, you can save diagnostics data by clicking on **Save Diagnostic Data**. If necessary, you can send this data to Cognex Customer Support. The tab also displays the temperature of the image sensor on supported systems.



Save diagnostic data to be sent to Cognex Customer Support

Sensor Temperature 51.448°C

Host Name [REDACTED]

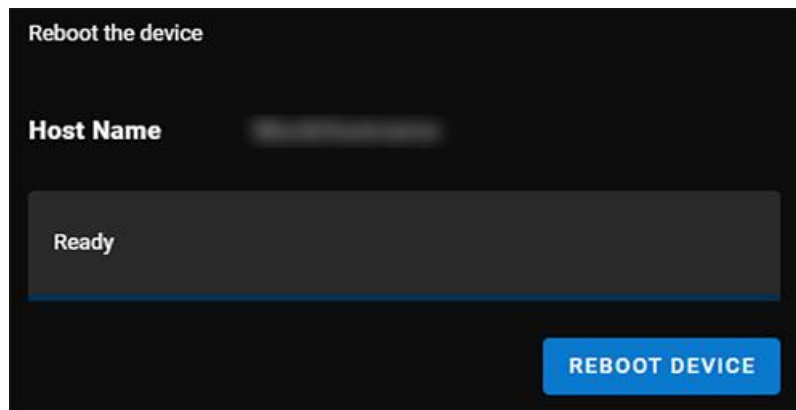
Firmware Version 6.3.10

Ready

SAVE DIAGNOSTIC DATA

Reboot

In the **Reboot** tab of **Settings**, you can reboot the device.



Reboot the device

Host Name [REDACTED]

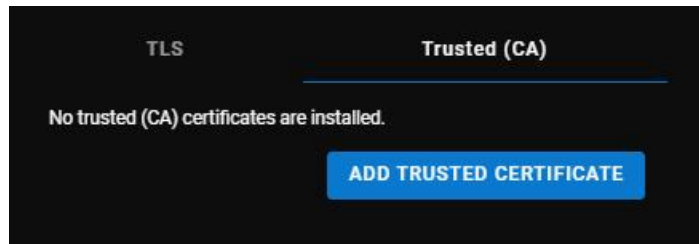
Ready

REBOOT DEVICE

After clicking **Reboot Device**, the screen confirms that the verifier initiated the reboot. Rebooting takes a few seconds to finish.

Certificates

In the **Certificates** tab of **Settings**, you can install certificates on your verifier for secure communication.



You can install the following types of certificates:

- **TLS:** allows other devices to trust your DataMan verifier:
 - WebUI (HTTPS)
 - Enterprise Connectivity (MQTT with mTLS)
- **Trusted (Certificate Authority):** The self-signed certificate of the Certificate Authority (CA). It allows your DataMan verifier to trust a server configured with a certificate signed by the same Certificate Authority:
 - Enterprise Connectivity (MQTT with TLS)

Note: The verifier ships with the pre-installed TLS certificate file *default-tls.crt*. However, Cognex recommends installing your own certificate.

Prerequisites

Before installing any certificates, make sure that your verifier and environment fulfill the following requirements:

- An NTP server is configured. Invalid time can cause issues when using or validating certificates.
- When using MQTT with TLS, you must have a local Certificate Authority set up for handling signing requests.

Install a TLS Certificate

You can install a TLS certificate in the following ways:

- The **New Signing Request** option allows you to create a private encryption key on your verifier, and generate an accompanying signing request. Once that signing request is signed by a Certificate Authority to produce the certificate file, you can install the signed certificate file. This is the more secure option.
- The **Add Key Pair** option allows you to install an externally generated private key and signed certificate in one step. This option is less secure, but can be more convenient in certain environments.

New Signing Request

To install a TLS certificate with your own private encryption key:

1. Go to the **TLS** tab of the **Certificates** menu and click **New Signing Request** to create a new TLS certificate signing request.

The pop-up dialog automatically populates the required fields.

2. Optionally, enter the following additional signing request details:

- Country Code
- State
- Locality
- Company
- Organizational Unit

3. Click **Generate Signing Request** to create the signing request.

A new certificate appears on the TLS tab of the dialog with **Pending Signing Request** status, and a `.csr` file is saved to your `Downloads` directory.

4. Generate a signed key for the signing request with your local Certificate Authority, and save the `.crt` file to an accessible location.

5. Click the menu icon for the certificate on the **TLS** tab, and select **Complete Signing Request**.

6. Click the **Select Certificate File** field to open the file browser, and select the `.crt` file with the signed key.

Add Key Pair

To install an externally generated private encryption key and signed certificate:

1. Go to the **TLS** tab of the **Certificates** menu and click **Add Key Pair**.
2. In the pop-up dialog that opens, click the **Select Certificate File** field to open the file browser, and select the `.der` file for the certificate you want to use.
3. Click the **Select Private Key File** field to open the file browser, and select the `.der` file you want to use as the private key.
4. In the **Password** field, enter the password for the private key file.
5. Click **Add Certificate + Key** to submit your certificate.

Assign TLS Certificate to HTTPS Connection

To assign a signed certificate to enable secure communication:

1. Click the menu icon for the certificate on the **TLS** tab and click **Assign Protocols**.
2. Enable the **HTTPS** toggle
3. Click **Assigned Protocols**.

 **Note:** You can only use one certificate for HTTPS connection at a given time.

Install a Trusted Certificate

To add a trusted certificate for your Certificate Authority:

1. Go to the **Trusted (CA)** tab of the **Certificates** menu.
2. Click **Add Trusted Certificate**.
3. In the pop-up that opens, click the **Select Certificate File** field to open the file browser, and select the `.crt` file for the certificate you want to add.

Verification Using the TruCheck Verification Window

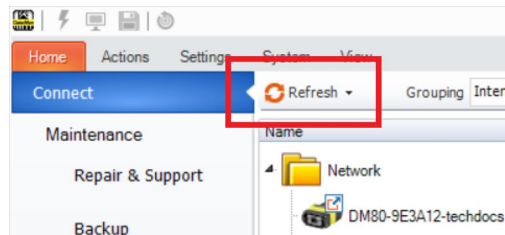
Using the DataMan 395V verifier with the DataMan Setup Tool consists of the following high-level steps:

1. [Connecting to DataMan Setup Tool on page 79](#)
2. [Calibrate the DataMan 395V Using the TruCheck Verification Window on page 85](#)
3. [Configure Application Settings Using the TruCheck Verification Window on page 88](#)
4. [Generate Verification Report Using the TruCheck Verification Window on page 98](#)
5. [Verify Barcode Using the TruCheck Verification Window on page 107](#)
6. [Examining the Results in the TruCheck Verification Window on page 114](#)

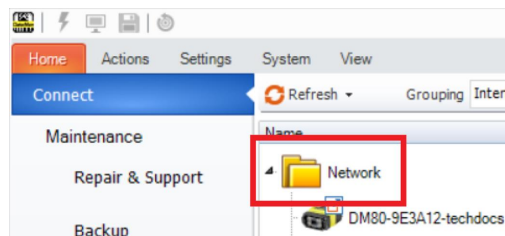
Connecting to DataMan Setup Tool

Follow these steps to install and connect your verifier to the DataMan Setup Tool:

1. Download the latest version of the DataMan Setup Tool from <https://support.cognex.com/en/products/dataman-setup-tool> and follow the on-screen steps.
2. Check the DataMan *Release Notes* for a full list of system requirements found at C:\Program Files (x86)\Cognex\DataMan\DataManSoftware <version>\Documentation\English.
3. Launch the DataMan Setup Tool and click **Refresh**.

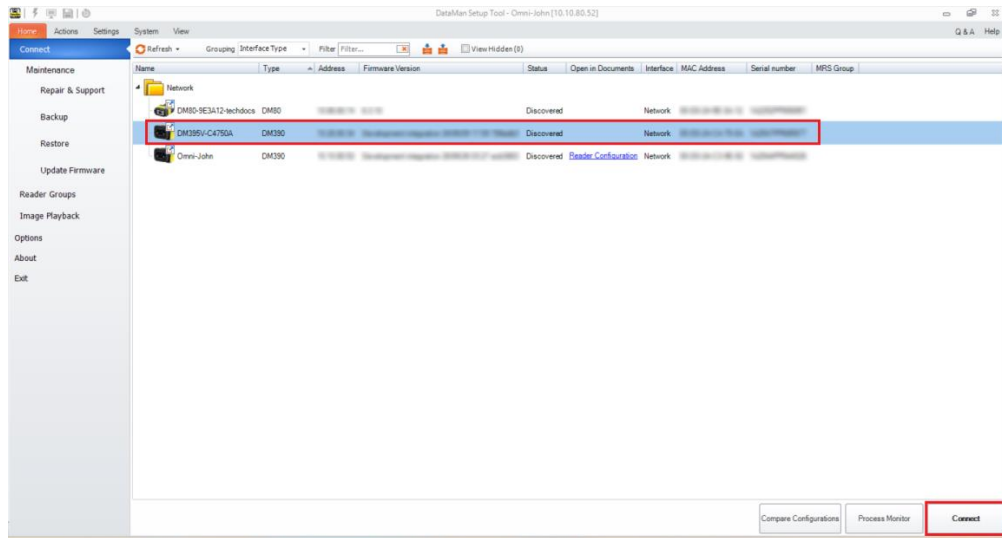


Note: Detected devices appear under **COM ports** or **Network devices**, or both.

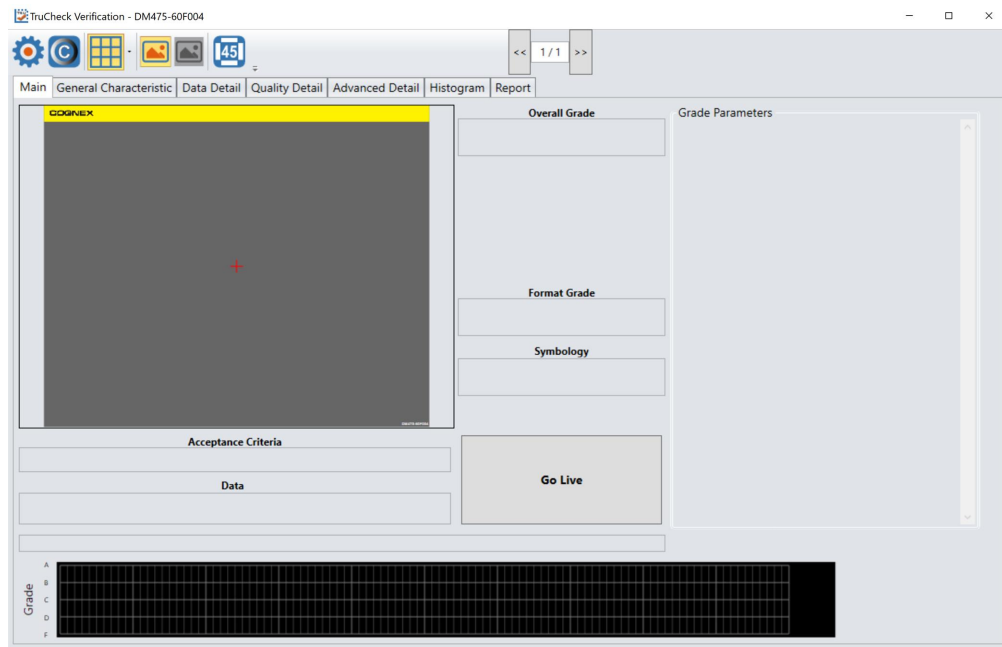


If the verifier does not appear in the list of devices, you can use either the **Add Device** or **Copy Network Settings** options in the DataMan Setup Tool under **Repair & Support**. For more information, see the *DataMan Setup Tool Reference Manual*.

4. Select your verifier from the list and double click it or click **Connect**.



5. After connecting, the TruCheck Verification window automatically opens.



Note: If TruCheck Verification window does not open or needs to be re-opened at any point during verification, select the TruCheck Verification window icon under the **View** menu on the ribbon bar in DataMan Setup Tool.

TruCheck Verification User Interface

This section describes the basic settings and options of the TruCheck Verification window.

The screenshot shows the TruCheck Verification window for a DM395V-C4750A model. The toolbar at the top contains icons for settings (1), calibration (2), and navigation (3). The tabs below the toolbar are Main, General Characteristic, Data Detail, Quality Detail, Advanced Detail, Histogram, and Report. The Main tab is active, displaying a large image of a barcode with a green grid overlay. To the right of the image is a table of Grade Parameters. At the bottom, there is a section for Auto Acceptance Criteria showing 'Pass' and a 'Go Live' button.

Number	Description
1	Toolbar
2	Various tabs that provide different code quality information.
3	Tab display area. This illustration shows the Main tab. For more information on each of the tabs, see Examining the Results in the TruCheck Verification Window on page 114 .

Toolbar

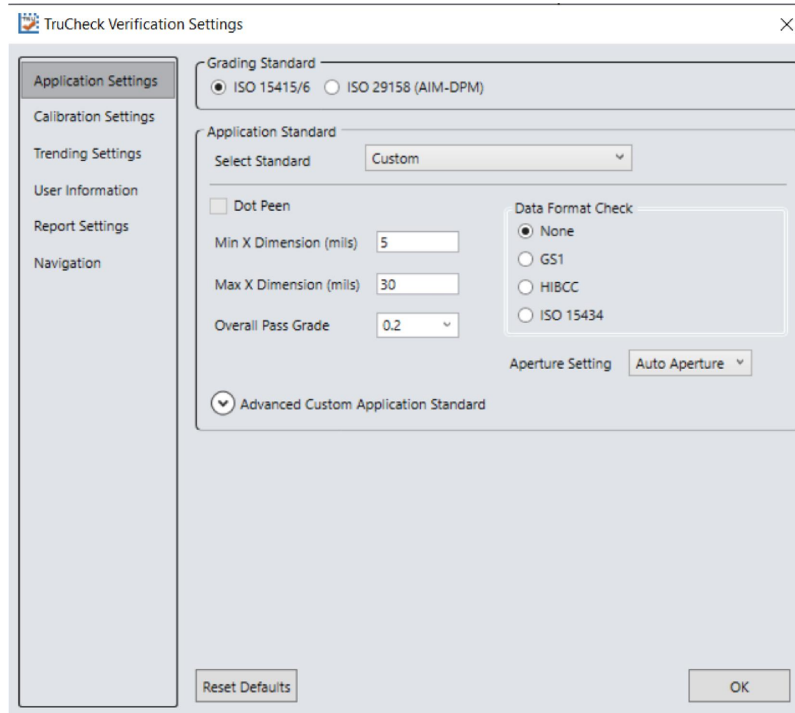
The toolbar on the top provides the following options, depending on the verifier model:

Icon	Function
	Settings: Open the Settings menu allowing changes in the Application Settings, Calibration Settings, Trending Settings, User Information, Report Settings, and Navigation menus.
	Calibration: Open the calibration window to calibrate the verifier. For more information, see Calibrate the DataMan 395V Using the TruCheck Verification Window on page 85 .

Icon	Function
	Grid & Modulation Circles: Select Grid & Modulation Circles to apply a grid or a modulation circle to the image after verification. Use the drop-down menu to apply a Real Grid, an Ideal Grid, or both. Select Mod Circles Filled or Mod Circles Outlined options according to your needs.
	Original Image: Shows the image as the imager has acquired the image before post-processing.
	45° Illumination: Enables 45° illumination. 45° four-sided illumination is used primarily for labels. 45° illumination is either not reported or reported as 45Q. If the system does not report illumination, it is assumed to be 45Q. Note: This lighting option is available on the DataMan 395V DataMan 395V, LBL, the 395V DPM, and 395V HD.
 	Select this icon for 30° two-sided illumination. 30° two-sided illumination can be from either the North/South or East/West. 30° two-sided illumination is useful on cylindrical surfaces. Select the sides in parallel to the axis of the cylinder. This illumination is reported as 30T. Note: This lighting option is available on the DataMan DPM and 395V HD.
	Select this icon to use one side of the 30° lighting. Use the drop down menu to select one of the four sides for 30° lighting. If you select this lighting option but you do not select any individual lighting side, the software uses top 30° lighting. The system reports one side 30° illumination as 30S. Note: This lighting option is available on the DataMan DPM and 395V HD.
	Select this icon to use four side 30° illumination. Four side 30° illumination reduces glare from some substrates, which cause poor Symbol Contrast or Modulation grading. The system reports four side 30° illumination as 30Q and is used primarily for DPM applications. Note: This lighting option is available on the DataMan DPM and 395V HD.
	Select this icon for 90° specular illumination. 90° specular illumination works well on very shiny substrates and Dot Peen Applications. 90° specular illumination is reported as 90. Note: This lighting option is available on the DataMan DPM and 395V HD.

