

# MATRIX 320™



## Top performing 2D reader to empower shop floor and intralogistic traceability



Matrix 320 image based code reader has been designed to EMPOWER TRACEABILITY applications providing benefits for End Users and Machine Builders. Matrix 320 brilliantly solves traceability applications in Intralogistics, Distribution, 3PL, Retail logistics and the Shop Floor.

Matrix 320 offers a COMPLETE SOLUTION and TOP PERFORMANCE to achieve higher productivity at the best price/performance ratio with its superior 2MP sensor (1920 × 1080 pixels with a 16:9 form factor), achieving an extra large Field of View (FOV) on horizontal axis that competes against 3MP readers.

Matrix 320 has excellent reading performance on label and high resolution DPM with a powerful Smart configurable lighting allowing 3 color options able to solve extremely challenging traceability applications. To boost productivity in Intralogistics and Logistics segments, hands-free operations enjoy higher performance with Matrix 320 snappy reactivity and its outstanding Depth of Field (DOF).

Matrix 320 provides the highest market application flexibility with a modular design, a reduced number of models complemented by a complete portfolio of lenses, lightings, filters, and accessories.

Embedded electronic focus dramatically reduces installation time and allows easy reconfiguration improving production flexibility in line with Industry 4.0 requirements. Matrix 320 is very easy to install with its improved integrated aiming system, X-Press button HMI and DL.Code software powered by easy and intuitive autolearning/autosetup features.

Full industrial connectivity, overall compactness, rotating connectors and a top industrial grade make Matrix 320 extremely easy to fit into every industrial environment. New configurable 360-degree multicolor read-feedback and Green / Red Spot technology provide an outstanding visual feedback. Performance Analysis is also simplified by a new web interface to monitor the reader with a complete suite of diagnostics that leverages a new generation of FTP image saving. The new web Device Discovery simplifies the access and monitoring of all the readers in the network.

Matrix 320 2MP models compliment the current Matrix family of Matrix 120 and Matrix 220, once again establishing Datalogic leadership in Stationary Industrial Scanners.

### HIGHLIGHTS

- Innovative 2MP sensor (1920 × 1080 pixels with 16:9 form factor) performs outstanding Depth of Field (DOF) and Horizontal Field of View (FOV<sub>H</sub>)
- Smart configurable lighting solutions allowing 3 color options in two formats
- Electronic focus adjustment
- Covers and filters accessories for easy stock management
- New Generation FTP Image saving
- Full industrial connectivity
- New web Device Discovery to quickly access all the readers in the network
- New configurable 360 degree multicolor visual feedback
- Top Industrial grade

### APPLICATIONS

#### Manufacturing

*Automotive, Food & Beverage, Pharmaceutical, Electronics, General Manufacturing*

- Direct Part Marking Reading
- Component and Part Traceability
- Wip Traceability (Automatic)
- Print & Apply
- Secondary Packaging Traceability
- End of Line Traceability

