MATRIX 320™

ODATALOGIC

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 for the Liquid Lens models 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.

C-Mount assembly modular design provides the highest flexibility in the selection and in the combination of the parts reducing the feasibility time and cost, helping system integrators to find effective powerful solutions for vertical applications in any industrial environment to grow the business opportunities.

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_H)
- Smart configurable lighting solutions allowing 3 color options in two formats
- Electronic focus adjustment
- C-Mount models for maximum optical configurability and high intrinsic DOF
- 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
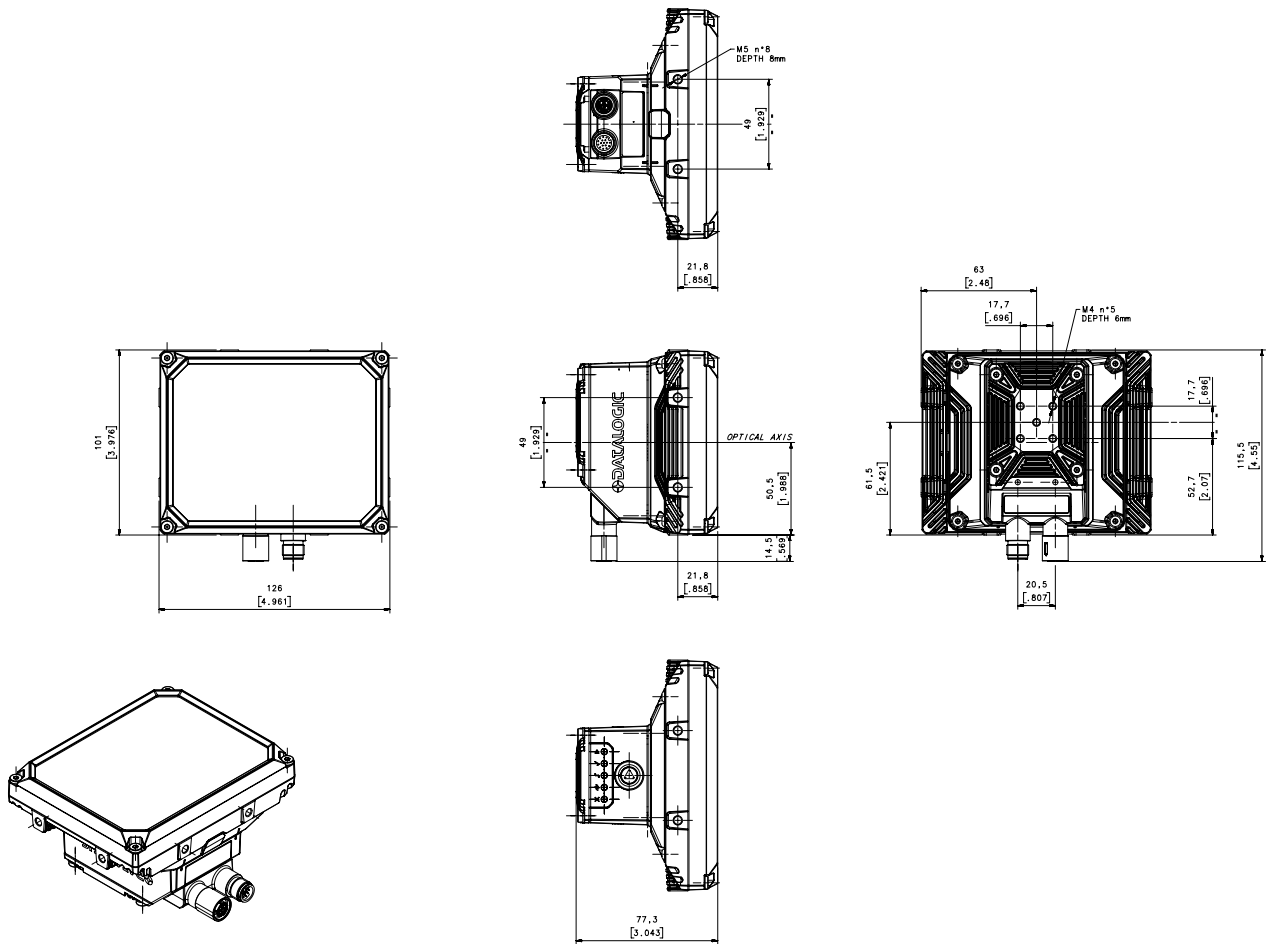*Intralogistics Automation, Automated Warehouse, Distribution Center*
- Inbound, Pallet Picking (Fork Lift)
- Print & Apply verification (Re-labelling)
- Depalletizing, Part Traceability
- Order Fulfillment (Automatic, Manual)
- Palletizing (Automatic, Manual), Cage Preparation
- Pallet Traceability, Pallet Wrapping
- Retrieval for outbound (Forklift)
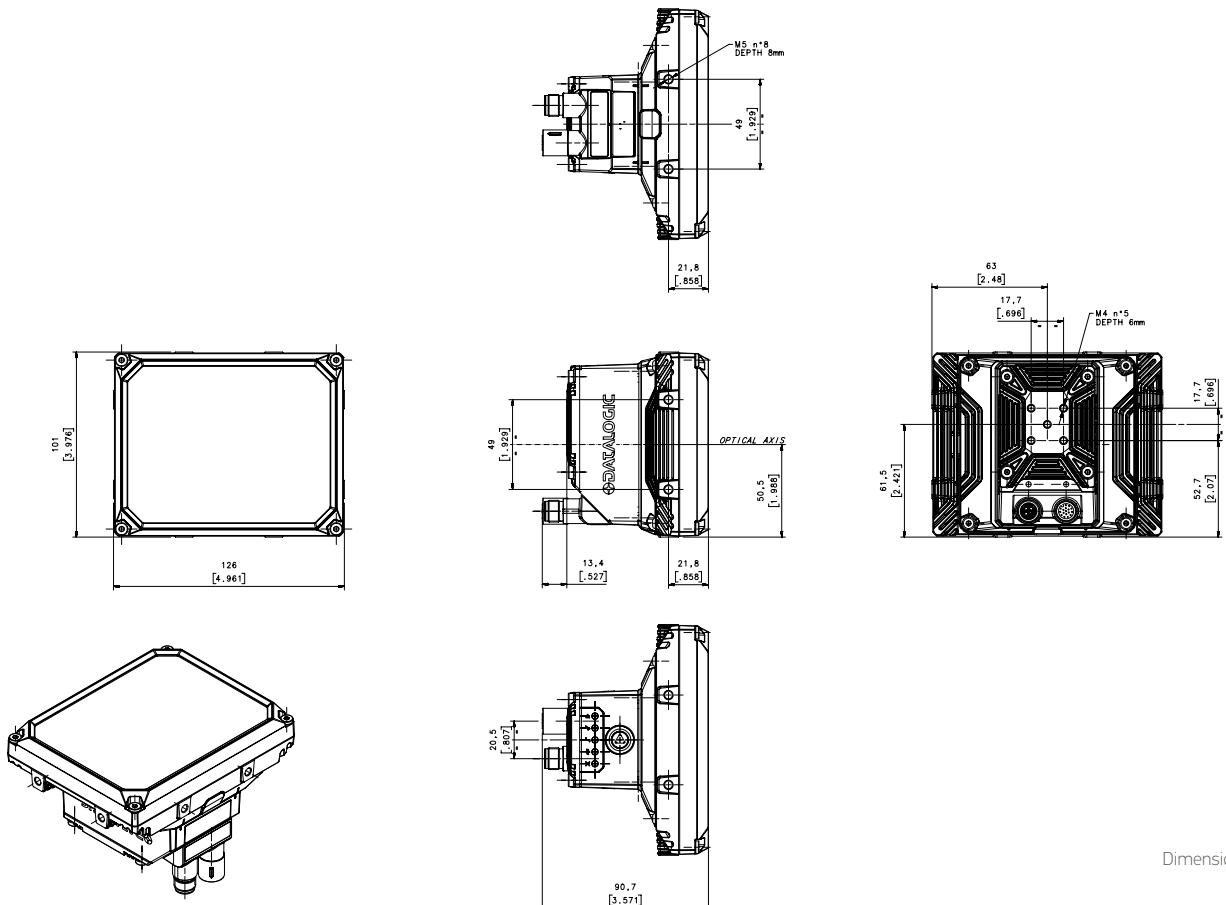- Reverse Logistics