Settings Menu

To access **Settings**, select **Settings** in the upper left corner of the TruCheck Verification window.



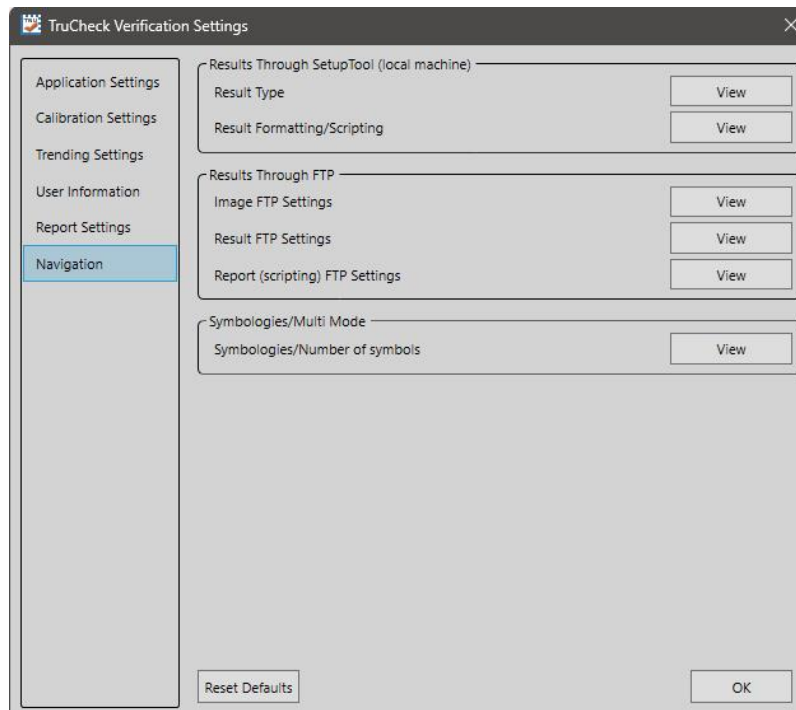
The available setting options are described in detail at the applicable workflow step. For more information, see the following sections:

- [Application Settings on page 88](#)
- [Calibration Settings on page 87](#)
- [Trending Settings on page 115](#)
- [User Information on page 98](#)
- [Report Settings on page 99](#)
- [Navigation on page 83](#)

Navigation

The **Navigation** menu allows you to access certain options in the DataMan Setup Tool window to configure exporting results either through DataMan Setup Tool or FTP. The **Navigation** menu also provides a shortcut to enable or disable symbologies and to set up the verifier to verify multiple symbols in one verification. Click the **View** button to re-direct to the settings of each reporting option in DataMan Setup Tool.

Note: Maximize the DataMan Setup Tool window for the shortcuts to work. For more information on DataMan Setup Tool panes, see the *DataMan Setup Tool Reference Manual*.



Calibrate the DataMan 395V Using the TruCheck Verification Window

Calibration sets reflectance and spatial references, in the form of grey scale and pixel size, of the verifier to enable measurements of contrast and code dimensions. You must calibrate the verifier with a code that has known **RMin** and **RMax** values, for example, the DMV-DMCC Cognex Calibration Card.

To calibrate the verifier:

1. Click the **Calibration** icon in the top left corner in the TruCheck Verification window.
2. Enter the **Rmax** and **Rmin** values of your [Calibrate the DataMan 395V Using the TruCheck Verification Window on page 85](#)

The screenshot shows the 'TruCheck Calibration' window. At the top, a Cognex Verifier Calibration Card is displayed. The card includes a Data Matrix Master, a UPC-A Master barcode, and two sets of calibration data:

SC: 83%	SC: 84%
Rmax: 87%	Rmax: 88%
Rmin: 6%	Rmin: 5%
Grade: 4.0 (A)	Grade: 4.0 (A)
Part #: DMV-DCC Serial #: 242781421	Manuf. Date: 26 NOV 2025

Below the card, there are three numbered instructions:

1. Enter the Rmax and Rmin values on the Calibration Card
2. Click Go Live
3. Center symbol, then click below to begin calibration

Input fields for RMax (87) and RMin (6) are provided, along with a 'Go Live' button. Below these is an 'Advanced Calibration' section with a 'Custom X Dimension (mils)' field and a 'Start Calibration' button. A note at the bottom states: 'Note: Calibration will not be NIST traceable.'

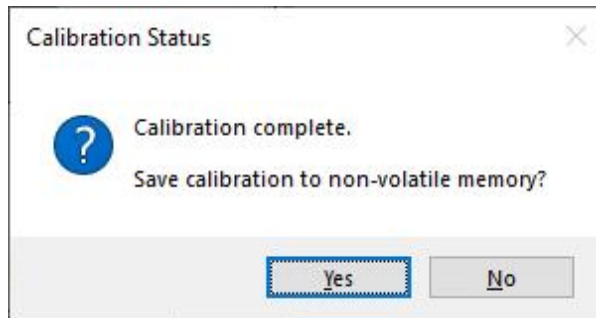
Use the **Advanced Calibration** option only if you use a non-NIST traceable calibration symbol. This option allows you to enter the **Custom X-Dimension (mils)** value of the barcode that you use to calibrate the unit. The calibration process uses the **Custom X-Dimension (mils)** value to calibrate dimension measurements.

3. Click **Center Target**.
4. A live image appears in the **Calibration** screen. Center the verifier over the calibration symbol.
5. Clicking **Start Calibration** prompts a **Calibrating** progress bar to appear in the window.



6. If the calibration is successful, one of two messages pop-up:

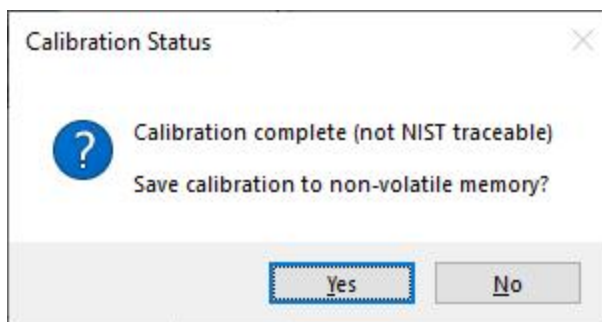
- If you performed the calibration with one of the supported NIST-traceable calibration symbols, the pop-up displays the following:



When you perform a successful calibration with a supported NIST-traceable calibration symbol, a calibration time date stamp appears on the bottom of the TruCheck Verification window and is printed in the header of the report.

For the list of NIST-traceable calibration symbols, see Calibration Cards.

- If you performed the calibration successfully with any readable symbol other than the supported NIST-traceable calibration symbols, the pop-up displays the following:

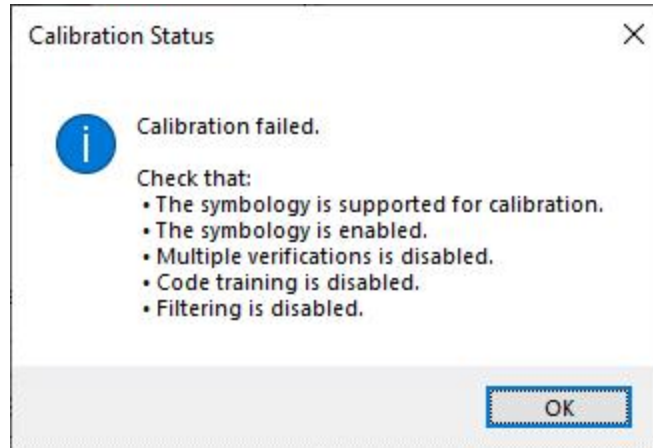


If you perform a successful calibration with a non NIST-traceable calibration symbol, no calibration date is recorded on the reports or displayed on the **Main** tab in the TruCheck Verification window.

7. For both successful calibration messages, you have the options to **Save Calibration** to non-volatile memory:

- If you select **Yes**, the verifier saves the calibration for subsequent verifications and the values to non-volatile memory. If you power down the verifier, the calibration persists.
- If you select **No**, the verifier saves the calibration for subsequent verifications but does not save the values to non-volatile memory. If you power down the verifier, the calibration values are lost.

8. If the calibration failed, the pop-up displays the following message:



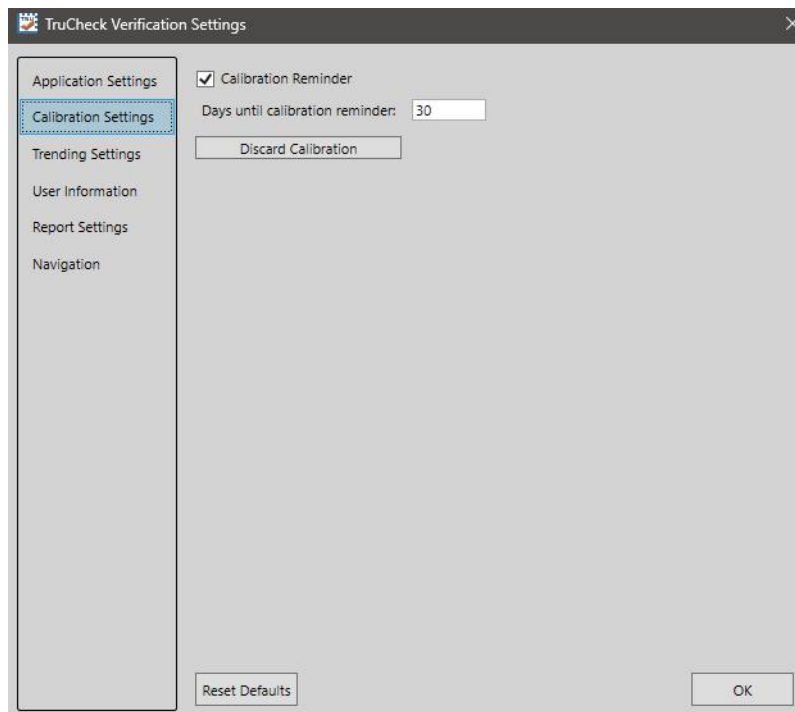
Tip: To remove all calibration values and return the verifier to an uncalibrated state, go to **Settings > Calibration Settings**, and click **Discard Calibration**.

Calibration Settings

The **Calibration Settings** menu can enable a reminder for calibration or return the verifier to an uncalibrated state.

Enable the **Calibration Reminder** and set the number of **Days until the next calibration reminder**.

Click **Discard Calibration** to return the verifier to an uncalibrated state. Discarding the calibration can have some benefits. For example, if the ink and paper combination is not black and white, the software can reference the brighter and darker reflectance values of the codes, not just the extreme bright and dark values. Applications such as UV greatly benefit from this feature.



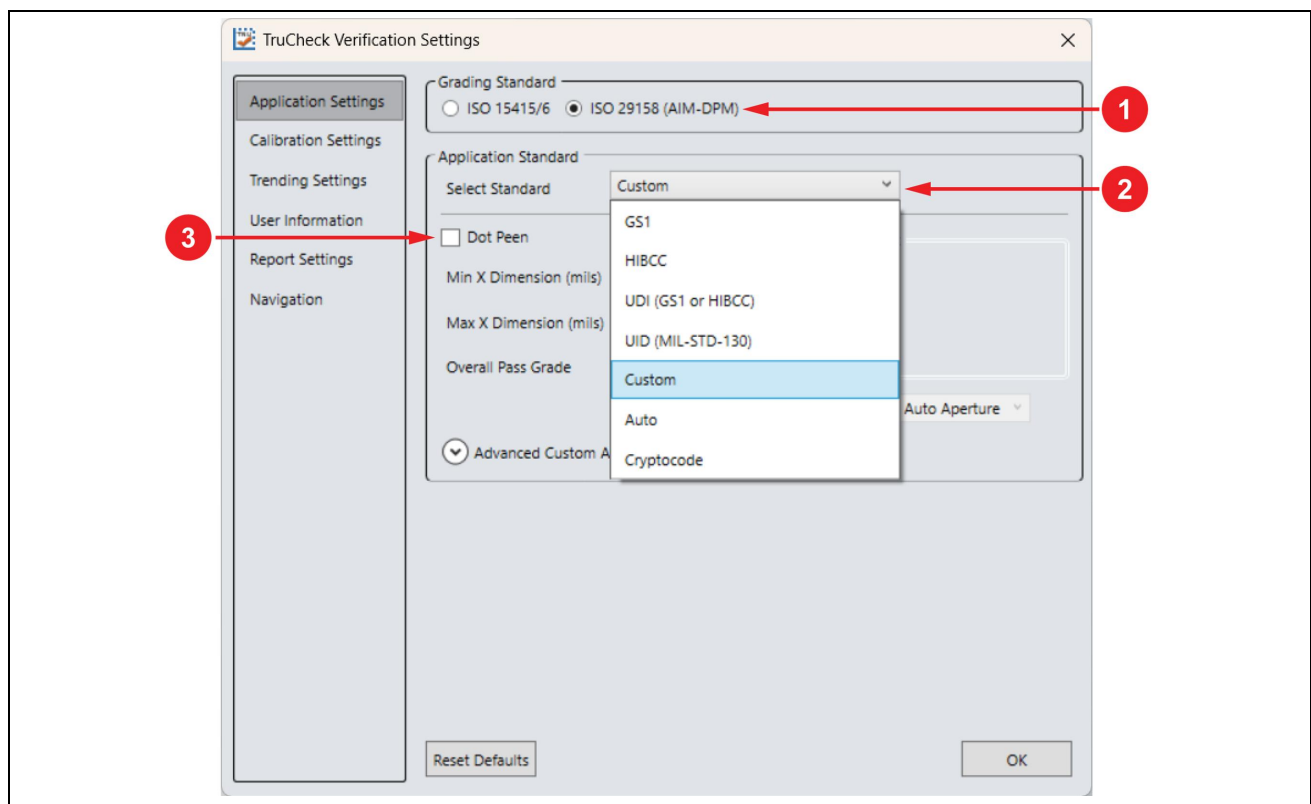
Configure Application Settings Using the TruCheck Verification Window

To configure application settings:

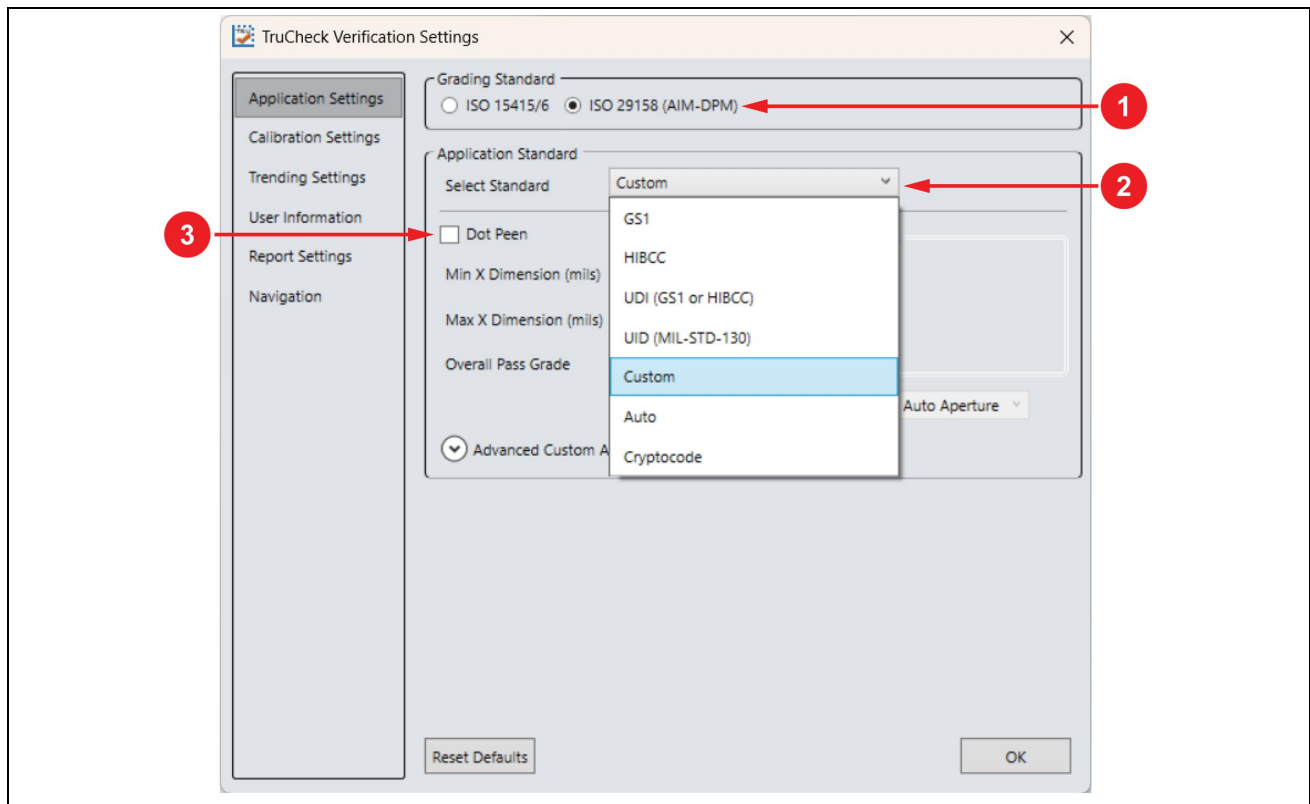
1. Navigate to the **Settings > Application Settings** menu.
2. Select the **Grading Standard** you want to verify against.
3. Select an **Application Standard** to configure the verifier to grade according to predefined rules.
4. Fine-tune the **Application Standard** settings to fit your use case.