#### Manufacturing, Transportation and Logistics, Retail

*Intralogistics Automation, Automated Warehouse, Distribution Center*

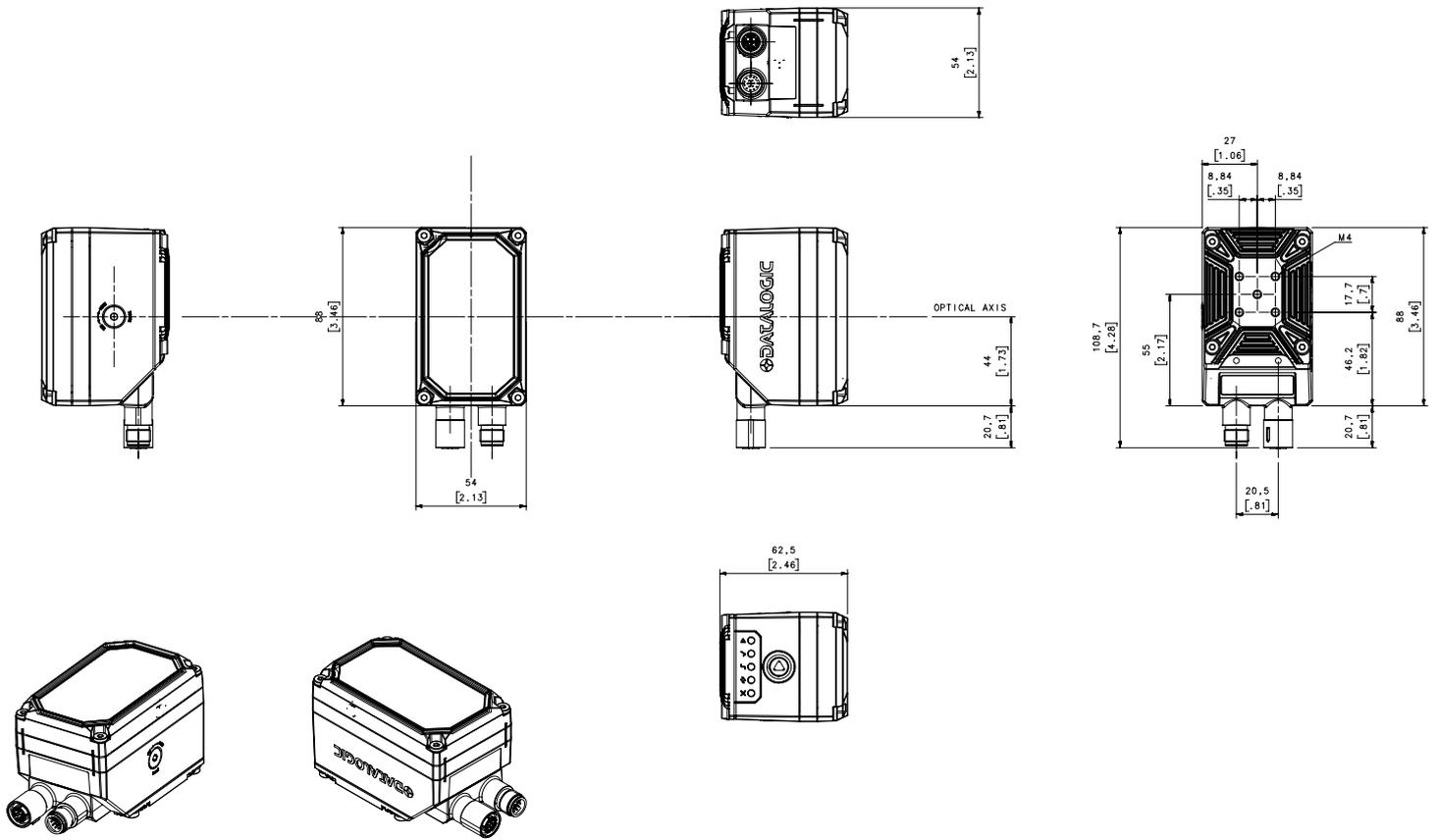
- Inbound, Pallet Picking (Fork Lift)
- Print & Apply verification (Re-labelling)
- Depalletizing, Part Traceability
- Order Fulfillment (Automatic, Manual)
- Palletizing (Automatic, Manual), Cage Preparation
- Pallet Traceability, Pallet Wrapping
- Retrieval for outbound (Forklift)
- Reverse Logistics

