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Download the Matrix 320 Product Reference Guide by reading the QR code here or see the paragraph below.

SUPPORT THROUGH THE WEBSITE

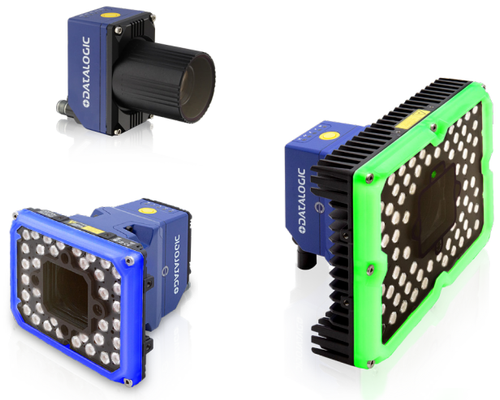
Datalogic provides several services as well as technical support through its website.
Log on to www.datalogic.com.
For quick access, from the home page click on the search icon, and type in the name of the product you're looking for. This allows you access to download Data Sheets, Manuals, Software & Utilities, and Drawings.
Hover over the Support & Service menu for access to Services and Technical Support.

PATENTS

See www.patents.datalogic.com for patent list.
This product is covered by one or more of the following patents:
Utility patents: EP1172756B1, EP2517148B1, EP2616988B1, EP2649555B1, EP3016028B1, EP3092597B1, IT1404187, JP5947819B2, US10229301, US6808114, US6877664, US6997385, US7387246, US7433590, US7433590, US8245926, US8888003, US8915443, US9122939, US9349047, US9361503, US9798948, US10133895, US10229301, US10540532, ZL200980163411.X, ZL201080071124.9, ZL201180044793.1, ZL201280010789.8

MATRIX 320™ 5MP

QUICK REFERENCE GUIDE



DATALOGIC

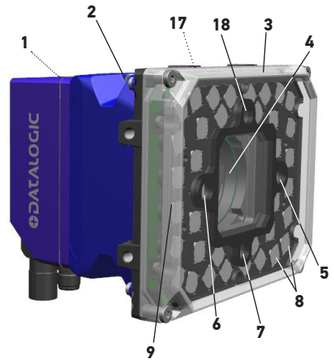
Image Based Industrial Reader

www.datalogic.com

821012073 (Rev. D) March 2026

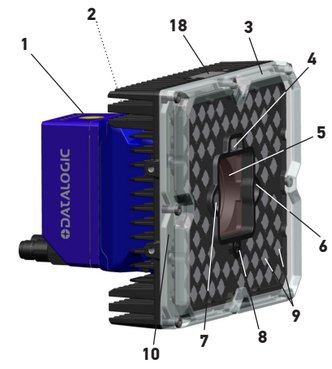
Matrix 320 5MP can be assembled with 36 LED illuminator, 72 LED illuminator, or without illuminator.

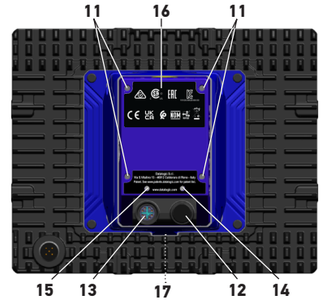
Matrix 320 5MP with 36 LED illuminator



1	HMI X-PRESS Interface
2	Adapter
3	Lens Cover
4	Lens
5	Red Spot
6	Green Spot
7	Aiming System Laser Pointers
8	Internal Illuminator
9	360° Feedback
10	Bracket Mounting Holes (4)
11	Ethernet Connector
12	Power - COM - I/O Connector
13	Ethernet Connection LED
14	Power On LED
15	Compliance Label
16	Avoid Laser Exit Point Label
17	Device Class and Warning Labels
18	TOF Sensor

Matrix 320 5MP with 72 LED illuminator





1	HMI X-PRESS Interface
2	Adapter
3	Lens Cover
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5	Lens
6	Aiming System Laser Pointer
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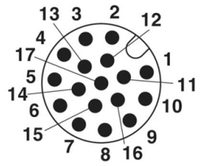
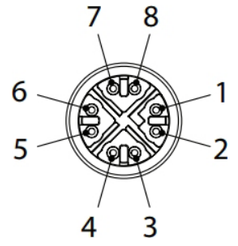