TECHNICAL DATA

	14 LED Illuminator Model	36 LED Illuminator Model
Sensor	Image resolution 2.0 Mpixel (1920 x 1080) 16:9 form factor – 1/3'' CMOS global shutter	
Frame Rate	60 frames/s	
LIQUID LENS MODELS		
Reading Range	**6mm:** Minimum: 50 - Maximum: 550 mm **9mm:** Minimum: 35 - Maximum: 1000 mm **16mm:** Minimum: 70 - Maximum: 1500 mm	
Optical Models (Viewing Angles)	Liquid Lens 9 mm (34°), Liquid Lens 16 mm (20°)	
Optical Focus Control	Electronic focus control	
Illumination	Internal illuminators colors: Blue, Red, White lights (only for Liquid Lens 9 mm and16 mm)	
	Internal illuminator power: High Power 14 LEDs	Internal illuminator power: Very High Power 36 LEDs
C-MOUNT MODELS		
Optical Models (Viewing Angles)	C-Mount Lens 4mm(68°), 6mm(48°), 8mm(37°), 12mm(25°), 16mm(19°), 25mm(12°), 35mm(9°)	
Optical Focus Control	Manual focus adjustment	
Illumination	Internal illuminators colors: Blue, White, IR, UV	
	Not available	Internal illuminators power: Very High Power 36 LEDs
Polarizing Filter	Available as front cover accessory	
Code Quality Metrics	1D CQ Standard: ISO/IEC 15416 2D CQ Standard: ISO/IEC 16022/18004, ISO/IEC 29158 (AIM-DPM), ISO/IEC 15415	
Power Supply	24 VDC ± 10%	
Max Power Consumption	0.42 A, 10 W max	0.62 A, 15 W max.
Protection Class EN60529	IP65 and IP67	
Operating Temperature	Liquid lens models: -0 to 45°C / 32 to 113 °F C-MOUNT models: -10 to 50°C / 14 to 122 °F	
Storage Temperature	-20 to 70 °C / -4 to 158 °F	
Case Material	Aluminium case and plastic protective window cover	
Dimensions	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°
Weight	Liquid lens 14 LED illuminator: 380 gr (13.4oz)	Liquid lens 36 LED illuminator: 650 gr (22.9oz)
	---	C-MOUNT 36 LED illuminator: Reader body 300 gr (10.6 oz) Illuminator adapter 300 gr (10.6 oz) Illuminator 300 gr (10.6 oz)
Sulfur Gas Resistance	Available for all models according to ISO EN 60068-2-43	
ESD Safe	Available as front cover accessory	Not Available
YAG Laser Protection	Available as filter accessory (compatible with ESD cover)	
Flexible Cables	Available as accessories	
Embedded Communication Interfaces	- Ethernet 10/100/1000 Mbit/s: TCP/IP, UDP, FTP, SFTP and Fieldbus PROFINET IO, Ethernet IP, Modbus TCP - Serial RS-232/RS-422FD up to 115.2 Kbit/s + Serial Aux RS-232 up to 115.2 Kbit/s - OPC UA	
Reader Networking	Datalogic ID-NET™	
Connectivity Modes	Pass Through, Master/Slave, Ethernet point to point	
Digital Inputs	2 inputs opto-coupled and polarity insensitive Max. Voltage 30 VDC Max. Input Current 10 mA	
Digital Outputs	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	
Aiming System	Laser cross red projection aiming	
User Interface	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	
Device Programming	DL.CODE™ Windows-based software (programming via Ethernet or Serial Interface) with Javascript output formatter Serial Host Mode programming; X-PRESS™ Human Machine Interface	
Warranty	2-Year Factory Warranty	

DIMENSIONS

MATRIX 320 14 LED ILLUMINATOR LIQUID LENS MODELS - STRAIGHT 0° CONNECTORS

OPTICAL AXIS

54 [2.13]

88 [3.46]

54 [2.13]

44 [1.73]

20,7 [.81]

108,7 [4.28]

27 [1.06]

8,84 [.35]

8,84 [.35]

M4

17,7 [.7]

55 [2.17]

46,2 [1.82]

20,7 [.81]

88 [3.46]

20,5 [.81]

62,5 [2.46]

MATRIX 320 14 LED ILLUMINATOR LIQUID LENS MODELS - 90° CONNECTORS

54 [2.13]

OPTICAL AXIS

62,5 [2.46]

44 [1.73]

7,3 [.29]

54 [2.13]

75,6 [2.98]

27 [1.06]

8,8 [.35]

8,8 [.35]

M4

17,7 [.7]

55 [2.16]

46,2 [1.82]

88 [3.46]

20,5 [.81]

62,5 [2.46]