# TECHNICAL DATA

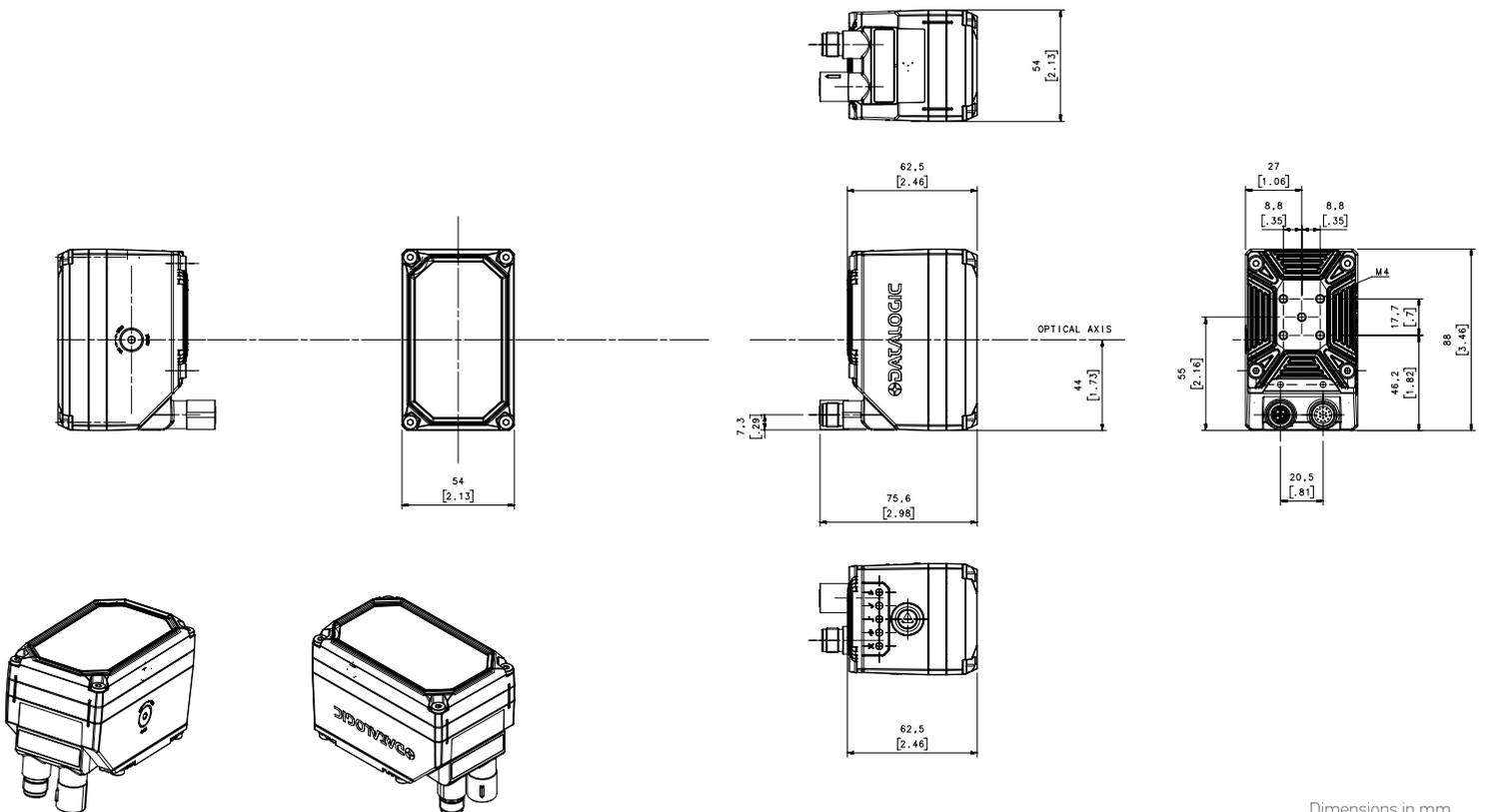
	<b>14 Led Illuminator Model</b>	<b>36 Led Illuminator Model</b>
<b>Sensor</b>	Image resolution 2.0 Mpixel (1920 x 1080) 16:9 form factor - 1/3" CMOS global shutter	
<b>Frame Rate</b>	60 frames/s	
<b>Reading range</b>	Minimum: 35 mm Maximum: 1000 mm	Minimum: 70 mm Maximum: 1500 mm
<b>Optical models (Viewing angles)</b>	Liquid Lens 9mm (34°), Liquid Lens 16mm (20°)	
<b>Optical Focus Control</b>	Electronic focus control	
<b>Illumination</b>	Internal illuminators colors: Blue, Red, White lights Internal illuminators power: High Power 14 LEDs, Very High Power 36 LEDs	
<b>Readable Symbolologies</b>	1D Codes: all standard 1 dimensional symbolologies 2D Codes: Data Matrix, QR Code, Micro QR, MAXICODE, Aztec, Dot code Postal Codes: Australia Post, Royal Mail, Kix code, Japan Post, PLANET, POSTNET (+BB), Intelligent Mail, Swedish Post and many more	
<b>Code Quality Metrics</b>	1D CQ Standard: ISO/IEC 15416 2D CQ Standard: ISO/IEC 16022/18004, ISO/IEC 29158 (AIM-DPM), ISO/IEC 15415	
<b>Power Supply</b>	24 Vdc ± 10%	
<b>Max Power Consumption</b>	0.42 A, 10 W max	0.62 A, 15 W max.
<b>Protection Class EN60529</b>	IP65 and IP67	
<b>Operating Temperature</b>	-0 to 45°C (32 to 113 °F)	
<b>Storage Temperature</b>	-20 to 70 °C (-4 to 158 °F)	
<b>Case Material</b>	Aluminium case and plastic protective window cover	
<b>Dimensions</b>	H 108,7 x W 54 x L 55,5 mm (4.3 x 2.1 x 2.2 in) Connector at 0° H 88 x W 54 x L 75,6 mm (4.3 x 2.1 x 2.2 in) Connector at 90°	H 115,5 x W 126 x L 70,3 mm (4.6 x 4.9 x 2.8 in) Connector at 0° H 101 x W 126 x L 90,7 mm (4.6 x 4.9 x 2.8 in) Connector at 90°
<b>Weight</b>	380 gr (13.4 oz)	