Application Settings

The content of the **Application Settings** window depends on which **Application Standard** you select. The application standard setting automatically sets many of the parameters. The **Generic** application standard allows you to customize all adjustable verification and process parameters. Selecting a pre-defined application standard ensures that the DataMan 395V uses the appropriate grading parameters for your application.



Number	Element	Description
1	Grading Standard	For any Application Standard selected, you need to select a Grading standard , depending on your application: • ISO 15415/6 • ISO 29158 (AIM-DPM)



Number	Element	Description
2	Application Standard	You can select pre-defined and custom application standards: • Selecting a pre-defined application standard ensures that the DataMan 395V verifier uses the appropriate grading parameters for your application. • Custom application standard allows you to customize all adjustable verification and process parameters. • Auto application standard setting allows the software to automatically select the appropriate application standard based on the data formatting in the code being verified.
3	Dot Peen	The Dot Peen option helps you connect dots in case of codes created through a process where dots are peened onto a metal surface. Select Dot Peen to use the AIM-DPM Stick algorithm to connect dots. For more information, see in Dot Peen on page 45.
4	Reset Defaults	The Reset Defaults button resets the Application Settings menu to the default setting of Auto.

 **Tip:** After clicking **Reset Defaults**, you must calibrate the verifier before using it. For more information, see [Calibrate the DataMan 395V Using the TruCheck Verification Window on page 85](#).

Grading Standards and Parameters

The International Organization for Standardization (ISO) defines globally recognized standards that specify how barcode quality is measured, graded, and verified.

Select either **ISO 15415/6** or **ISO 29158 (AIM-DPM)** as the **Grading Standard** for your application:

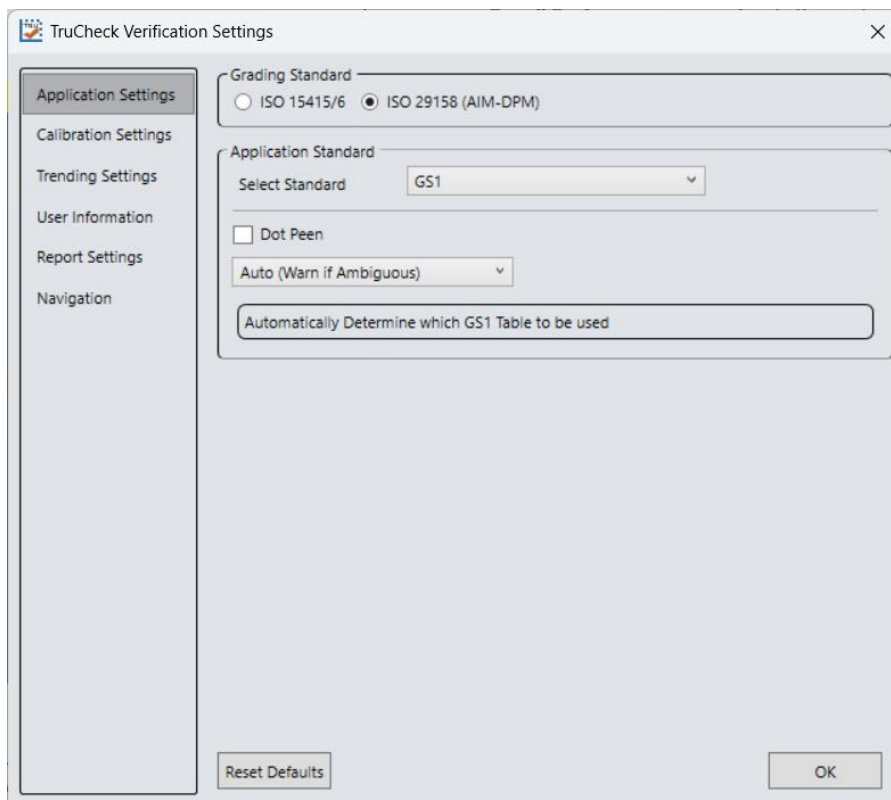
- **ISO 15415/6:** Defines methods for measuring and grading the print quality of 2D and 1D barcodes on labels.
- **ISO 29158 (AIM-DPM):** Defines methods for measuring and grading the quality of 2D Direct Part Marking (DPM) codes. Select **Dot Peen** to enable the dot-connecting algorithm when your marking method requires it.

For more information, visit cognex.com for the *Introduction to Barcode Verification Guide*.

Application Standards Settings

Application Standards configure the verifier to grade according to predefined rules established by an industry standards body or other industry requirements.

Select one of the options provided in the drop down box to specify the application standard.

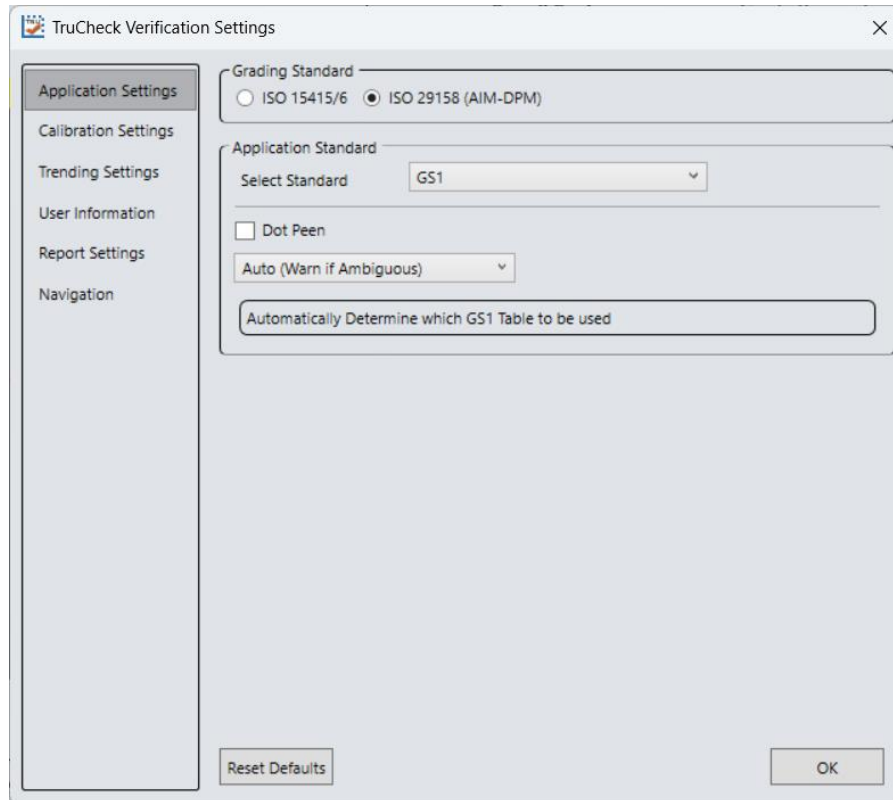


GS1

The GS1 application standard follows GS1 General Specification guidelines in code verification.

To configure the GS application standard:

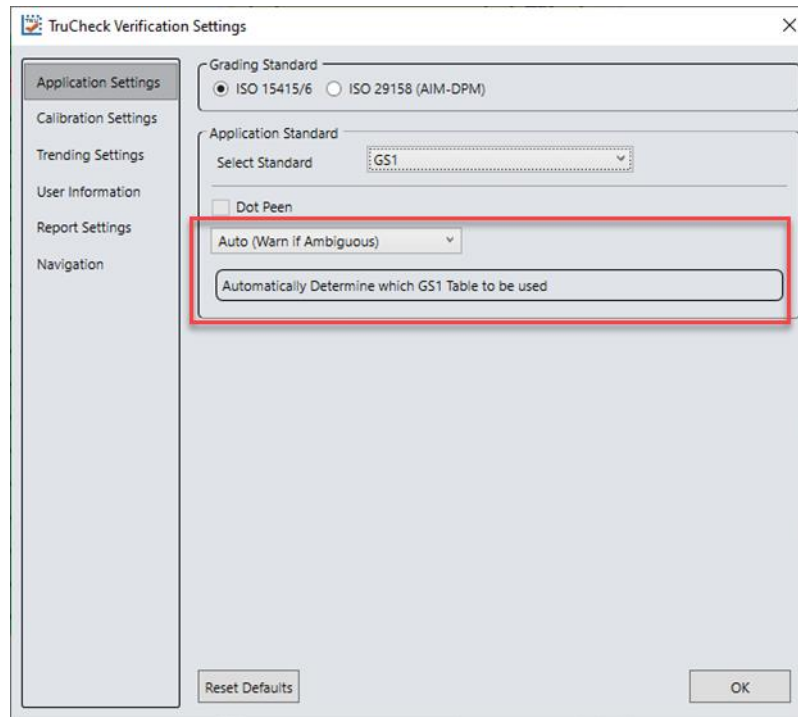
1. Select **GS1** from the **Select Standard** dropdown menu.



2. Select the GS1 General Specification Table to specify the application category for your codes.



3. Select **Auto (Warn if Ambiguous)** for the system to automatically select the most applicable General Specification Table for you.



Note: The DataMan 395V uses the X-dimension of the decoded symbol to deduce which table applies. If the X-dimension is outside the range allowed in your application, results are incorrect. To make sure that the verifier checks all the correct requirements for your application, select the table in the GS1 General Specifications that applies to your application.

4. Specify the **ISO/IEC 15415/6** or **ISO/IEC 29158 (AIM-DPM)** grading method under **Grading Standards**.
5. Select **Dot Peen**, if applicable.

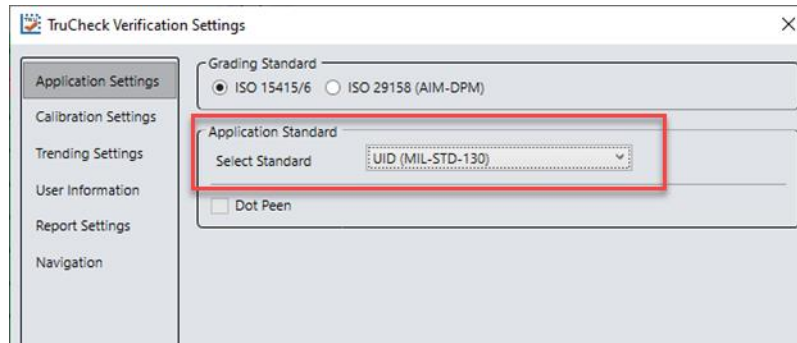
Tip: The selected GS1 table is available in the **Notes** section of the report. For more information on the tables used for analysis, see [GS1 General Specifications Standard](#).

UID (MIL-STD-130)

The UID (MIL-STD-130) application standard reports the quality standard according to the MIL-STD 130 specifying UID marks Construct 1 and Construct 2 that use data structure and code grade for verification. The MIL-STD 130 spells out acceptable grades and requirements for data format.

To configure the UID (MIL-STD-130) application standard:

1. Select **UID (MIL-STD-130)** from the **Select Standard** dropdown menu.



2. Specify the **ISO/IEC 15415/6** or **ISO/IEC 29158 (AIM-DPM)** grading method under **Grading Standards**.
3. Select **Dot Peen**, if applicable.

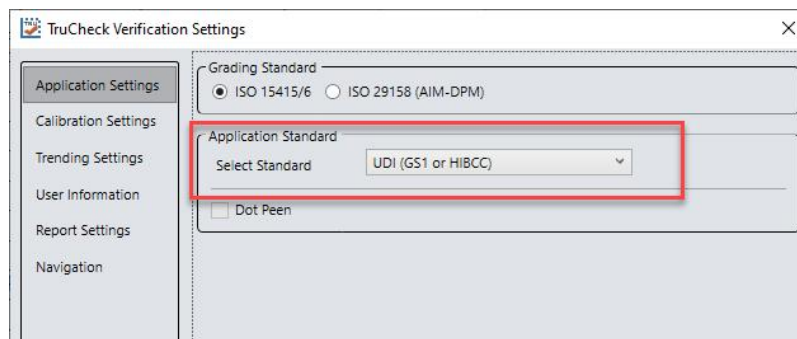
UDI (GS1 or HIBCC)

The UDI (GS1 or HIBCC) application standard checks symbols that meet UDI requirements for medical devices using either GS1 or HIBCC guidelines.

Note: UDI compliance requires data content that varies depending on the medical device the data is applicable to, so the verifier only validates the format, not the content. Validating format is automatic and in accordance with formatting rules of the chosen grading standard guidelines.

To configure the UDI (GS1 or HIBCC) application standard:

1. Select **UDI (GS1 or HIBCC)** from the **Select Standard** dropdown menu.



2. Specify the **ISO/IEC 15415/6** or **ISO/IEC 29158 (AIM-DPM)** grading method under **Grading Standards**.
3. Select **Dot Peen**, if applicable.

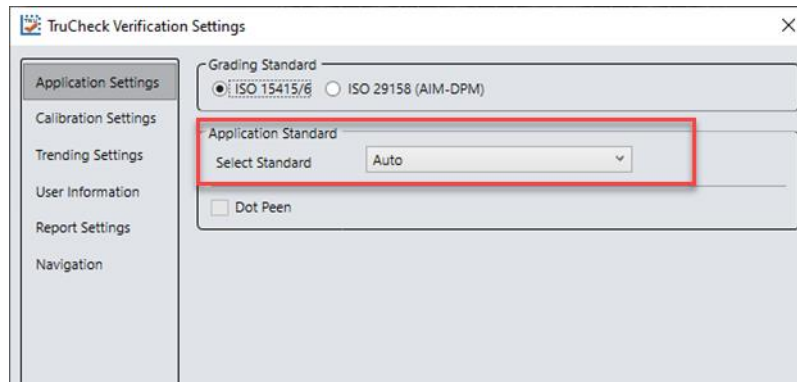
Auto

Choose the **Auto** option to allow the verifier to select the correct application standard based on the format of the data encoded in the symbology. If the verifier detects GS1, HIBCC, or MIL-STD 130 standards within a symbology during verification, the verifier uses the correct application standard, respectively.

 **Tip:** Select the **Custom** application standard instead of **Auto** if the symbology contains data structure that the grading of the automatic standards do not apply.