Dimensions in mm

DATALOGIC

MATRIX 320 36 LED ILLUMINATOR LIQUID LENS MODELS – STRAIGHT 0° CONNECTORS
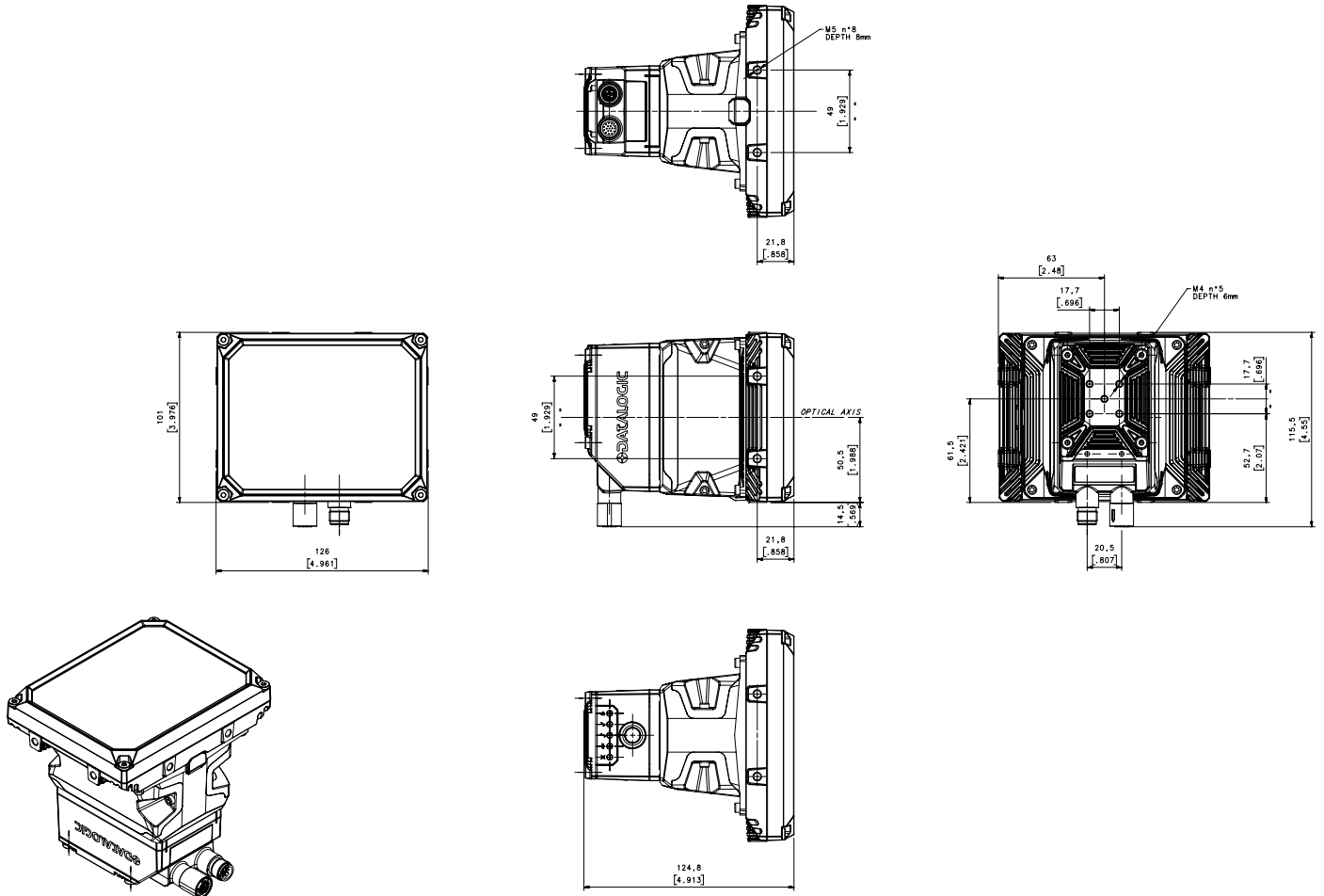