<b>Sulfur gas resistance</b>	Available for all models according to ISO EN 60068-2-43	
<b>ESD Safe</b>	YES, will be available as front cover accessory	
<b>YAG Laser Protection</b>	YES, available as filter accessory (compatible with ESD cover)	
<b>Flexible cables</b>	YES, available as accessories	
<b>Polarizing Filter</b>	Polarizer cover accessory	
<b>Embedded communication interfaces</b>	<ul style="list-style-type: none"> <li>- Ethernet 10/100/1000 Mbit/s: TCP/IP, UDP, FTP and Fieldbus PROFINET IO, Ethernet IP, Modbus TCP</li> <li>- Serial RS232/RS422FD up to 115.2 Kbit/s + Serial Aux RS232 up to 115.2 Kbit/s</li> <li>- OPC UA</li> </ul>	
<b>Reader Networking</b>	Datalogic ID-NET™	
<b>Connectivity Modes</b>	Pass Through, Master/Slave, Ethernet point to point	
<b>Digital Inputs</b>	2 inputs opto-coupled and polarity insensitive Max. Voltage 30 Vdc Max. Input Current 10 mA	
<b>Digital Outputs</b>	3 Outputs: configurable NPN, PNP and PP short-circuit protected VOUT (ILOAD = 0 mA) max. 24 Vdc VOUT (ILOAD = 100 mA) max. 3 Vdc ILOAD max. 100mA Using CBX connection box the first 2 outputs are opto-coupled	
<b>Aiming System</b>	Laser cross red projection aiming	
<b>User Interface</b>	Configurable 360 degree multicolor visual feedback Green spot and Red spot LEDs X-PRESS™ Human Machine Interface Beeper, X-PRESS™ Push Button, 7 LEDs (Status, Communication , Trigger, Good Read, Ready, Power on, Network) Web Monitoring Interface	
<b>Device Programming</b>	DL.CODE™ Windows-based software (programming via Ethernet or Serial Interface) with Javascript output formatter Serial Host Mode programming X-PRESS™ Human Machine Interface	
<b>Warranty</b>	2-Year Factory Warranty	