M12 17-pole male Power, COM, and I/O connector

Pin	Name	Description	
1	Vdc	Power supply input voltage +	
2	GND	Power supply input voltage -	
Connector case	CHASSIS	Connector case provides electrical connection to the chassis	
6	I1A	External Trigger A (polarity insensitive)	
5	I1B	External Trigger B (polarity insensitive)	
13	I2A	Input 2 A (polarity insensitive)	
3	I2B	Input 2 B (polarity insensitive)	
9	O1	Output 1 *	(NPN, PNP or PP short circuit protected and software programmable)
8	O2	Output 2 *	
16	O3	Output 3	
14	RX	Auxiliary RS232 RX	
4	TX	Auxiliary RS232 TX	
7	ID+	ID-NET network data +	
15	ID-	ID-NET network data -	
		RS232	**RS422 Full-Duplex**
17	Main Interface (SW selectable)	TX	TX+
11		RX	RX+ **
12		-	TX-
10		-	RX- **

* Output 1 and Output 2 are opto-coupled when using a CBX.
** Do not leave floating. See Product Reference Guide for connection details.



M12 X-Coded female Ethernet Network connector

Pin	Name	Description
1	DA+	Bidirectional data DA+
2	DA-	Bidirectional data DA-
3	DB+	Bidirectional data DB+
4	DB-	Bidirectional data DB-
5	DD+	Bidirectional data DD+
6	DD-	Bidirectional data DD-
7	DC-	Bidirectional data DC-
8	DC+	Bidirectional data DC+

INSTALLATION PROCEDURE

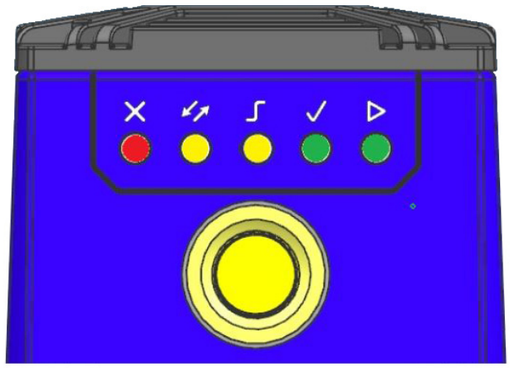
1. Physically mount the Matrix 320 reader. Refer to Matrix 320 C-Mount Mounting Instructions.
2. Make the necessary electrical connections.
3. Configure the reader using the X-PRESS interface (AIM MODE, AUTOMATIC SETUP and TEST for simple configuration) or the DL.CODE software configuration program (complete configuration).

HMI X-PRESS™ INTERFACE

In normal operating mode the colors and meaning of the five LEDs are illustrated in the following table:

READY (green)	indicates the device is ready to operate.
GOOD (green)	confirms successful reading.
TRIGGER (yellow)	indicates the status of the reading phase.
COM (yellow)	indicates active communication on main serial port.
STATUS (red)	indicates NO READ result.

During the reader startup (reset or restart phase), all the LEDs blink for one second.



HMI X-PRESS™

The single push button gives immediate access to the following relevant functions:

	Test Mode with bar graph visualization to check static reading performance.
	Automatic Setup to self-optimize and auto-configure photometry parameters.

EULA

See www.datalogic.com/eula for consult the End User License Agreement.

WARRANTY

Refer to the Product Reference Guide for Warranty and additional product information.