To configure the Auto application standard:

1. Select **Auto** from the **Select Standard** dropdown menu.



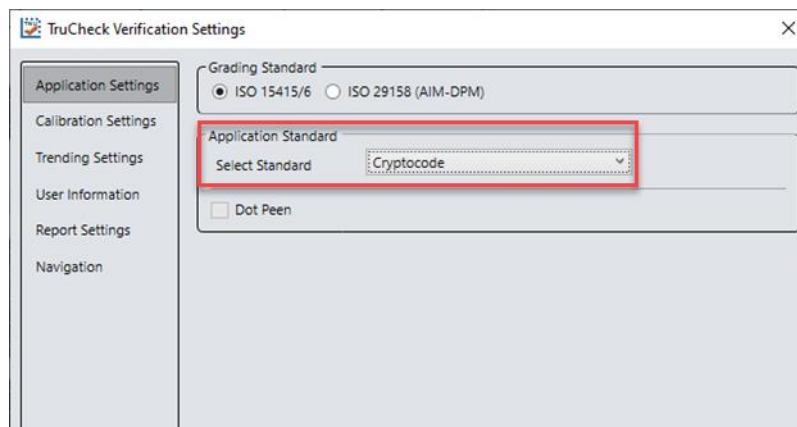
2. Specify the **ISO/IEC 15415/6** or **ISO/IEC 29158 (AIM-DPM)** grading method under **Grading Standards**.
3. Select **Dot Peen**, if applicable.

Cryptocode

The **Cryptocode** application standard checks symbols that meet Russian Cryptocode standard or other Cryptocode applications.

To configure the Cryptocode application standard:

1. Select **Cryptocode** from the **Select Standard** dropdown menu.

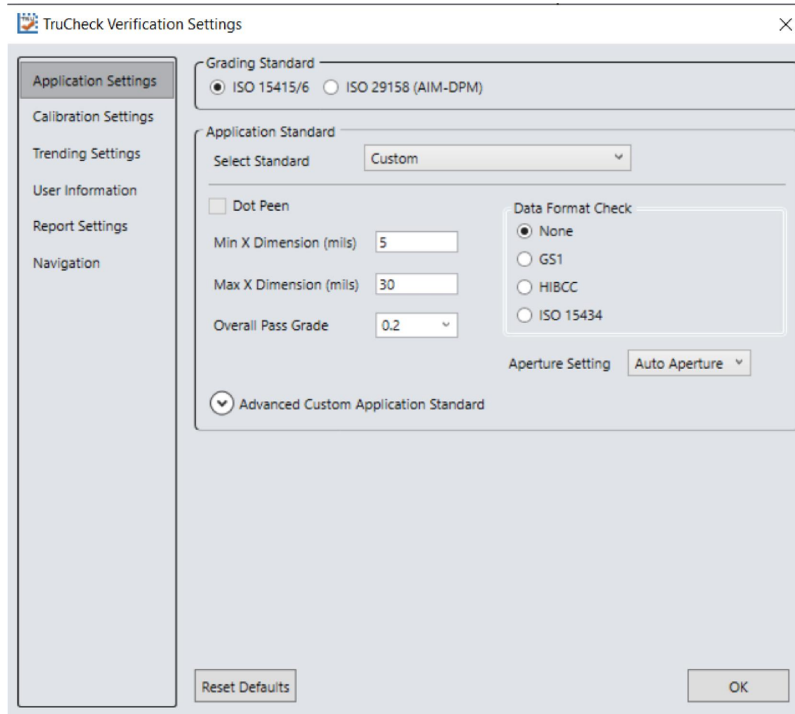


2. Specify the **ISO/IEC 15415/6** or **ISO/IEC 29158 (AIM-DPM)** grading method under **Grading Standards**.
3. Select **Dot Peen**, if applicable.

Configure Custom Application Standard Using the TruCheck Verification Window

To configure a custom application standard:

1. Select **Custom** from the **Select Standard** dropdown menu.



2. Specify the **ISO/IEC 15415/6** or **ISO/IEC 29158 (AIM-DPM)** grading method under **Grading Standards**.
3. Select **Dot Peen**, if applicable.
4. Specify the **Min X Dimension** value.
5. Specify the **Max X Dimension** value.
6. Select the **Overall Pass Grade**.
7. Select a **Data Format Check** option. For more information, see [Data Format Check on page 44](#).
8. Choose the appropriate **Aperture Setting** from the dropdown menu. For more information, see [Aperture Setting on page 44](#).
9. Optional: Expand the **Advanced Application Standard** option to customize the grading of each individual quality parameter.

Advanced Custom Application Standard

The **Advanced Custom Application Standard** options allow you to select individual pass thresholds for each quality parameter for 1D and 2D symbologies.

Note: Cognex recommends changing the **Advanced Custom Application Standard** settings only in specific cases by users with a strong understanding of their application. Changing the **Advanced Custom Application Standard** settings directly impacts the Overall Grade during verification.

If a pass grade is selected for any of the *Quality Parameters*, the *Overall Pass Grade*, which is the Acceptance Criteria evaluation of Pass or Fail, is overridden for that parameter.

Note: For example, if you set the *Overall Pass Grade* to 1.5 and the *Grid Non-Uniformity* value individually to 3.5, a symbol graded with a GNU value below 3.5 is given an Acceptance Criteria of Fail (Quality) even if the *Overall Grade* is greater than 1.5. If you set all *Advanced Custom* options to N/A, the verification does not apply any *Advanced Custom* application standard settings and evaluates the *Quality Parameters* according to the value in the *Overall Pass Grade* only.

To configure an advanced custom application standard:

1. Select a **Pass Threshold** for your quality parameters.

If you select a pass grade for any of the quality parameters, the **Overall Pass Grade**, which is the **Acceptance Criteria** evaluation of Pass or Fail, is overridden for that parameter.

For example, if you set the **Overall Pass Grade** to 1.5 and the **Grid Non-Uniformity** value individually to 3.5, a symbol graded with a GNU value below 3.5 is given an Acceptance Criteria of Fail (Quality) even if the **Overall Grade** is greater than 1.5. If you set all **Advanced Custom Application Standard** options to **N/A**, the verification does not apply any **Advanced Custom Application Standard** settings and evaluates the quality parameters according to the value in the **Overall Pass Grade** only.

2. Specify which grading standard version to use:
 - 1D barcodes ISO/IEC 15416, versions: 2016 and 2025
 - 2D barcodes: ISO/IEC 15415, versions: 2011 and 2024
 - DPM barcodes: ISO/IEC 29158, versions: 2011, 2020, and 2025
3. Specify the **QR Quiet Zone** requirements:
 - ISO/IEC 18004 Quiet Zone (QZ) Requirement of a 4-module quiet zone
 - ISO/IEC 16480 QZ Requirement of a 1-module quiet zone

Click the **Clear Advanced Parameters** button to reset all values to **N/A**.

TruCheck Verification Settings

Application Settings

Calibration Settings

Trending Settings

User Information

Report Settings

Navigation

Symbol Contrast

Minimum Edge Contrast

Modulation

Defect

Decode

Decodability

Quiet Zone

Unused Error Correction

Bar Width Growth (%)

Inspection Zone Height (mils)

Grading Standard Versions

1D ISO 15416:2025

2D ISO 15415:2024

DPM ISO 29158:2025

Clear Advanced Parameters

Symbol Contrast

Cell Contrast

Modulation/Cell Modulation

Reflectance Margin

Axial Nonuniformity

Grid Nonuniformity

Fixed Pattern Damage

Average Grade/
Distributed Damage Grade

Minimum Reflectance

Matrix Size

Bar Width Growth (%)

Contrast Uniformity

QR Quiet Zone

☒ ISO 18004 QZ Requirement (4)

☐ ISO 16480 QZ Requirement (1)

Reset Defaults

OK

Generate Verification Report Using the TruCheck Verification Window

To enable report generation:

1. Switch to the DataMan Setup Tool window.
2. Navigate to **Result History > Logging** and click **Generate Code Quality Reports**.
3. Switch to the **TruCheck Verification** window.
4. Navigate to the **Settings > Report Settings** menu.
5. Check the **Generate Report** checkbox.

To view the report:

1. Verify a code.
2. Open the Report tab.

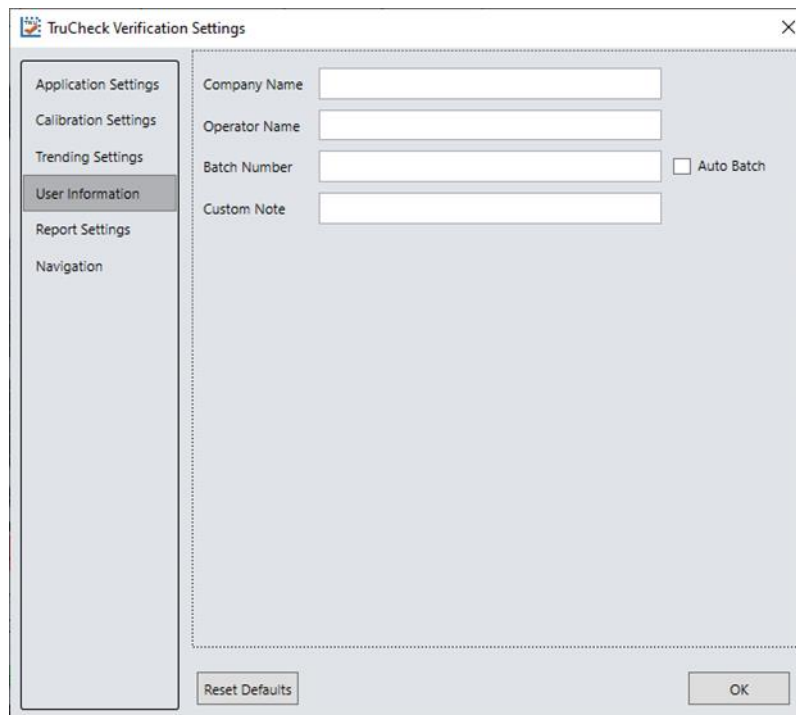
Customize the Verification Report

User Information

The **User Information** menu provides fields to include the **Company Name**, **Operator Name**, and **Batch Number** that are then added to the header of the report.

Selecting the **Auto Batch** checkbox allows any batch number that is detected in the barcode to be added to the report. For example, if a GS1 DataMatrix symbol is verified that includes the Application Identifier for batch number, the batch number included is reported.

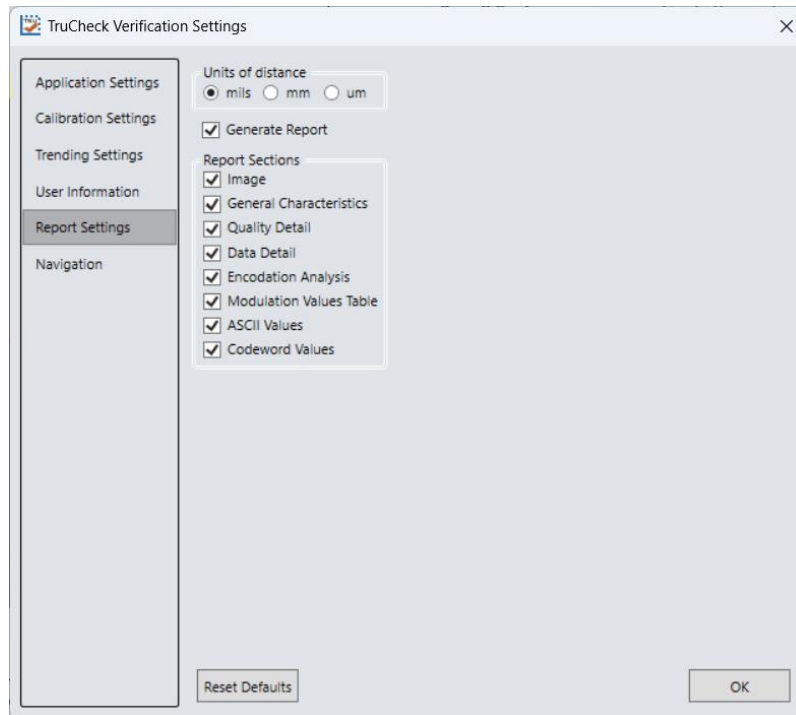
Custom Note allows you to add a wide variety of information to the report.



The screenshot shows the 'TruCheck Verification Settings' dialog box. On the left is a vertical sidebar with a list of settings categories: 'Application Settings', 'Calibration Settings', 'Trending Settings', 'User Information' (which is highlighted with a dark background), 'Report Settings', and 'Navigation'. The main area of the dialog is titled 'User Information' and contains four input fields: 'Company Name', 'Operator Name', 'Batch Number', and 'Custom Note'. To the right of the 'Batch Number' field is an unchecked checkbox labeled 'Auto Batch'. At the bottom of the dialog, there are two buttons: 'Reset Defaults' on the left and 'OK' on the right.

Report Settings

The **Report Settings** menu allows you to customize the contents of the verification report.



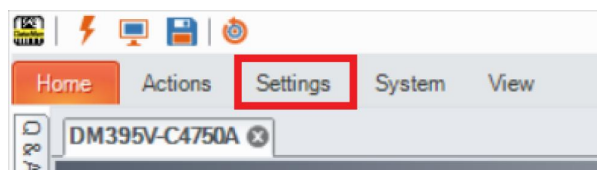
The following options are available to adjust the report contents:

- **Units of distance:** select a unit of measurement for reporting X-Dimension. You can choose:
 - mils (thousandths of an inch)
 - mm (millimeters)
 - μm (micrometers)
- **Generate Report:** check the **Generate Report** checkbox to allow generating reports.
- **Report Sections:** each checkbox controls whether a particular section is included in the report. If you uncheck a checkbox, the report becomes smaller.

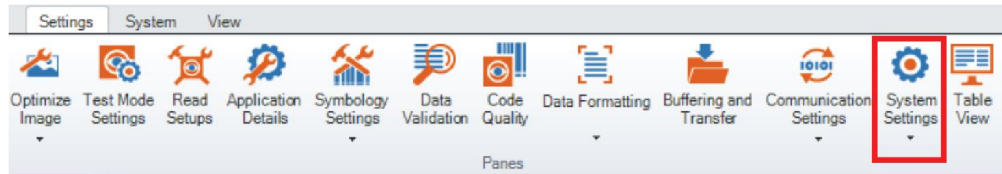
Add Timestamp to the Verification Report

To add a time stamp on verification reports:

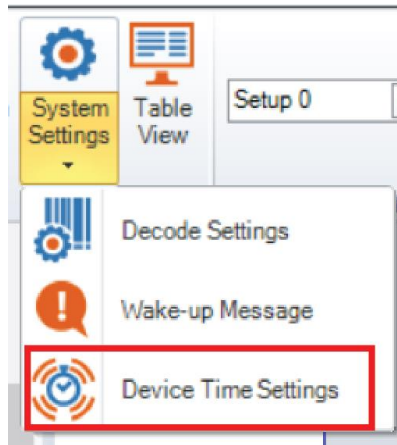
1. Connect your verifier in the DataMan Setup Tool.
2. Select **Settings**.



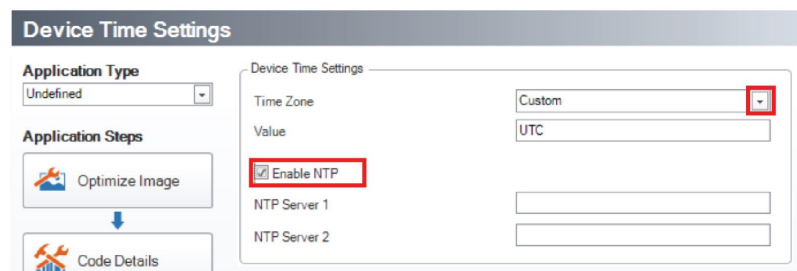
3. Select **System Settings**.



4. Select **Device Time Settings** from the dropdown menu.



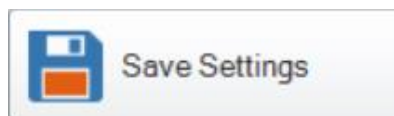
5. Choose your time zone from the dropdown menu and check **Enable NTP**.



6. Enter an IP address for an NTP Time Server. An IP address can be found by searching the internet for NTP Time servers.

Note: If the computer is not connected to the internet, you must connect it to a local time server on an internal network.