# DIMENSIONS

## MATRIX 320 14 LED ILLUMINATOR - STRAIGHT 0° CONNECTORS



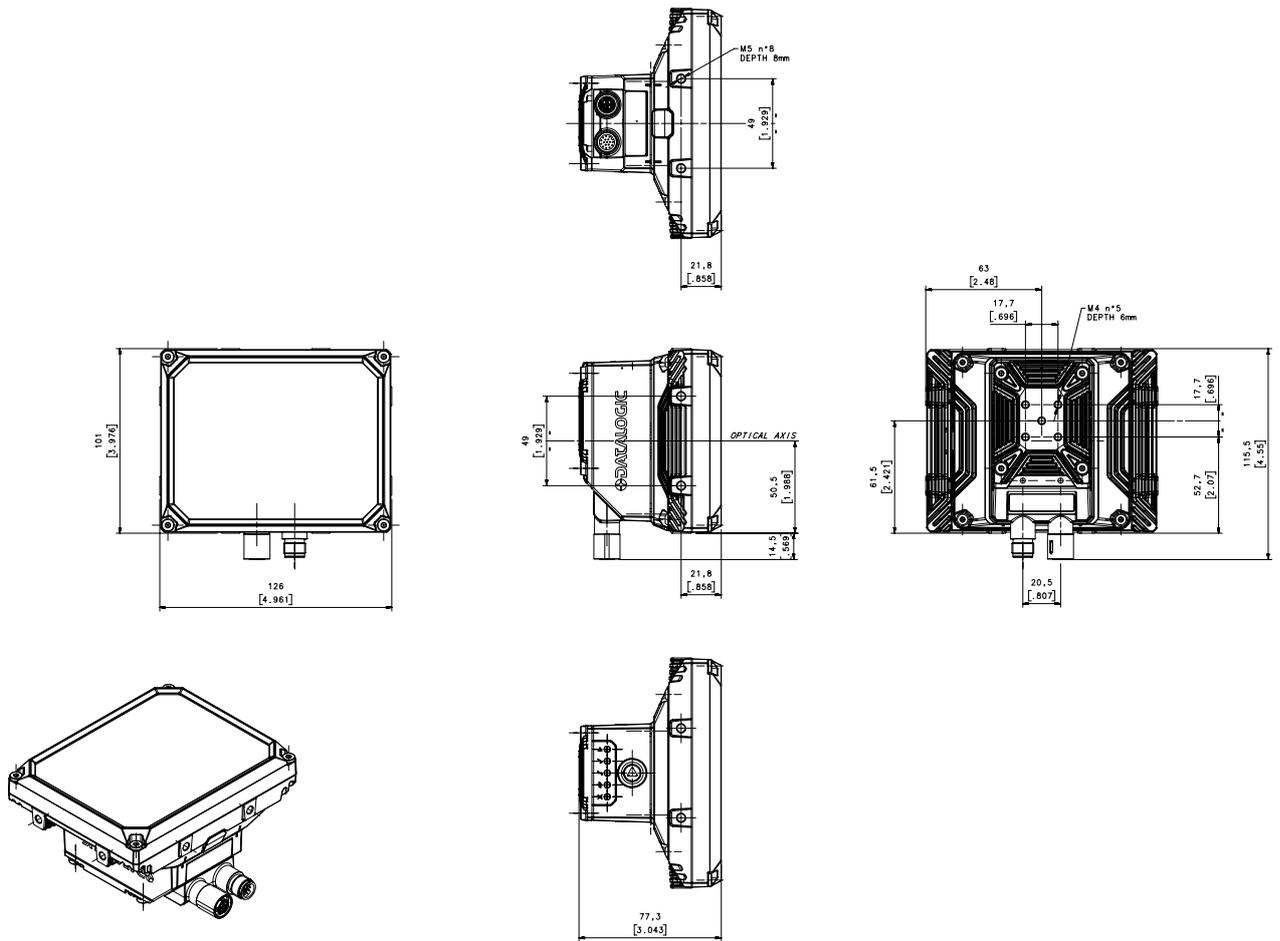
## MATRIX 320 14 LED ILLUMINATOR - 90° CONNECTORS