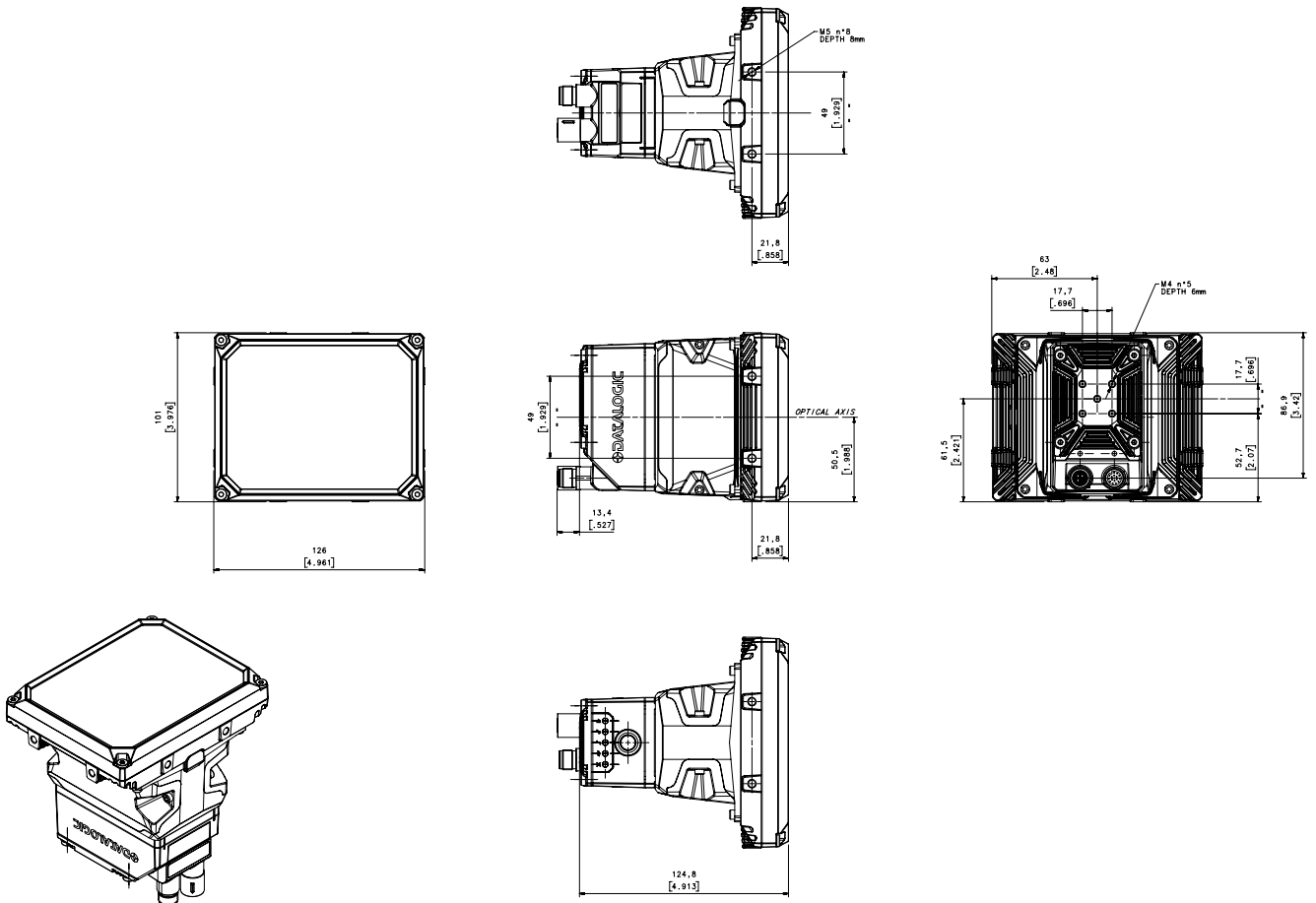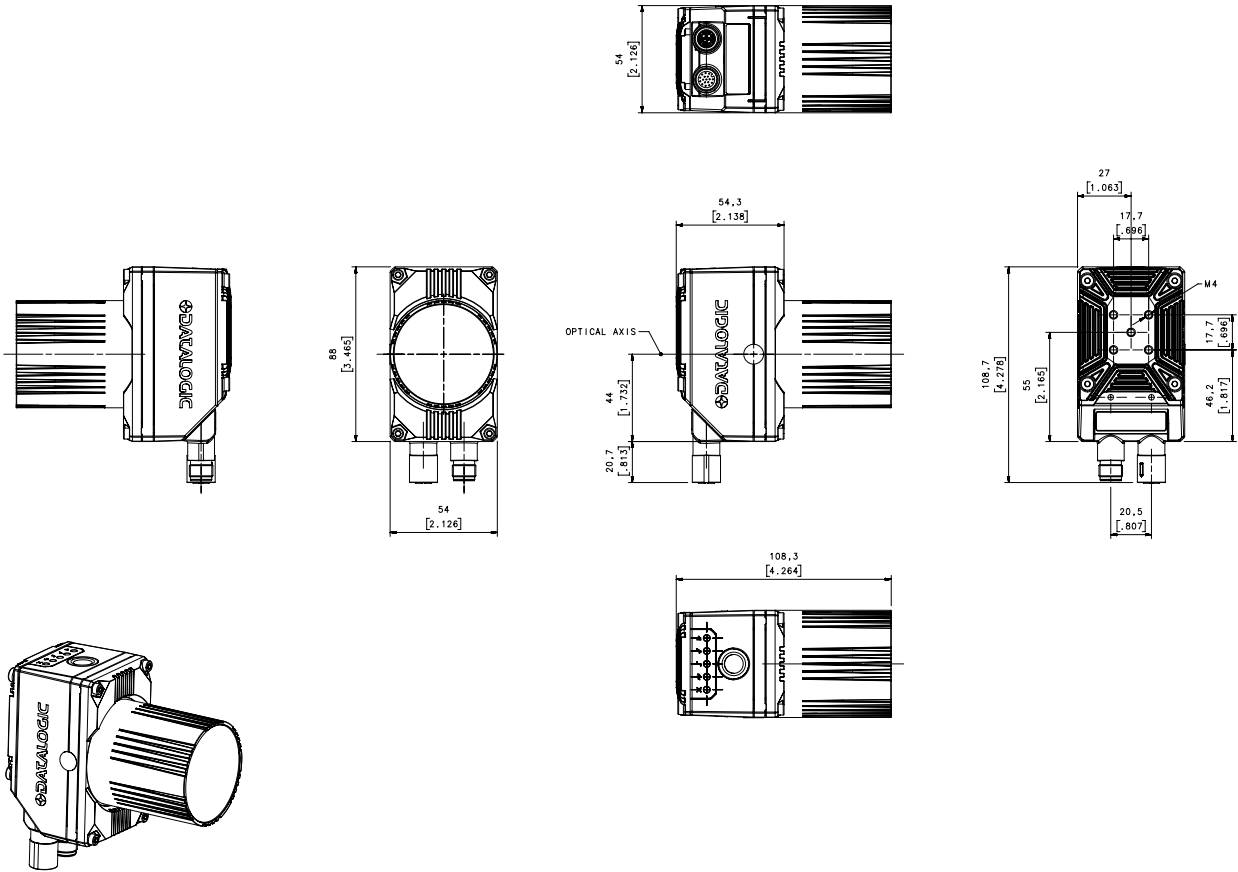# MATRIX 320 36 LED ILLUMINATOR LIQUID LENS MODELS - 90° CONNECTORS