TECHNICAL SPECIFICATIONS

Electrical Features

Power	
Supply Voltage	24 Vdc ± 10%
Peak Supply Current	Without illuminator: 0.25 A max. With white 36 LED illuminator: 0.85 A max. With white 72 LED illuminator: 1.30 A max.
Average Supply Current	Without illuminator: 0.15 A With white 36 LED illuminator: 0.52 A With white 72 LED illuminator: 0.75 A
Communication interfaces	
Main: RS232, RS422 Full-Duplex	2400 to 115200 bit/s
Auxiliary: RS232	2400 to 115200 bit/s
ID-NET	
Ethernet (Built-in) supported application protocols	10/100/1000 Mbit/s TCP/IP, UDP, FTP, EtherNet/IP, Modbus TCP, PROFINET-IO
Inputs Input 1 (External Trigger) and Input 2	Opto-coupled and polarity insensitive
Max. Voltage	30 Vdc
Max. Input Current	10 mA
Outputs [1] Output 1, 2 and 3	NPN, PNP, or PP short circuit protected
V_{OUT} (I_{LOAD} = 0 mA) max.	24 Vdc
V_{OUT} (I_{LOAD} = 100 mA) max.	3 Vdc
I_{LOAD} max.	100mA

1 When connected to the CBX connection boxes, the electrical features for Output 1 and 2 become the following:
Opto-coupled, V_{CE} = 30 Vdc max.; I_{CE} = 40 mA continuous max.; 130 mA pulsed max.; $V_{CE\ saturation}$ = 1 Vdc max. @ 10 mA; P_D = 90 mW max. @ 50 °C ambient temperature.

Optical Features

Image Sensor	CMOS
Image Format	5.0 Mpixel (2560 x 1936)
Frame Rate	25 frames/s
Pitch	± 35°
Tilt	0° - 360°
LED Safety	according to EN 62471
Lenses	C-Mount 8mm, 12mm, 16mm, 25mm, 35mm, 50mm
Aperture Angle	50° (8mm), 34° (12mm), 25° (16mm), 16° (25mm), 12° (35mm), 8° (50mm)
Lighting System	External or internal illuminator (36 LEDs or 72 LEDs)
Reading Range (considering the lens front)	8mm: 50mm - ∞ 12mm: 100mm - ∞ 16mm, 25mm, 35mm: 200mm - ∞ 50mm: 400mm - ∞
Illumination	36 LED illuminator with white, blue, IR, UV lights, 72 LED illuminator with white or blue lights
Aiming System	36 LED illuminator: laser cross 72 LED illuminator: two laser pointers
Polarizing Filter	Polarizing cover accessory

User Interface

LED indicators	Power, Ready, Good; Trigger; Com, Status, (Ethernet Network); Good Read (Green Spot)
Keypad button	Configurable via DL.CODE

Environmental Features

Operating temperature [2]	-10 to 50 °C (14 to 122 °F) [3]
Storage temperature	-20 to 70 °C (-4 to 158 °F)
Max. humidity	90% non condensing
Vibration resistance EN 60068-2-6	14 mm @ 2 to 10 Hz; 1.5 mm @ 13 to 55 Hz; 2 g @ 70 to 500 Hz; 2 hours on each axis
Bump resistance EN 60068-2-29	30 g; 6 ms; 5000 shocks on each axis
Shock resistance EN 60068-2-27	30 g; 11 ms; 3 shocks on each axis
Protection class [4] **EN 60529**	IP65 and IP67

2 High ambient temperature applications should use metal mounting brackets and the heat sink provided in the package for heat dissipation.

3 Operating temperature is 0 to 50 °C (32 to 122 °F) for model 938100072.

4 When correctly connected to IP67 cables with seals and the Lens Cover is correctly mounted.

Physical Features

	Matrix 320 without illuminator	Matrix 320 with 36 LED illuminator	Matrix 320 with 72 LED illuminator
Dimensions (with lens cover, connectors at 0°)	H x W x L 108.7 x 54 x 54.3 mm (4.3 x 2.1 x 2.14 in)	H x W x L 115.5 x 126 x 117.8 mm (4.6 x 4.9 x 4.6 in)	H x W x L 145 x 181 x 121.5 mm (5.7 x 7.1 x 4.8 in)
Weight	300 g (10.6 oz)	900 g (31.7 oz)	1530 g (53.9 oz)
Material	Aluminum		