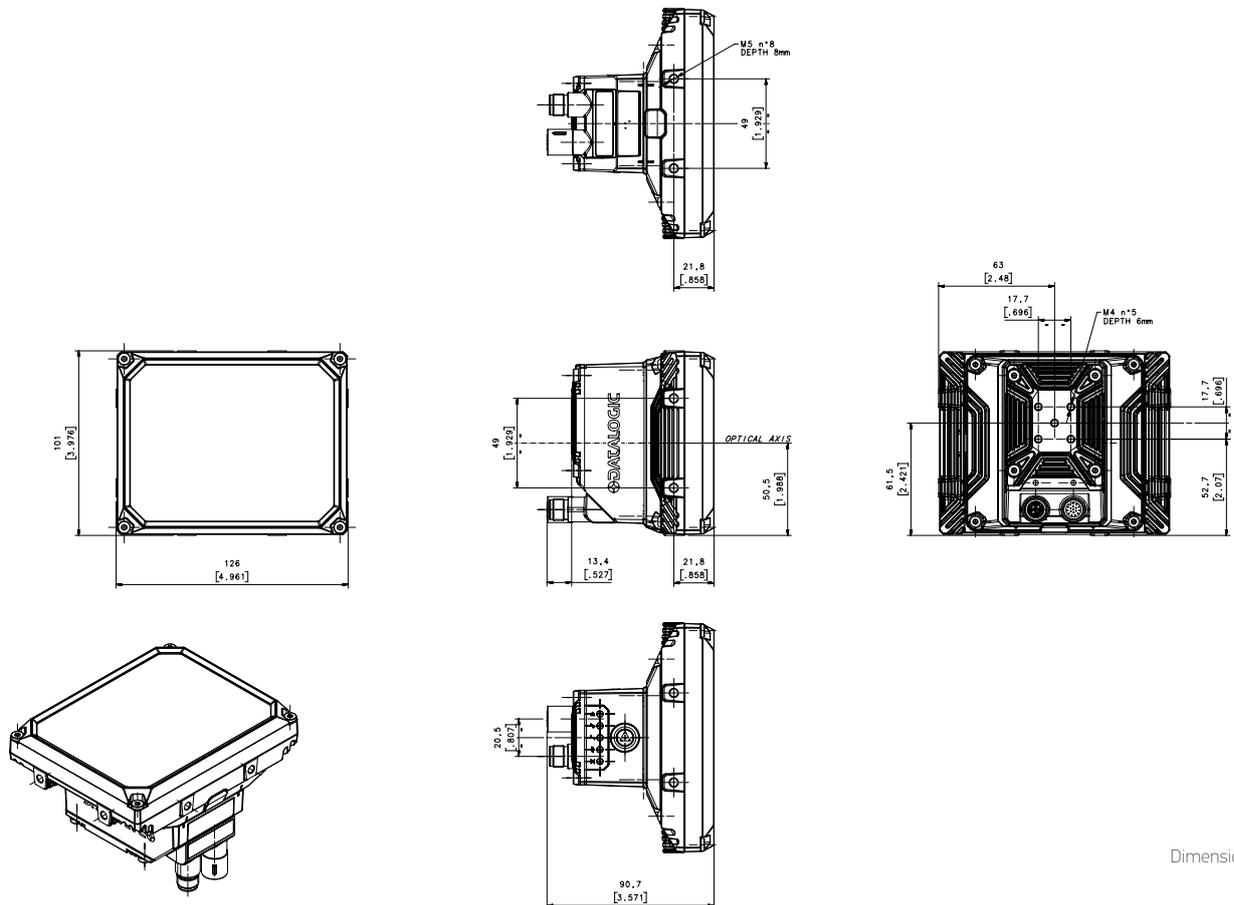
Dimensions in mm

# DIMENSIONS

## MATRIX 320 36 LED ILLUMINATOR - STRAIGHT 0° CONNECTORS



## MATRIX 320 36 LED ILLUMINATOR - 90° CONNECTORS



Dimensions in mm

# MODELS

P/N	DESCRIPTION	OPTICAL MODELS		ILLUMINATOR POWER		ILLUMINATOR LIGHT COLOR		
		Liquid lens 9 mm	Liquid lens 16 mm	14 Led high power	36 Led very high power	Blue	Red	White
938100020	Matrix 320 705-330 LL9 14L 45D RED	x		x			x	
938100021	Matrix 320 706-330 LL9 14L 45D WHT	x		x				x
938100022	Matrix 320 707-330 LL9 14L 45D BLU	x		x		x		
938100023	Matrix 320 709-430 LL16 14L 25D RED		x	x			x	
938100024	Matrix 320 710-430 LL16 14L 25D WHT		x	x				x
938100025	Matrix 320 711-430 LL16 14L 25D BLU		x	x		x		
938100029	Matrix 320 721-330 LL9 36L 45D RED	x			x		x	
938100030	Matrix 320 722-330 LL9 36L 45D WHT	x			x			x
938100031	Matrix 320 723-330 LL9 36L 45D BLU	x			x	x		
938100032	Matrix 320 725-430 LL16 36L 25D RED		x	x			x	
938100033	Matrix 320 726-430 LL16 36L 25D WHT		x	x				x
938100034	Matrix 320 727-430 LL16 36L 25D BLU		x	x		x		

**Matrix 320 7 X X - X X 0**

**Sensor**  
7 = 2MP

**Internal Illuminators**

- 05 = 14 LED TIR Lens Aperture 45 Degree Red Light
- 06 = 14 LED TIR Lens Aperture 45 Degree White Light
- 07 = 14 LED TIR Lens Aperture 45 Degree Blue Light
- 09 = 14 LED TIR Lens Aperture 25 Degree Red Light
- 10 = 14 LED TIR Lens Aperture 25 Degree White Light
- 11 = 14 LED TIR Lens Aperture 25 Degree Blue Light
- 21 = 36 LED TIR Lens Aperture 45 Degree Red Light
- 22 = 36 LED TIR Lens Aperture 45 Degree White Light
- 23 = 36 LED TIR Lens Aperture 45 Degree Blue Light
- 25 = 36 LED TIR Lens Aperture 25 Degree Red Light
- 26 = 36 LED TIR Lens Aperture 25 Degree White Light
- 27 = 36 LED TIR Lens Aperture 25 Degree Blue Light