7. Select **Save Settings**.



Saving Verification Reports

Saving Verification Reports in the TruCheck Verification Window

The TruCheck Verification window only displays a report preview if you check the **Generate Report** checkbox in the **Report Settings** menu. For more information, see [Report Tab on page 121](#).

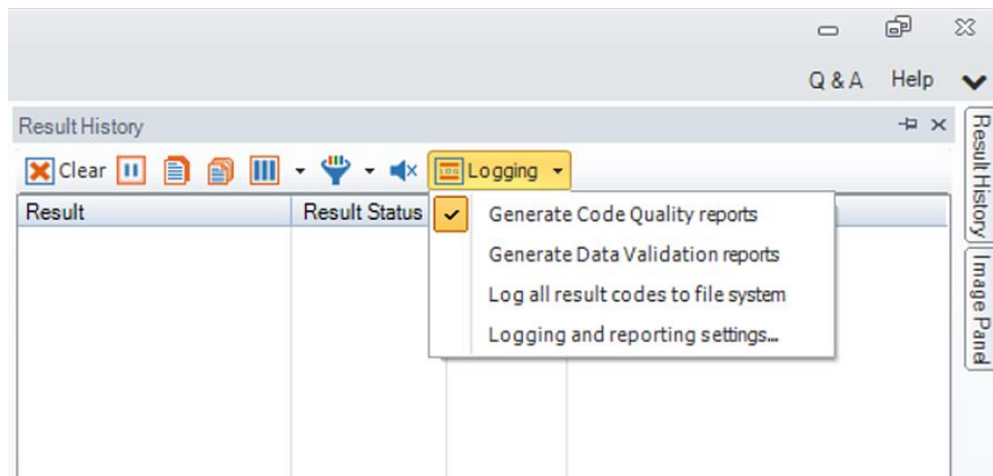


You can save and print the report by right-clicking on the report. Select a printer or **Save to PDF**.

Saving Verification Reports in DataMan Setup Tool

To save and print electronic reports, enable the Code Quality report in the DataMan Setup Tool window:

1. Open the DataMan Setup Tool, and navigate to the **Results History** pane.
2. In the **Logging** drop-down menu, click on the **Generate Code Quality reports**.



3. In the same drop-down menu for **Logging**, select **Logging and Reporting Settings** to open the **DataMan Setup Tool Options** window.

4. In the **Reporting** box, select the **Path** to save verification reports to your local computer or server. Include a **Filename Prefix** or **Filename Structure** and select the **Preferred Quality Report File Extension** as either **.html** or **.pdf**.

For the **Filename Prefix**, you can enter a custom string, or use a predefined string variable that the system automatically translates based on your settings. The following predefined strings are available:

- {Grade}
- {GradeLetter}
- {GradeNumber}
- {Symbology}
- {Data}
- {Batch}
- {UII}
- {Company}
- {Operator}
- {Note}

Note: The strings are case sensitive and must include the curly braces.

The screenshot shows the 'DataMan SetupTool Options' dialog box with the 'Data Logging' tab selected. The 'Reporting' section is highlighted with a red box. It contains the following fields and options:

- Path:** C:\
- Filename Prefix:** (empty text box)
- Filename Structure:** Verification/Validation UII/Batch with Timestamp (selected in a dropdown menu)
- Preferred Quality Report File Extension:** pdf (selected in a dropdown menu)
- Include Overlay Graphics (SVG):** (checked checkbox)

On the right side of the dialog, there is an 'Options' panel with a 'Show All' button and three links:

- What can I set in the Options page?
- What settings are available on the Data Logging tab?
- How can I enable the generation of data validation reports?

At the bottom right of the dialog are 'OK' and 'Cancel' buttons.

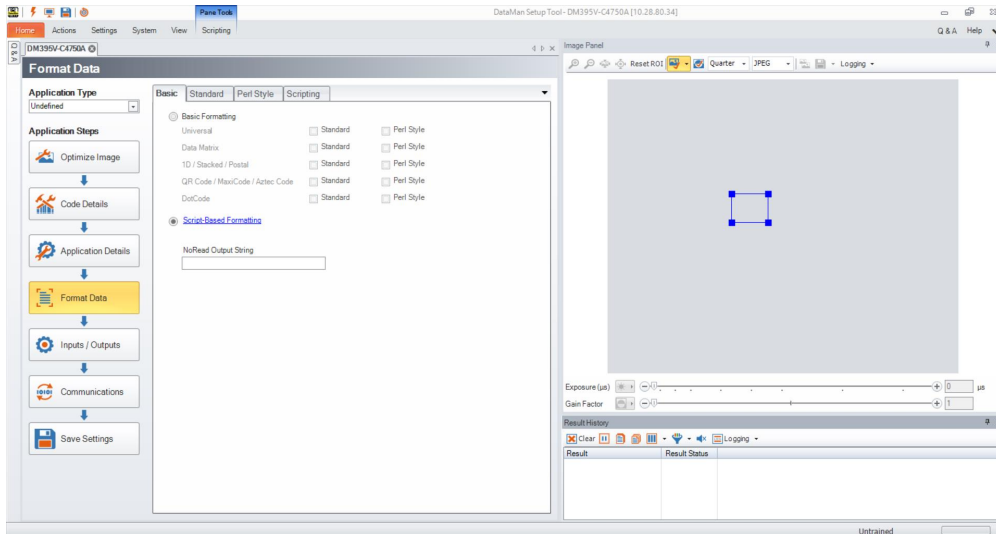
Results through Setup Tool (local machine)

In the **Results through Setup Tool (local machine)** section of the **Navigation** setting menu, the following options are available to navigate to the DataMan Setup Tool windows to set up a scripting menu for exporting verification results either as an HTML or CSV report:

- Result Type
- Result Formatting/Scripting

Result Type

Click **Result Type** to open the **Basic** tab in the **Format Data** application step in DataMan Setup Tool. Select **Script-Based Formatting** to enable scripting for export of verification data to CSV or to custom, script-defined format.



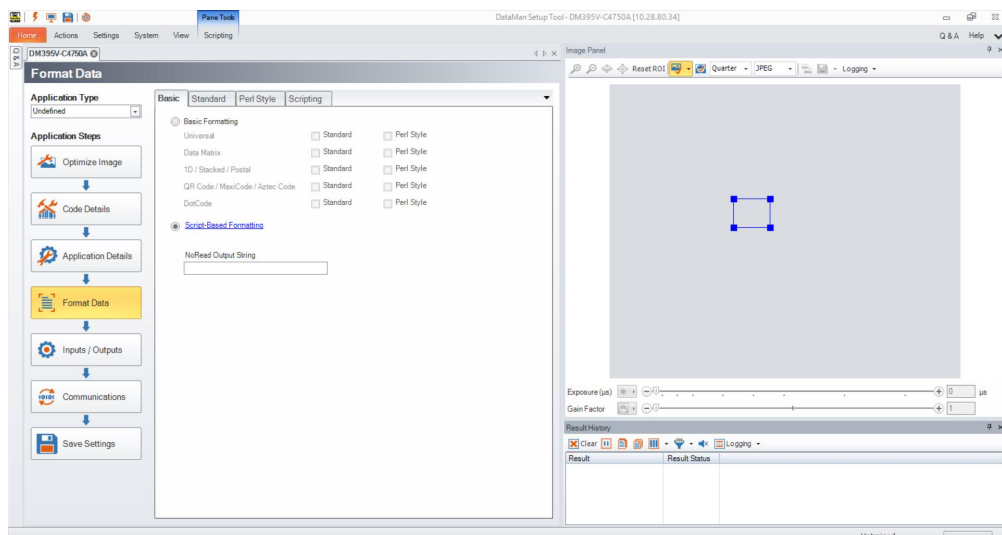
Result Formatting and Scripting

The DataMan Setup Tool allows you to customize a script for outputting results. Use scripting to output a wide variety of information. For verification results, the DataMan Setup Tool provides two scripting templates listing the most common output formats for verification results in a *.csv* or an *.html* report.

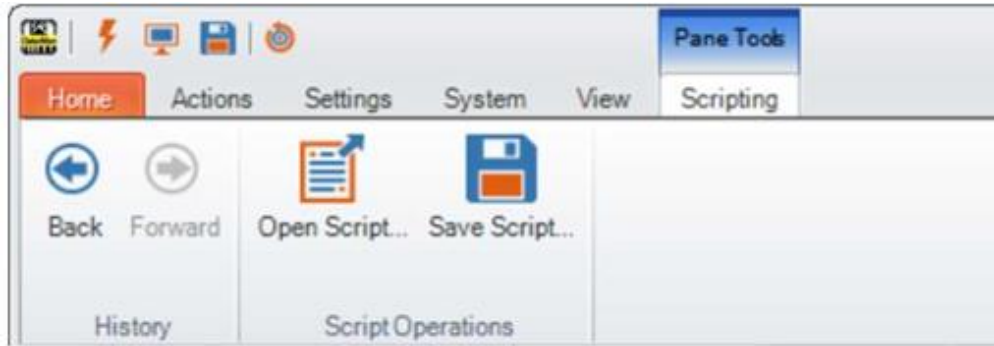
For more details on customizing and making your own scripts, see *DataMan Communications and Programming Guide*.

To enable scripting using the scripting templates provided:

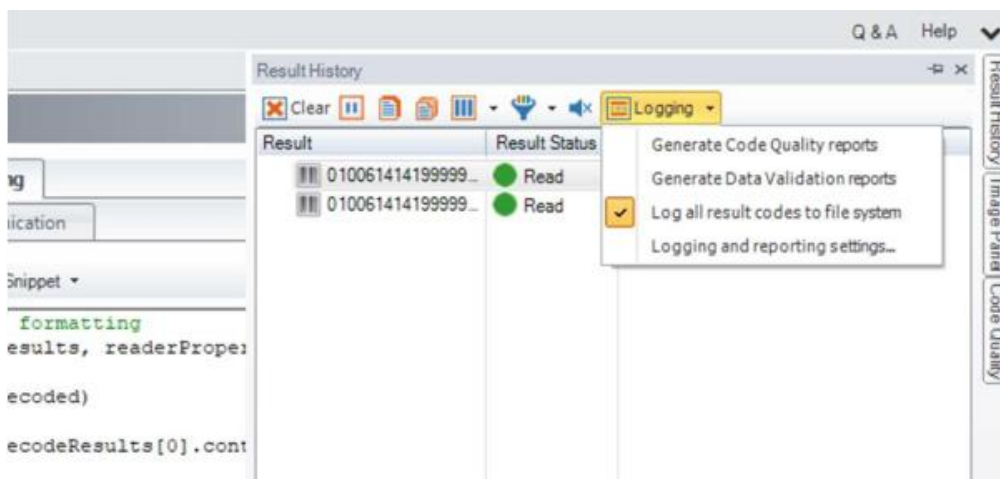
1. Select the **Format Data** application step and the radio button to enable **Script-Based Formatting** on the **Basic** tab.



2. Select the **Scripting** tab on the ribbon menu.



3. In the **Scripting** pane on the ribbon, click **Open Script**.
4. Navigate to the location of the Scripting templates: `C:\Program Files (x86)\Cognex\DataMan\DataMan Software vx.x.x\Scripts`. One scripting template generates results to a `.csv` file, and the other generates results to an `.html` file.
5. To save the output to a file, click the **Results History** window on the right.
6. In the **Logging** option, check the box to **Log all result codes to file system** and select the option for **Logging and reporting settings....**



7. In the **Logging and reporting settings** menu, enter a file **Path** and **File Name** under the **Result Code** section.

Result Code

Path

File Name

Note: After providing a **File Name**, you must include either `.csv` or `.html`, depending on which template is selected. If you do not include `.csv` or `.html` after the file name, the report is not saved correctly.

8. Select **OK** to save and exit.

You can customize the scripts to show more or less detail. For the full list of scripting options, see the *DataMan Communications and Programming Guide*.

Results through FTP

In the **Results through FTP** section of the **Navigation** setting menu, the following options are available to navigate to windows in the DataMan Setup Tool that connect to an FTP server for exporting verification:

- Image FTP Settings
- Result FTP Settings
- Report (scripting) FTP Settings

For more information, see [Setting Up FTP Transfer on page 105](#).

Setting Up FTP Transfer

To configure the DataMan 395V to export verification results through FTP, change settings in DataMan Setup Tool to communicate with an external FTP server. DataMan Setup Tool can export information about:

- The image used for verification
- The result information provided from the **Result History** pane in DataMan Setup Tool
- The verification results provided in the **Code Quality** report.

To begin setting up FTP transfer, configure an FTP server to communicate with DataMan Setup Tool. To set up the necessary information in the DataMan Setup Tool window, choose from the following panes available for FTP transfer depending on what you would like to transfer:

- Image FTP Transfer
- Result FTP Transfer
- Report (scripting) FTP Transfer



Tip: The TruCheck Verification window provides shortcuts to these DataMan Setup Tool panes in the **Settings > Navigation > Results through FTP** menu. For more information, see [Results through FTP on page 104](#).

You can also click **Settings** in DataMan Setup Tool on the ribbon menu and open **Buffering and Transfer** to access the FTP settings.

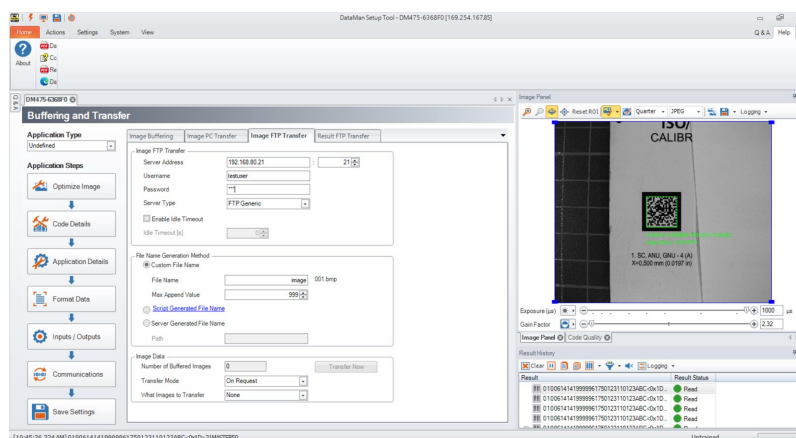
Image FTP Transfer

Selecting this option enables exporting the acquired images to an FTP server.

To set up image transfer through FTP:

1. Fill in the following fields, depending on the setup of your FTP server:

- **Server Address**
- **Username**
- **Password**



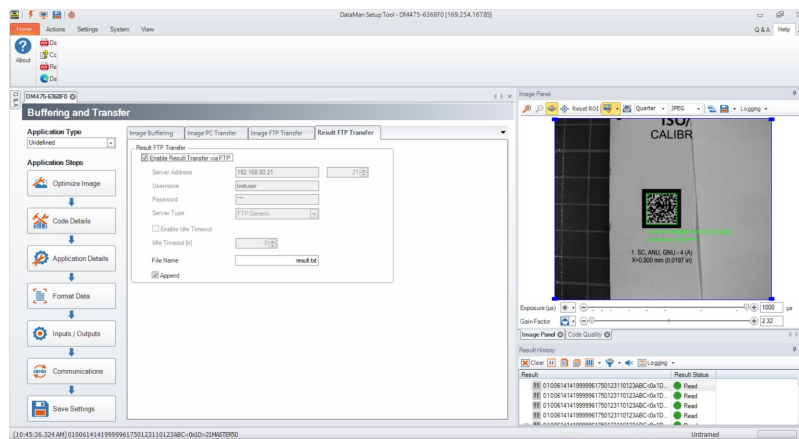
Result FTP Transfer

Selecting this option enables exporting the results available in the **Result History** pane of DataMan Setup Tool to an FTP server.

To set up result transfer through FTP:

- Fill in the following fields, depending on the setup of your FTP server:
 - Server Address**
 - Username**
 - Password**
- Check the **Enable Result Transfer via FTP** checkbox.

Use the FTP Transfer setting when exporting verification results using scripting. If you use one of the included CSV script snippets, include the .csv file extension at the end of the **File Name** field, for example *VerificationResults.csv*.