Dimensions in mm

DATALOGIC

MATRIX 320 C-MOUNT FULL PRODUCT - STRAIGHT 0° CONNECTORS

M5 n°8
DEPTH 8mm

49
[1.929]

21,8
[.858]

63
[2.48]

17,7
[.696]

M4 n°5
DEPTH 6mm

17,7
[.696]

115,5
[4.55]

61,5
[2.421]

52,7
[2.07]

20,5
[.807]

101
[3.976]

126
[4.961]

49
[1.929]

OPTICAL AXIS

50,5
[1.988]

14,5
[.56]

21,8
[.858]

124,8
[4.913]

MATRIX 320 C-MOUNT FULL PRODUCT - 90° CONNECTORS

M5 n°8
DEPTH 8mm

49
[1.929]

21,8
[.858]

63
[2.48]

17,7
[.696]

M4 n°5
DEPTH 6mm

17,7
[.696]

86,9
[3.42]

61,5
[2.421]

52,7
[2.07]

101
[3.976]

126
[4.961]

49
[1.929]

OPTICAL AXIS

50,5
[1.988]

13,4
[.527]

21,8
[.858]

124,8
[4.913]

MATRIX 320 C-MOUNT READER and COVER LENS SHORT - STRAIGHT 0° CONNECTORS

MATRIX 320 C-MOUNT READER and COVER LENS SHORT - 90° CONNECTORS
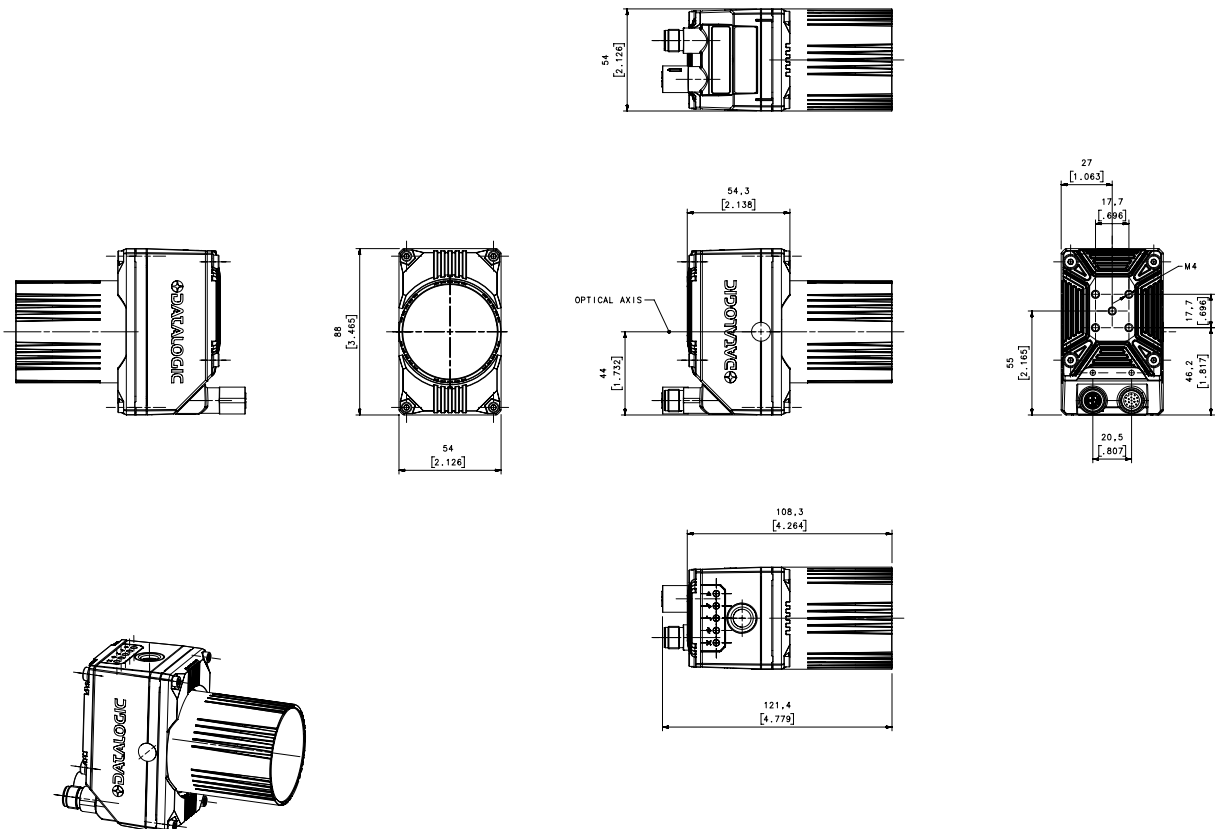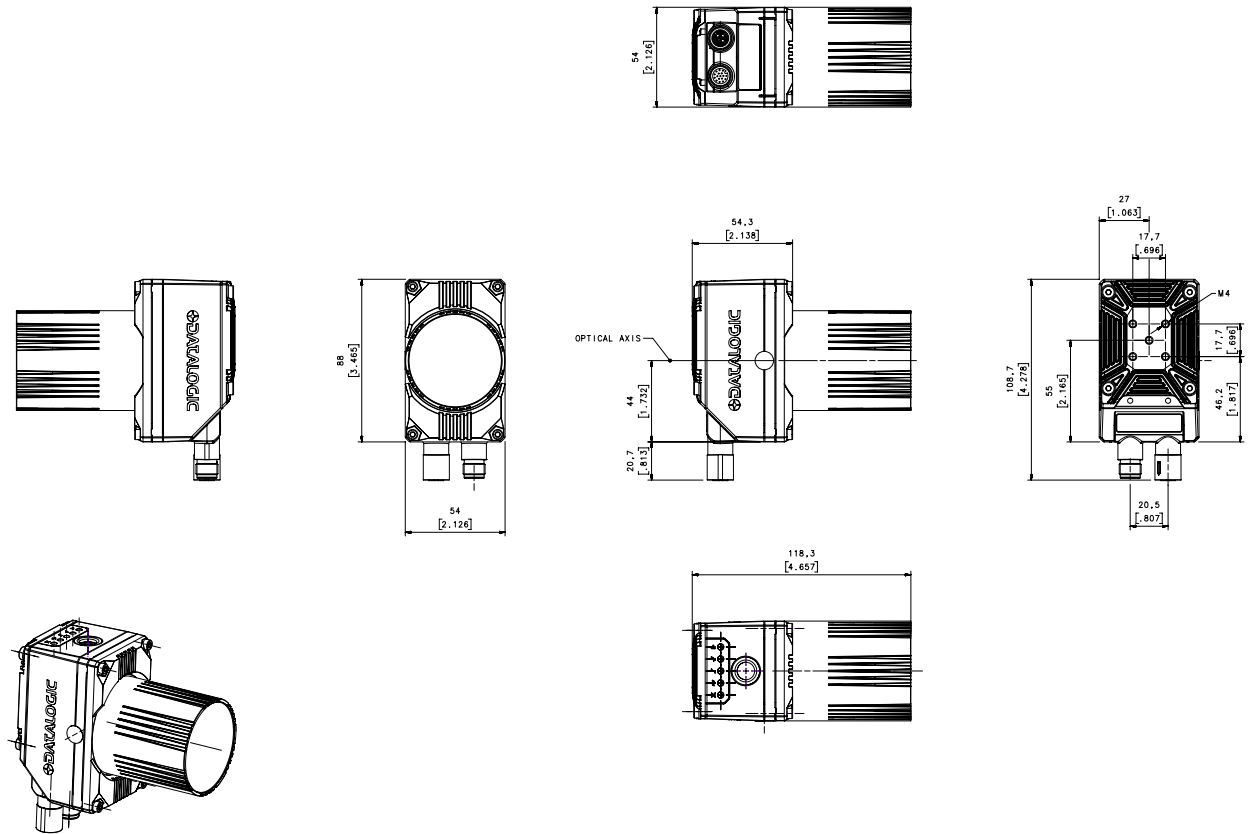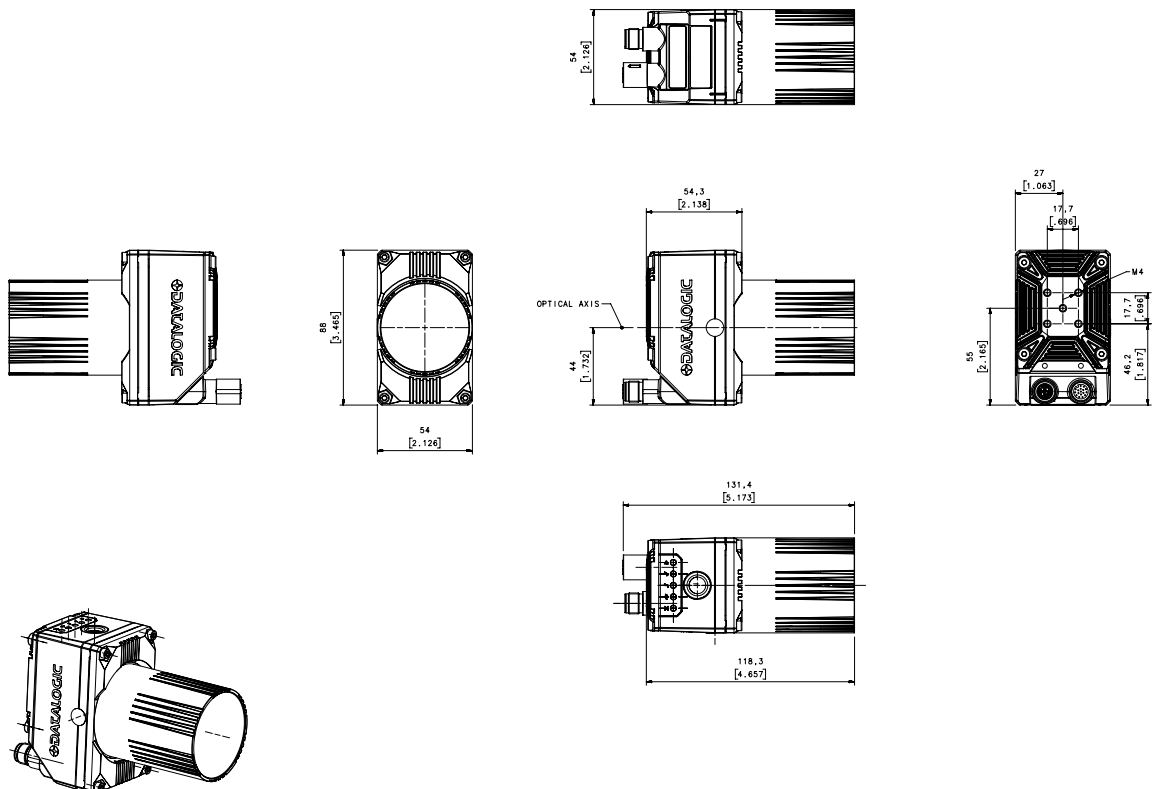
MATRIX 320 C-MOUNT READER and COVER LENS LONG - STRAIGHT 0° CONNECTORS