**Options**  
0 = Standard

**Interface**  
3 = Gigabit Ethernet (GIGE)

**Optics**  
3 = 9mm electronic focus control (liquid lens)  
4 = 16mm electronic focus control (liquid lens)

### 14 LED ILLUMINATOR MODELS AND LED CHAIN CONFIGURATION

Lights ON	LEDs COLOR
All Chains	White, Red, Blue
Central Chain	White, Red, Blue
Top/Bottom Chain	White, Red, Blue



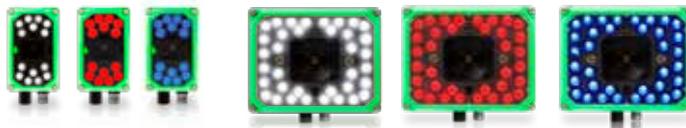
### 36 LED ILLUMINATOR MODELS AND LED CHAIN CONFIGURATION

Lights ON	LEDs COLOR
All Chains	White, Red, Blue
Top Left	White, Red, Blue
Top right	White, Red, Blue
Bottom left	White, Red, Blue
Bottom right	White, Red, Blue
Left	White, Red, Blue
Right	White, Red, Blue
Any combination of the above chain options	White, Red, Blue



### ILLUMINATOR LEDS COLOR

Illuminator Power	LEDs COLOR
14 LED	White, Red, Blue
36 LED	White, Red, Blue



### 360 DEGREE VISUAL FEEDBACK DEFAULT COLOR

Default configuration	LEDs COLOR
Good Read	Green
No Read	Red
Configuration	Blue



# ACCESSORIES

CATEGORY	PART NUMBER	DESCRIPTION
<b>Cable</b>	93A050058	M12-IP67 Cable To CBX or QL (1m)
	93A050059	M12-IP67 Cable To CBX or QL (3m)
	93A050060	M12-IP67 Cable To CBX or QL (5m)
	93A051390	M12-IP67 Cable To CBX or QL (10m)
	93A050116	M12-IP67 17p Flexible Cable To CBX or QL (1m)*
	93A050117	M12-IP67 17p Flexible Cable To CBX or QL (3m)*
	93A050118	M12-IP67 17p Flexible Cable To CBX or QL (5m)*
	93A050122	M12-IP67 GIGA Ethernet Cable X-Coded (1m)
	93A050123	M12-IP67 GIGA Ethernet Cable X-Coded (3m)
	93A050124	M12-IP67 GIGA Ethernet Cable X-Coded (5m)
	93A050140	M12-IP67 GIGA Ethernet Cable X-Coded (10m)
	93A050125	M12-IP67 GIGA Ethernet Flexible Cable X-Coded (1m)*
	93A050126	M12-IP67 GIGA Ethernet Flexible Cable X-Coded (3m)*
	93A050127	M12-IP67 GIGA Ethernet Flexible Cable X-Coded (5m)*
<b>Front cover</b>	93ACC0271	Cover STD LT 14L M320/P2
	93ACC0272	Cover STD LT 36L M320/P2
	93ACC0273	Cover Polarizer LT 14L M320/P2
	93ACC0274	Cover Polarizer LT 36L M320/P2
<b>Filter</b>	95A900018	Filter YAG Cut LT 14L M320/P2
	95A900022	Filter YAG Cut LT 36L M320/P2
<b>Bracket</b>	93ACC0282	BK-32-000 STD FIX BRACKET M320/P2 BODY
	93ACC0283	BK-32-010 PIVOT FIX BRACKET M320/P2 BODY

\* Suitable for robotic arms applications



## DATALOGIC PRODUCT OFFERING



Sensors



Hand Held scanners



Mobile Computers



Laser Marking Systems



Safety Laser Scanner



Vision Systems



Stationary Industrial Scanners



Safety Light Curtains

DS-MATRIX320-EN Rev B 20201215