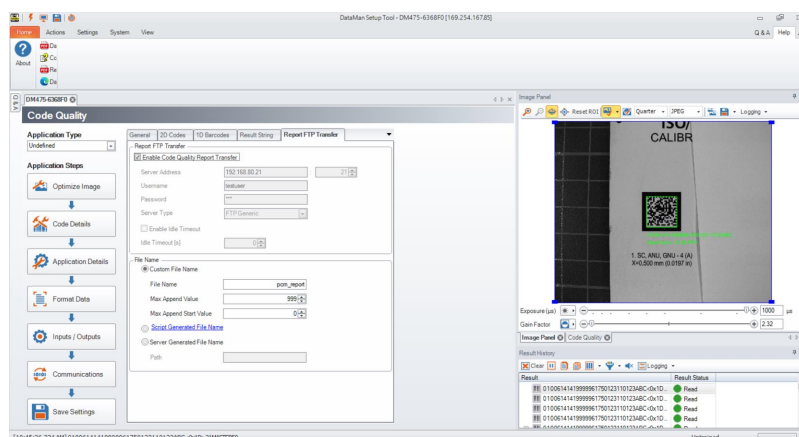


Report FTP Transfer

Selecting this option enables exporting the **Code Quality** report information to an FTP server.

To set up report transfer through FTP:

- Fill in the following fields, depending on the setup of your FTP server:
 - Server Address**
 - Username**
 - Password**
- Check the **Enable Code Quality Report Transfer** checkbox.



Verify Barcode Using the TruCheck Verification Window

Guided Focus Feedback

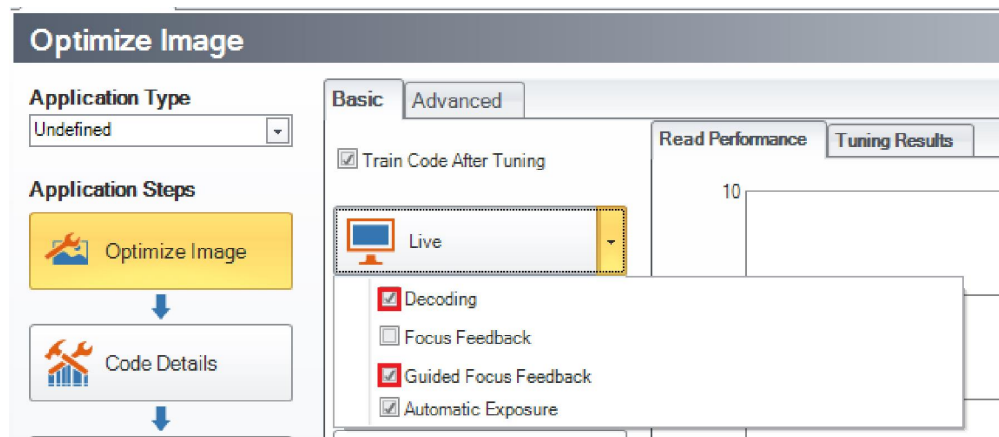
Guided Focus Feedback is a feature that shows you which way to turn the hand wheel of the Stand accessory to position the verifier at the proper height for optimal focus on the barcode. You can enable or disable the Guided Focus Feedback in Live Mode. Failure to properly focus the verifier results in skewed results.

The sharpness value indicates the sharpness of the image. Generally, move the verifier and watch as the number increases. At some point, if you continue moving the verifier in the same direction, the verifier passes the focal plane and starts to become less focused, so the number decreases. At this point, move the verifier back to the position where it was at the highest focus.

When using the adjustable height stand, then the guidance indicator (arrow) shows you which direction to turn the hand-wheel. If you are not using the stand, double-click on the focus indicator image to change the image set to arrows to indicate if the unit needs to be moved closer or further to the barcode.

To use Guided Focus Feedback, perform the following steps in DataMan Setup Tool:

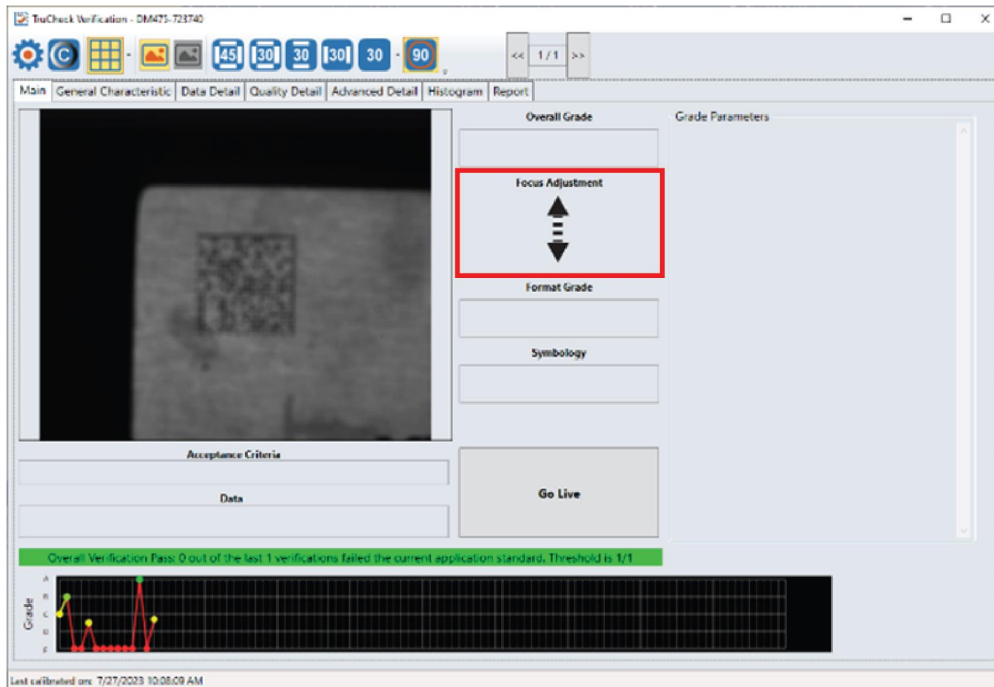
1. Select **Optimize Image**.
2. Expand the drop down menu under **Live**. Enable **Decoding** and **Guided Focus Feedback** in Live Mode. You must enable **Decoding** for Guided Focus Feedback to work correctly.



Note: Guided Focus Feedback overrides Focus Feedback if it is enabled. You do not need to enable both.

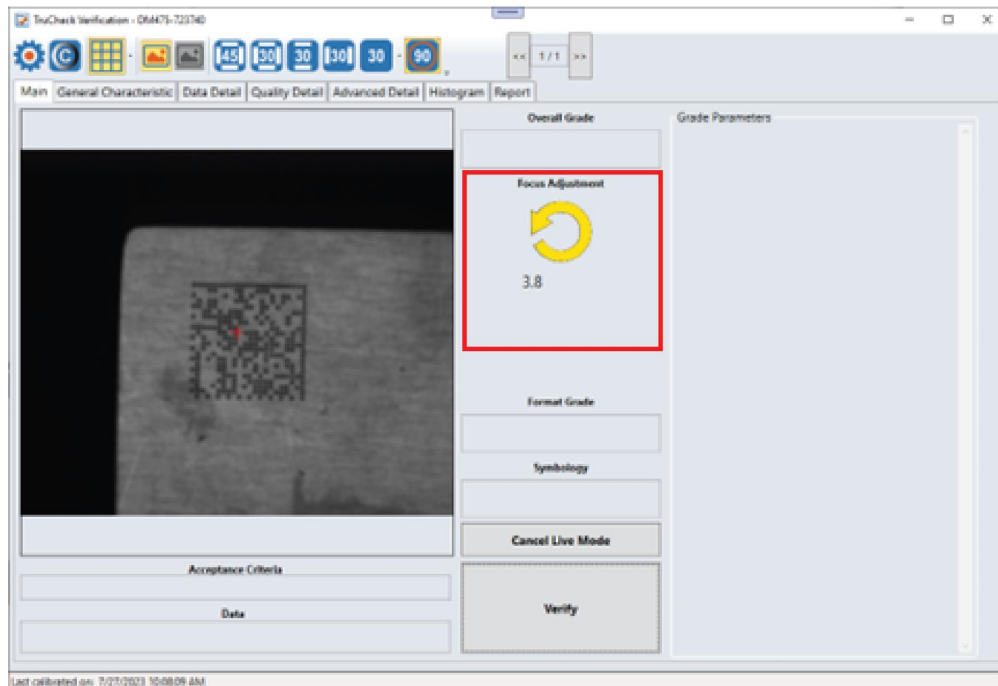
Guided Focus Feedback appears in the TruCheck Verification window to the right of the image. When you enter the Live Mode for the first time, the guidance indicator displays an up and down arrow indicating that you should begin moving in either direction.

Note: If the Guided Focus Feedback icons do not appear, click the **Go Live** button. You may need to close and reopen the TruCheck Verification window.



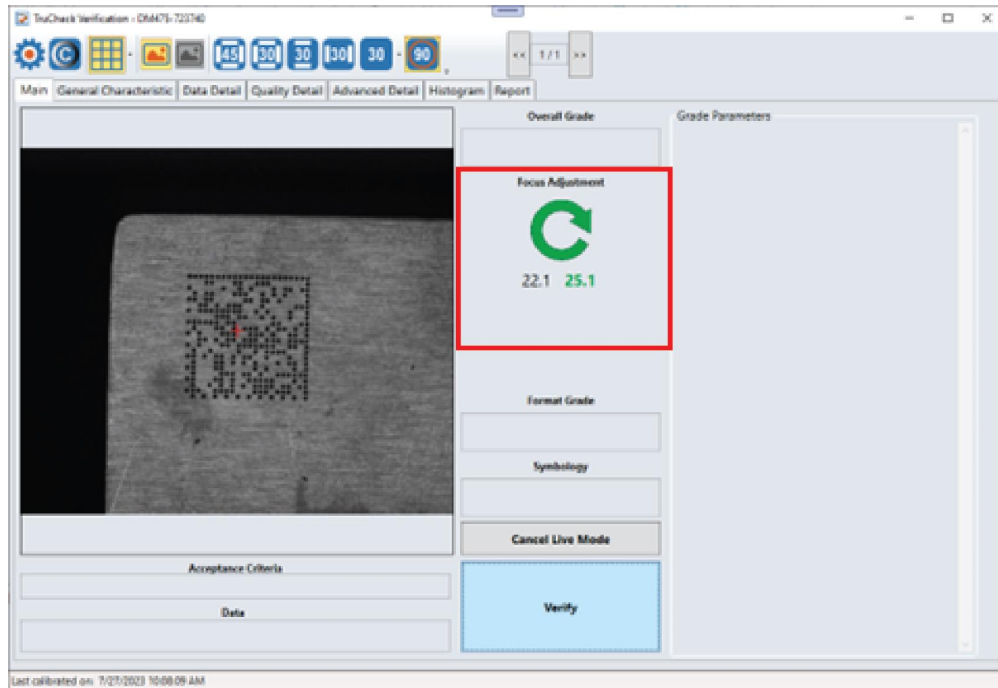
3. Move the verifier closer to or further from the target to make the image sharper. This allows the verifier to detect the code.

The guidance indicator is now a green or yellow arrow. Once the code is detected, the guidance indicator shows the best direction to move the Stand handle of the Stand accessory to improve focus. The sharpness value appears below the guidance indicator. As the image becomes sharper, the sharpness value increases.

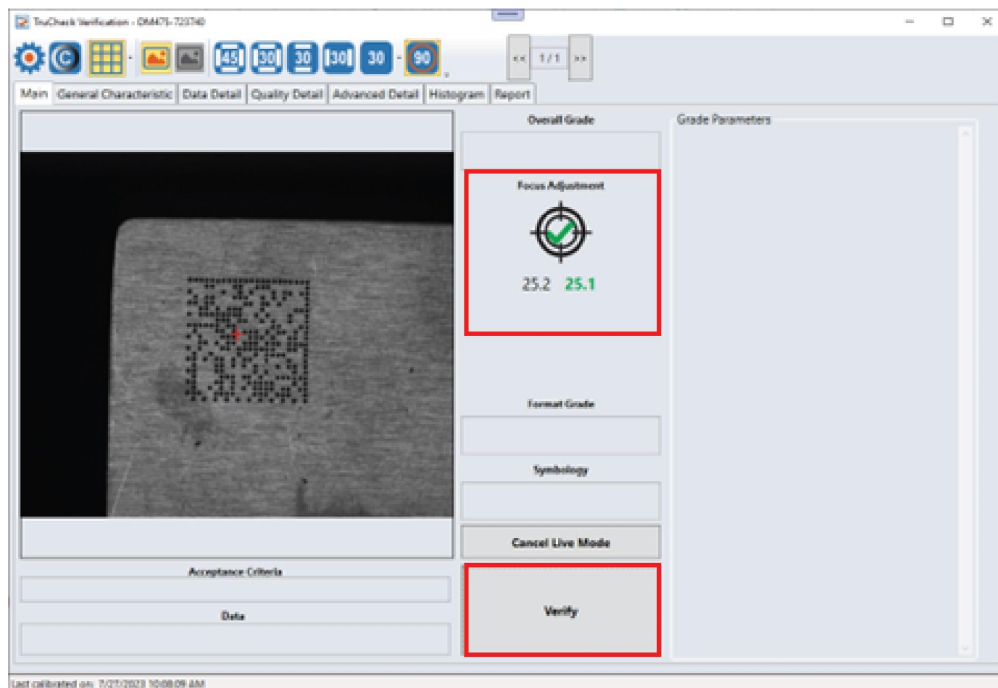


4. As you continue to adjust the focus, the sharpness value reaches a maximum value and then decreases as you go past the point of best focus. At this point, the guidance indicator turns green and the peak sharpness value also appears. The guidance indicator shows which direction is the best focus position. As you adjust, the current sharpness value approaches the peak sharpness value.

Note: Adjust the position very slowly at this point.



5. When the verifier is in the best focus position, the sharpness score and the peak sharpness score are very close, and the good focus checkmark appears. Verify your code now.



Note:

- When you start to setup the verifier, move the verifier close to focus by trial and error. The verifier does not know if the out-of-focus image is due to the verifier being too close or too far from the image, so it cannot tell you which direction to go. Once the verifier detects the code, the verifier can tell you which direction to move the verifier. This is why the directional guidance does not appear until you successfully move the verifier close enough to detect a code.
- The verifier can get confused if the texture in the image is too complicated or if you move in the opposite direction than the verifier suggests. Always use your judgment to determine whether the image is truly in focus.
- Adjust slowly to improve the accuracy of the guidance.
- If you are not using the Stand accessory but you want to use Guided Focus Feedback, you can select alternate guidance indicators by double-clicking **Focus Adjustment**.

Verifying a 1D Barcode

To verify a 1D barcode in the TruCheck Verification window:

1. Navigate to the **Main** tab.
2. Click **Go Live** and center your symbol in the field of view. Alternatively, press and release the trigger button or press **Ctrl+T** to **Go Live**.

After selecting **Go Live**, the button changes to **Verify**.

3. Position the red target in the display over the center of the code.
4. Draw the Region of Interest (ROI) over the code, making sure that the region stays within the boundaries of the code. If the region extends outside the area of the code, the verifier attempts to scan the empty part of the region, resulting in un-decoded scans.

Tip:

- If you enable **Linear Auto Detect** in the 1D Settings menu, the selection region can extend beyond the boundaries of the code without affecting the grade. If you do not define a region, the verifier defaults to using Linear Auto Detect for linear bar codes, regardless of whether you have enabled the setting or not.
- For linear symbols, the verifier examines areas outside the selection region in order to properly find and grade quiet zones. The region does not limit the verification to ignore areas outside the code, which can otherwise lead to wrong or misleading grade results.

For more information on how to specify the ROI, see [Select Region of Interest on page 46](#).