Software Features

Readable Code Symbologies

1D and Stacked	2D	Postal
• PDF417 Standard and Micro PDF417 • Code 128 (GS1-128) • Code 39 (Standard and Full ASCII) • Code 32 • MSI • Standard 2 of 5 • Codabar • Code 93 • Pharmacode • EAN-8/13 - UPC-A/E (including Addon 2 and Addon 5) • GS1 DataBar Family • Composite Symbologies	• Data Matrix ECC 200 (Standard, GS1 and Direct Marking) • QR Code (Standard and Direct Marking) • Micro QR Code • MAXICODE • Aztec Code • DotCode	• Australia Post • Royal Mail 4 State Customer • Kix Code • Japan Post • PLANET • POSTNET • POSTNET (+BB) • Intelligent Mail • Swedish Post

Operating Mode	Continuous, One Shot, Phase Mode, PackTrack
Configuration Methods	X-PRESS Human Machine Interface. Windows-based DL.CODE (Ethernet / Serial interface). Serial Host Mode Programming sequences.
Parameter Storage	Permanent memory (Flash)

Code Quality Metrics

Standard	Supported Symbologies
ISO/IEC 16022 (always enabled)	Data Matrix ECC 200
ISO/IEC 18004 (always enabled)	QR Code
AIM DPM	Data Matrix ECC 200, QR Code
ISO/IEC 15416	Code 128, Code 39, Interleaved 2 of 5, Codabar, Code 93, EAN-8-13, UPC-A/E

COMPLIANCE

General

For installation, use and maintenance it is not necessary to open the reader. Only connect Ethernet and dataport connections to a network which has routing only within the plant or building and no routing outside the plant or building.

Power Supply

ATTENTION: READ THIS INFORMATION BEFORE INSTALLING THE PRODUCT
The unit is intended to be powered by an external power supply ES1, PS2 according to IEC 62368-1:2014.

EMC Compliance

In order to meet the EMC requirements:

- connect reader chassis to the plant earth ground by means of a flat copper braid shorter than 100 mm;
- for CBX connections, connect pin "Earth" to a good Earth Ground;
- for direct connections, connect your cable shield to the locking ring nut of the connector.

European Declaration of Conformity

Hereby, Datalogic S.r.l. declares that the full text of the European Declaration of Conformity is available at: www.datalogic.com. Select the Support & Service > Downloads > Product Certifications link where you can search for your specific product certification.

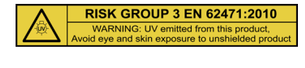
UKCA Declaration of Conformity

Hereby, Datalogic S.r.l. declares that the full text of the UKCA Declaration of Conformity is available at: www.datalogic.com. Select the Support & Service >Downloads > Product Certifications link where you can search for your specific product certification.

LED Safety

According to EN 62471:2010, for all Datalogic Matrix 320 compatible internal illuminators, LED emission is classified into Risk Group 1, except Matrix 320 with UV illuminator which is Risk Group 3.

WARNING: The UV illuminator shall only be used by skilled persons using a personal safeguard (PPE, safety goggles).



Laser Safety

This product conforms to the applicable requirements of IEC 60825-1 and complies with 21 CFR 1040.10 except for deviations pursuant to Laser Notice N° 56, date May 8, 2019. This product is classified as a Class 2 laser product according to IEC 60825-1 regulations, except when using a LTM x2x-xxx DOE illuminator, in which case the product is classified as a Class 1 laser product.

CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in exposure to hazardous visible laser light.

Disconnect the power supply when opening the device during maintenance or installation to avoid exposure to hazardous laser light. The laser beam can be switched on or off through a software command.
The following warning label content is applied to the laser equipped products indicated on the opposite page.

Laser safety for 36 LED illuminator

Laser safety for 72 LED illuminator

Produit(s) conforme selon 21CFR 1040.10 sauf des dérogations relatives à la Laser Notice N° 56, data Mai 8, 2019.
Dans le paquet il y a l'étiquette(s) pour les pays où le texte d'avertissement en français est obligatoire. Le(s) mettre sur le produit à la place de la version anglaise.

Sécurité laser pour l'illuminateur 36 LED

Sécurité laser pour l'illuminateur 72 LED