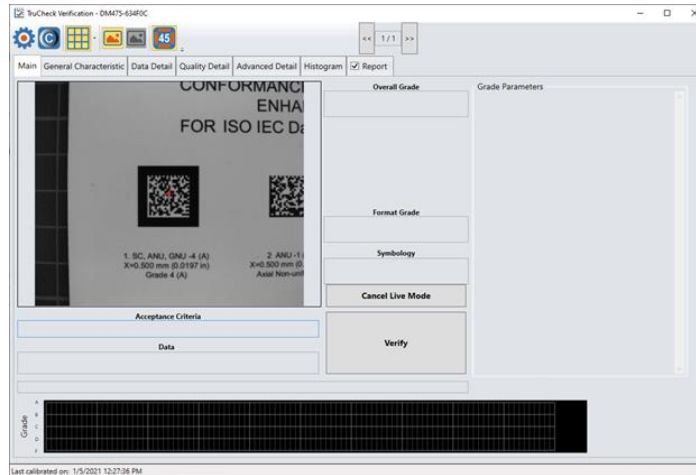
5. Click **Verify Code**.
6. Use the toolbar buttons and tabs on the screen for in-depth analysis of codes. For more information, see [Verify Barcode Using the TruCheck Verification Window on page 107](#).

Verifying a 2D Barcode

To verify a 2D barode in the TruCheck Verification window:

1. Navigate to the **Main** tab.
2. Click **Go Live** and center your symbol in the field of view. Alternatively, press and release the trigger button or press **Ctrl+T** to **Go Live**.

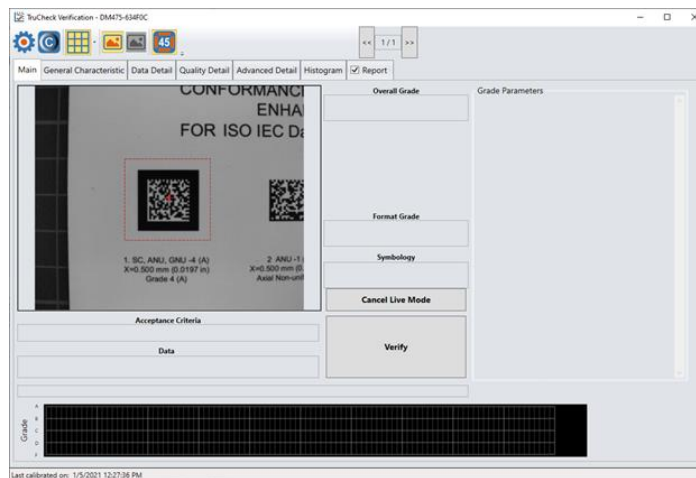
After selecting **Go Live**, the button changes to **Verify**.



3. Draw the Region of Interest around the code to be verified, if necessary.

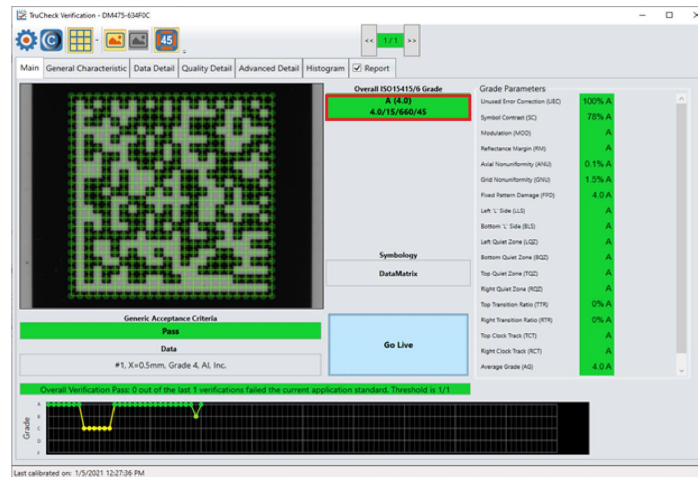


Tip: Make sure to draw the region around the outside perimeter of the code including quiet zones. More information on properly defining regions is explained in [Select Region of Interest on page 46](#).



- Click **Verify**, or press and release the trigger button or **Ctrl+T** on the verifier to begin verification.

The following screenshot shows a successful 2D barcode verification. Additional details in the TruCheck Verification window are displayed depending on grading and application standards.

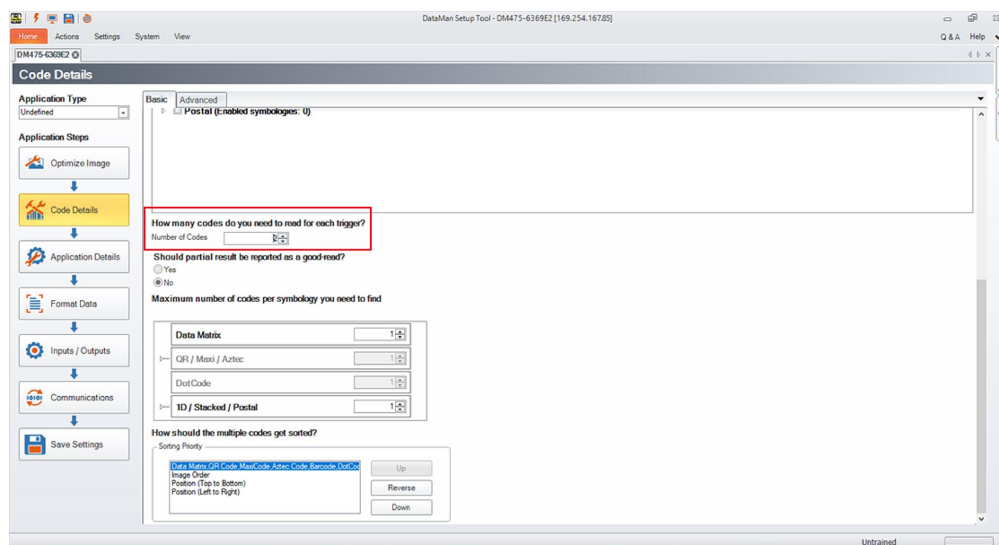


- Use the toolbar buttons and tabs on the screen for in-depth analysis of codes. For more information, see [Verify Barcode Using the TruCheck Verification Window on page 107](#).

Verifications of Multiple Symbols

To verify multiple symbols, enable multi-code reading in DataMan Setup Tool before initiating verification in the TruCheck Verification window:

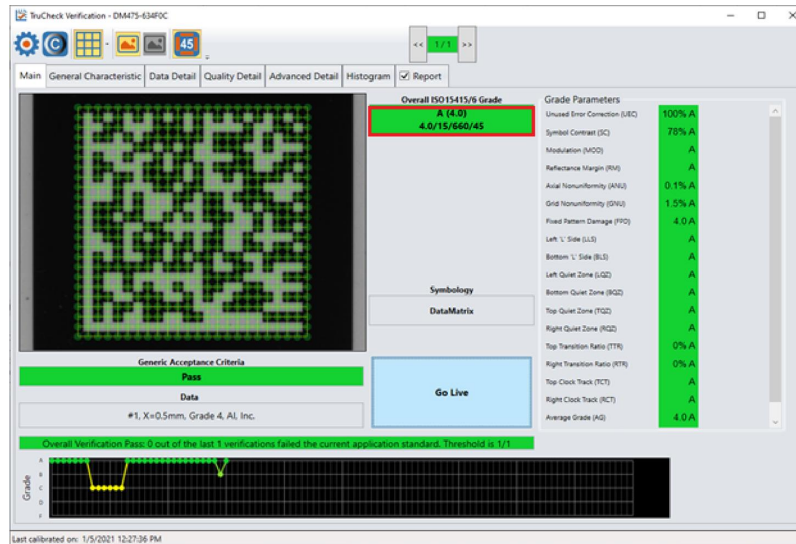
- Open DataMan Setup Tool, and navigate to **Application Steps > Code Details**.
- Under the **Basic** tab, change the **Number of Codes** field to a value greater than 1 to see the expanded list of options available.



- Select the **Number of Codes** to be verified during a single trigger.

Examining the Results in the TruCheck Verification Window

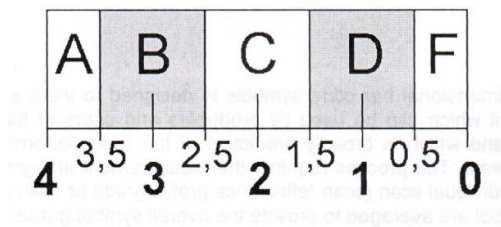
This section details how to view and analyze the verification results. The following images shows the TruCheck Verification window:



Main Tab

The **Main** tab shows a snapshot of the verification results.

- **Acceptance Criteria:** Provides a Pass or Fail grade for the barcode and is dependent on the **Application Standard** selected. For more information, see [Application Settings on page 88](#).
- **Data:** Shows the decoded data.
- **Overall Grade:** Shows the overall grade results for the barcode as both a letter grade (A) and numeric grade (4.0). A Formal Grade is provided in the format *Grade/Aperture/Wavelength/Lighting*.
- For example, a Formal Grade of “4.0/08/660/45” is interpreted as receiving a grade of 4.0 using 8 mil aperture (0.2 mm), 660 nm wavelength, and 45° lighting.



- **Format Grade:** Indicates PASS or FAIL, depending on the **Application Standard** or **Data Format Check** criteria selected. For more information, see [Application Settings on page 88](#).
- **Symbology:** The name of the type of barcode (for example, *Data Matrix* or *Code 128*).
- **Grade Parameters:** Provides information on the Quality Parameters grading for the barcode. For more information, see [Quality Detail Tab on page 118](#).

- **Grade Trending:**



The TruCheck Verification window shows the grade trending values for symbol verified over time. The graph at the bottom of the **Main** window shows data points associated with the overall grade for each symbol verified. The grade trending reports the data point for each Overall Grade.

In verifications where a symbol passes all quality parameters but, for another reason, fails the acceptance criteria such as data parsing error or X-dimension range, the grade is shown as an F. For example, if a symbol receives an overall grade of A (4.0) but fails for an X-dimension out of range, grade trending marks the data point as an F.

Grade Trending data points remain populated and continue to trend on the **Main** window until you disconnect the power from the verifier.

Trending Settings

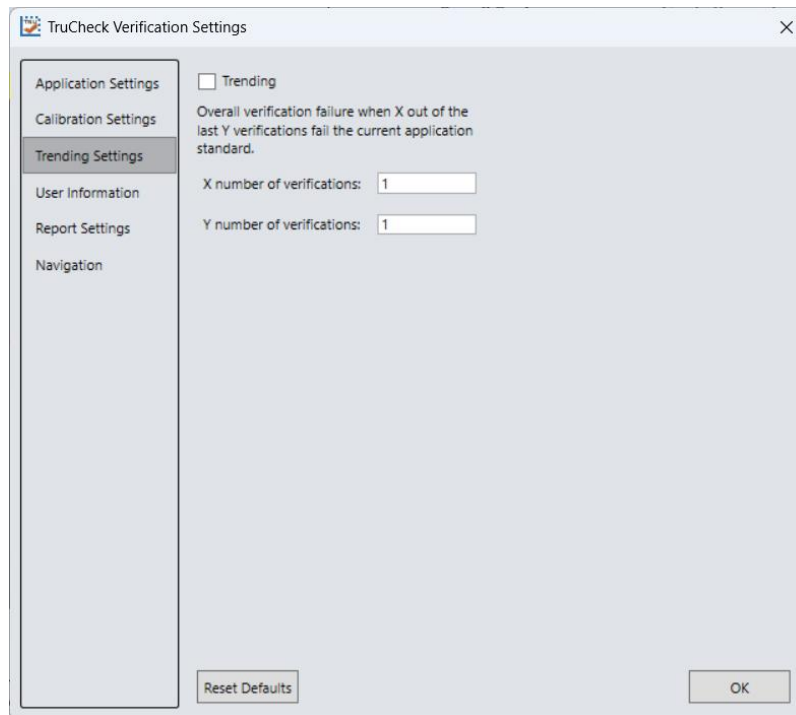
The **Trending Settings** menu allows users to set the threshold that determines if the trending is evaluated as Pass or Fail. With the option to set the values for X and Y, you can establish an overall verification failure when X out of the last Y verifications fail the current application standard.

1. Enable or disable **Grade Trending** using the **Trending** checkbox in the **Trending Settings** menu.
2. Set a tolerance range for the number of verifications (X) allowed to fail out of the total number of verifications (Y) specified.

For example, if you set X to 3 and Y to 10, a message will show above the trending graph stating Overall Verification Failure: 0 out of the last 0 verifications failed the current application standard. Threshold is 3/10 whenever 3 or more of the last 10 verifications resulted in a failing Overall Grade.

Note: If the trending point falls below the specified threshold, trending is reported as an Overall Verification Failure. The **i** Pass Grade value set in the **Application Settings** menu determines if a symbol is a pass or fail for Grade Trending purposes. Grade Trending does not show data points for verifications that result in a NO DECODE evaluation.

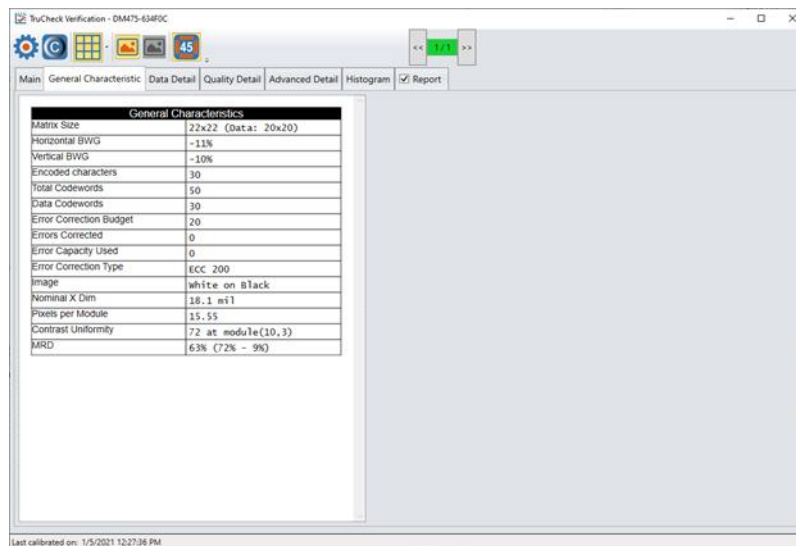
The main screen in the TruCheck Verification window shows the trends. See [TruCheck Verification User Interface on page 81](#).



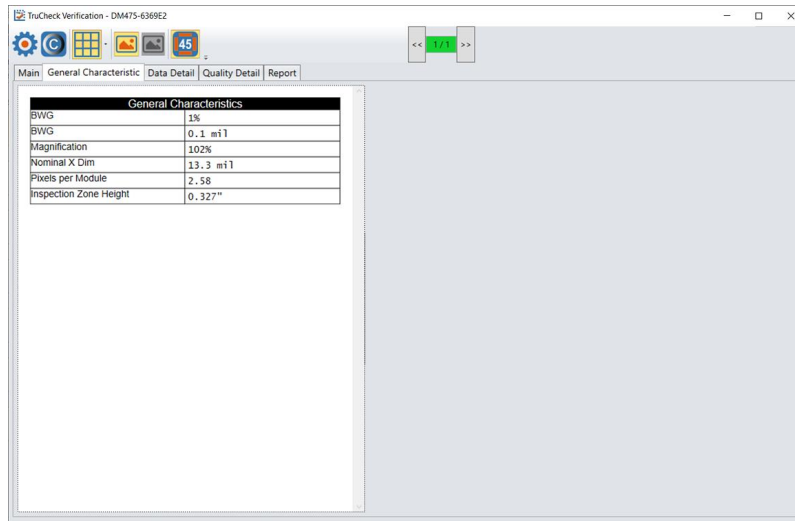
General Characteristics Tab

The **General Characteristic** tab shows the physical characteristics of the verified barcode. The information available on this screen depends on the symbology and settings on the **Report Settings** menu.

The image shows the characteristics of a Data Matrix barcode:



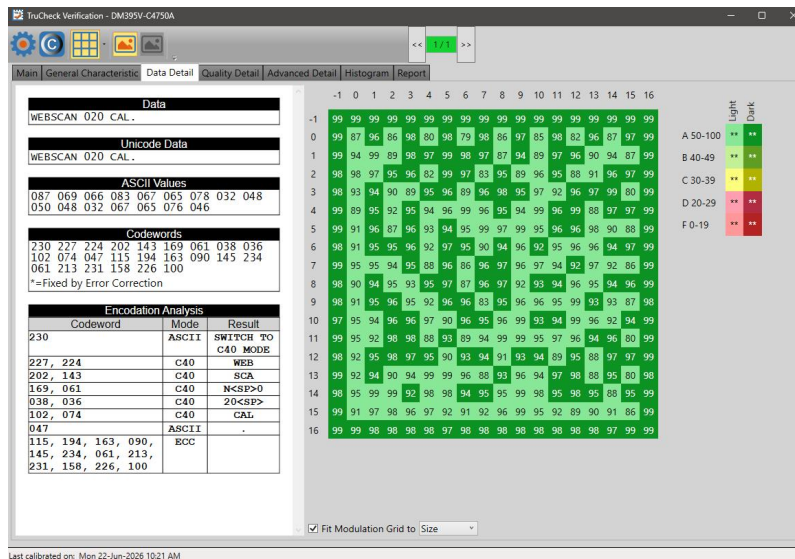
The image shows the characteristics of a 1D barcode:



Data Detail Tab

The **Data Detail** tab shows all of the data encoded in the symbology in various ways, and makes the understanding of the symbology easier. The verbose interpretation of the symbology is especially helpful when the data is encoded incorrectly. The level of detail depends on the symbology and the selected **Application Standards**.

The image shows the encoding information of a Data Matrix and the depiction of the symbol showing each module:



The **Data Detail** tab contains the following parameters:

Data Parameter	Content
Data	Refers to the data decoded from the symbology in normal, printable characters.
Unicode Data	Shows the data interpreted as Unicode characters. The characters are the same as the characters in Data section, except when the data in the symbology encodes non-Latin characters, such as Kanji, using Unicode encodation.

Data Parameter	Content
ASCII Values	Gives ASCII value of each decoded character. ASCII values are helpful in case an unprintable character is encoded in the symbology and you need to confirm that the character is correct. For example, by looking at the ASCII values table, you can see that a <GS> in the decoded data is actually the ASCII character with decimal value of 29, and not four separate characters: <, G, S, >.
Codewords if applicable	Lists the values of the raw codewords encoded in the symbology, including the error correction codewords. An asterisk (*) denotes codewords which were decoded incorrectly and determined through error correction decoding.
Encodation Analysis if applicable	Shows the detailed conversion of raw codewords into decoded ASCII values using the encodation and compression methods defined for the symbology. For example, in Data Matrix an encodation method known as C40, the C40 method encodes 3 ASCII characters in only two codewords. Similarly, PDF417 and other 2D symbologies have various methods of encoding different types of data (such as numeric only data) in efficient ways. The encodation analysis table can show you the process of this encodation or decoding.

Modulation Table Legend

To help interpret the color coding associated with the modulation table on the **Data Detail** tab, the software provides a legend. The letter grade associated with each modulation value range is shown on the left. The colors are distinguished based on whether the module is light (white) or dark (black).

	Light	Dark
A 50-100	..	..
B 40-49	..	..
C 30-39	..	..
D 20-29	..	..
F 0-19	..	..

When a data checking failure occurs, a message indicates the cause of the failure.

For example, if a check digit is incorrect, a message indicates the expected check digit value. When the verification detects an error, the application stops the parsing and generates a report.

When you hover over the codewords in the Data Matrix **Codeword table**, the display of the Code module highlights the modules constituting the 8-bit codeword on the image to show where the data is encoded within a Data Matrix symbol.

Quality Detail Tab

The **Quality Detail** tab shows the measured quality parameters and lists the formal grade. Different symbologies and quality grading standards display pertinent data on the **Quality Detail** tab.

The following image shows a 2D Data Matrix code graded according to ISO/IEC 15415:

Verification Grade				
Overall	Aperture	Wavelength	Lighting	Format
A (4.0)	16	660	45	4.0/16/660/45

ISO15415 Quality Parameters				
1. Unused Error Correction (UEC)	A	100%		PASS
2. Symbol Contrast (SC)	A	80%	RURd (84.3)	PASS
3a. Modulation (MOD)	A			PASS
3b. Reflectance Margin (RM)	A			PASS
4. Axial Nonuniformity (ANU)	A	0.1%		PASS
5. Grid Nonuniformity (GNU)	A	3.1%		PASS
6. Fixed Pattern Damage (FPD)	A	4.0		PASS
7. Left 'L' Side (LLS)	A			PASS
8. Bottom 'L' Side (BLS)	A			PASS
9. Left Quiet Zone (LQZ)	A			PASS
10. Bottom Quiet Zone (BQZ)	A			PASS
11. Top Quiet Zone (TQZ)	A			PASS
12. Right Quiet Zone (RQZ)	A			PASS
13. Top Transition Ratio (TTR)	A	0%		PASS
14. Right Transition Ratio (RTR)	A	0%		PASS
15. Top Clock Track (TCT)	A			PASS
16. Right Clock Track (RCT)	A			PASS
17. Average Grade (AG)	A	4.0		PASS
18. DECODE	A			PASS

The following image shows a 1D UPC-A symbol graded according to ISO/IEC 15416:

Verification Grade				
Overall	Aperture	Wavelength	Lighting	Format
B (3.2)	11	660	45	3.2/11/660/45

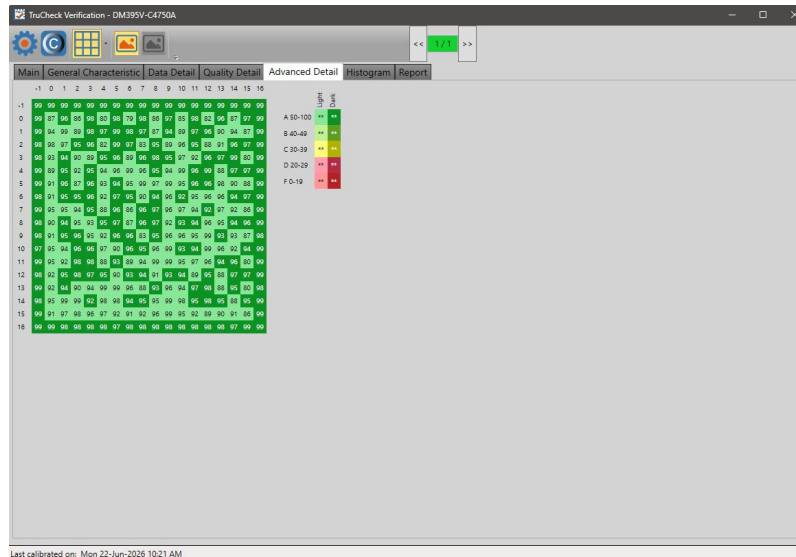
ISO15415 Quality Parameters				
1. Edge	A	59		PASS
2. Reflectance Light / Reflectance Dark (RURd)	A	79/4		PASS
3. Symbol Contrast (SC)	A	75%		PASS
4. Minimum Edge Contrast (MinEC)	A	60%		PASS
5. Modulation (MOD)	A	80%		PASS
6. Defect (Def)	A	0%		PASS
7. Decode (DCD)	A	10/10		PASS
8. Decodability (DEC)	B	52%		PASS
9. Minimum Quiet Zone (MinQZ)	A	9		PASS

Individual Scan Results									
Scan #	Edge	MinRed	SC	MinEC	MOD	DEF	DECODE	DEC	QZ
1	A	A	A	A	A	A	A	A	A
2	A	A	A	A	A	A	A	A	A
3	A	A	A	A	A	A	A	B	A
4	A	A	A	A	A	A	A	B	A
5	A	A	A	A	A	A	A	B	A
6	A	A	A	A	A	A	A	B	A
7	A	A	A	A	A	A	A	B	A
8	A	A	A	A	A	A	A	B	A
9	A	A	A	A	A	A	A	B	A
10	A	A	A	A	A	A	A	B	A

Advanced Detail Tab

The **Advanced Detail** tab shows in-depth information on the verified code. The information displayed on the **Advance Detail** tab depends on the type of the verified code.

The following example shows the modulation values from the Histogram:

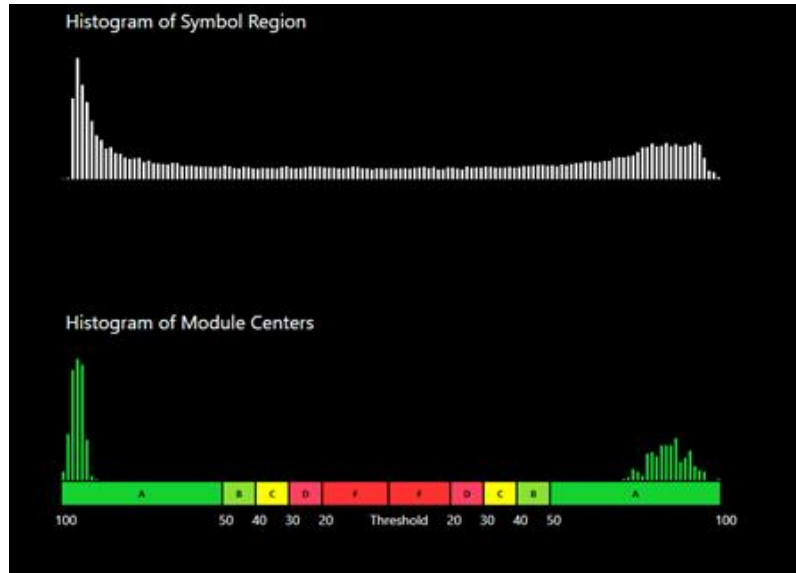


The closer a value is to 0, the closer the module lands to the global threshold:

- When a cell is marked with a 0, it means a value lands on or is on the wrong side of the global threshold and error correction had to be used.
- A dark red 0 indicates that a cell is shown as a space but it should be a module.
- A light pink 0 indicates that it should be a space but it is shown as a module.

Histogram Tab

The **Histogram** tab shows the analysis of the reflectivity of each cell and associated grade.



The horizontal axis on the histogram represents the brightness level with the dark elements on the left side and the bright elements on the right side. The brighter the element is, the histogram displays it farther to the right of the window. The height of each bar represents the number of elements with the same brightness associated with their position on the horizontal axis.

The top graph of the histogram represents the brightness of all the pixels in the image. The bottom graph of the Histogram represents the center of modules in the symbol. The bottom graph only contains elements which are either definitively dark or definitively bright. The bars are grouped together because all the dark or bright modules of varying brightness are close to

each other. Pixels with varying brightness are on the border between dark and light modules, therefore they obtain a middle value of brightness.

The horizontal axis contains markers showing the global threshold (tall, orange line), and all modulation levels are separated for both dark and light elements.

Note: When grading according to ISO/IEC TR29158 (AIM-DPM), the **Histogram** gets different labeling. The location of the 0% and 100% labels on the horizontal axis are at the means of the dark and light lobes of the Histogram and there is no C level because the DPM grading method uses only A, B, D and F levels for Cell Modulation.

Report Tab

Note: The Code Quality report contains the results specific to verification when the verification feature key is installed and verification is enabled in the DataMan Setup Tool. The Code Quality report contains the results and separate from the previous Code Quality results that Process Control Metrics (PCM) generate.

When you enable the **Code Quality report** in DataMan Setup Tool, the **Report** tab becomes available in the TruCheck Verification window showing full verification results formatted into a printable report.

TruCheck Verification - DM395V-C4750A

Unit Serial: 1A2547PP685977
 Verified: Mon 22-Jun-2026 10:26 AM
 Firmware Version: Development integration 26/06/09 17:09 788edb3
 Last Calibrated: Mon 22-Jun-2026 10:21 AM

Report Summary

Data	WEBCAN 020 CAL
Symbology	DataMatrix
Device Name	DM395V-C4750A

Verification Grades

Standard	Grade	Aperture	Wavelength	Lighting	Formal Grade
ISO 15415:2024	4.0 (A)	08	660	45Q	4.0/08/660/45Q
Auto	Pass				

Image

General Characteristics

Matrix Size	16x16 (Data: 14x14)
Horizontal BWG	0%
Vertical BWG	0%
Encoded characters	16
Total Codewords	24
Data Codewords	12
Error Correction Budget	12
Errors Corrected	0
Error Capacity Used	0

Last calibrated on: Mon 22-Jun-2026 10:21 AM

Cleaning and Maintenance

Clean the Housing

To clean the outside of the verifier housing, use a small amount of mild detergent cleaner or isopropyl alcohol on a cleaning cloth. Do not pour the cleaner on the verifier housing.



CAUTION: Do not attempt to clean any DataMan product with harsh or corrosive solvents, including lye, methyl ethyl ketone (MEK) or gasoline.

Clean the Verifier Lens Cover

To remove dust from the lens cover, use a pressurized air duster. The air must be free of oil, moisture or other contaminants that could remain on the lens cover. To clean the plastic window of the lens cover, use a small amount of isopropyl alcohol on a cleaning cloth. Do not scratch the plastic window. Do not pour the alcohol on the plastic window.

Regulations and Conformity

Note: For the most current CE and UKCA declaration and regulatory conformity information, see the Cognex support site: cognex.com/support.

The DataMan 395V verifier has the Regulatory Model 50103 and meets or exceeds the requirements of all applicable standards organizations for safe operation. However, as with any electrical equipment, the best way to ensure safe operation is to operate them according to the agency guidelines that follow. Please read these guidelines carefully before using your verifier.

Safety and Regulatory	
Manufacturer	Cognex Corporation One Vision Drive Natick, MA 01760 USA
CE	Model Name: Regulatory Model 50103 This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take immediate measures. This equipment complies with the essential requirements of the EU Directive 2014/30/EU. Declarations are available from your local representative.
EU RoHS	Compliant to the most recent applicable directive.
FCC	FCC Part 15, Class A This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Korea	R-R-CGX-50103 This device is certified for office use only and if used at home, there can be frequency interference problems.
TÜV	Regulatory Model 50103
	NRTL: TÜV SÜD SCC/NRTL OSHA Scheme for UL/CAN 61010-1.
	CB report available upon request. TÜV SÜD, IEC/EN 61010-1.
UK CA	Regulatory Model 50103 This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take immediate measures. This equipment complies with the essential requirements of the Electromagnetic Compatibility Regulations 2016. Declarations are available from your local representative.

中国 RoHS 合规声明 / China RoHS Compliance Declaration

根据《电器电子产品有害物质限制使用管理办法》(GB 26572-2025) 及《电器电子产品有害物质限制使用标识要求》(SJ/T 11364-2024), 本公司对所提供产品的有害物质含量进行如下声明:

In accordance with the "Administrative Measures on the Restriction of Hazardous Substances in Electrical and Electronic Products" (GB 26572-2025) and "Marking for the Restriction of Hazardous Substances in Electrical and Electronic Products" (SJ/T 11364-2024), our company hereby declares the hazardous substance content in the provided products as follows:



部件名称 Part Name	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价 铬 (Cr ⁶⁺)	多溴 联苯 (PBB)	多溴二 苯醚 (PBDE)	邻苯二甲酸二 (2-乙基己)酯 (DEHP)	邻苯二甲 酸丁苄酯 (BBP)	邻苯二甲 酸二丁酯 (DBP)	邻苯二甲酸 二异丁酯 (DIBP)
Regulatory Model 50103	X	O	O	O	O	O	O	O	O	O

说明 / Note:

“O”表示该有害物质在所有均质材料中的含量均低于 GB 26572-2025 的限量要求。

"O" indicates that the hazardous substance content in all homogeneous materials is below the limit requirement of GB 26572-2025.

“X”表示该有害物质在至少一个均质材料中的含量高于 GB 26572-2025 的限量要求。

"X" indicates that the hazardous substance content in at least one homogeneous material exceeds the limit requirement of GB 26572-2025.

This table is prepared in accordance with the provisions of SJ/T 11364.

这个标签是根据 SJ / T 11364 的规定准备的。

For European Community Users

Cognex complies with Directive 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on waste electrical and electronic equipment (WEEE).

This product has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment, if not properly disposed.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems for product disposal. Those systems will reuse or recycle most of the materials of the product you are disposing in a sound way.



The crossed out wheeled bin symbol informs you that the product should not be disposed of along with municipal waste and invites you to use the appropriate separate take-back systems for product disposal.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You may also contact your supplier for more information on the environmental performance of this product.