MATRIX 320 C-MOUNT READER and COVER LENS LONG - 90° CONNECTORS

◆DATALOGIC

MODELS

MATRIX 320 LIQUID LENS MODELS

P/N	DESCRIPTION	OPTICAL MODELS			ILLUMINATOR POWER		ILLUMINATOR LIGHT COLOR		
		Liquid Lens 6 mm	Liquid Lens 9 mm	Liquid Lens 16 mm	14 LED High Power	36 LED Very High Power	BLUE	RED	WHITE
938100017	Matrix 320 701-230 LL6 14L 60D RED	x			x			x	
938100019	Matrix 320 703-230 LL6 14L 60D BLU	x			x		x		
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		
938100026	Matrix 320 717-230 LL6 36L 60D RED	x				x		x	
938100028	Matrix 320 719-230 LL6 36L 60D 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 C-MOUNT MODELS

P/N	DESCRIPTION	
938100035	Matrix 320 700-030 CM 2MP 1/3"	Matrix 320 reader body for C-Mount
93ACC0281	Adapter LT to CM M320	ILLUMINATOR ADAPTER to Matrix 320 reader body

P/N	DESCRIPTION	C-MOUNT LENSES				
		Focal lenght (mm)	Max Sensor Format	Aperture (f/#)	Min working distance (mm) from lens front	Max working distance (mm) from lens front
93ACC0285	LNM 000-021 CM 4MM VF1.8 1/2" ED	4	1/2"	f/1.8-f/11	0	∞
93ACC0286	LNM 001-031 CM 6MM VF1.85 1/2" ED	6	1/2"	f/1.85-f/11	50	∞
93ACC0287	LNM 003-021 CM 8MM VF1.8 1/2.5" ED	8	1/2"	f/1.8-f/11	50	∞
93ACC0288	LNM 005 021 CM 12MM VF1.8 1/1.8" ED	12	1/2"	f/1.8-f/11	100	∞
93ACC0289	LNM 007-021 CM 16MM VF1.8 1/1.8" ED	16	1/2"	f/1.8-f/11	200	∞
93ACC0290	LNM 009-031 CM 25MM VF1.85 1/1.8" ED	25	1/2"	f/1.85-f/16	200	∞
93ACC0292	LNM 010-011 CM 35MM VF1.65 1/1.8" ED	35	1/2"	f/1.85-f/16	200	∞

P/N	DESCRIPTION	ILLUMINATOR KIT						
		36 LED Very High Power	BLU	WHT	IR	UV	Illuminator adapter	Mounting Bracket
93ACC0356	KIT LTM 002-601 S36L 60D WHT white	x		x			x	x
93ACC0357	KIT LTM 002-351 S36L 35D WHT white	x		x			x	x
93ACC0358	KIT LTM 002-002 S36L 120D BLU 475nm NL	x	x				x	x
93ACC0359	KIT LTM 002-602 S36L 60D BLU 475nm	x	x				x	x
93ACC0360	KIT LTM 002-452 S36L 45D BLU 475nm	x	x				x	x
93ACC0361	KIT LTM 002-352 S36L 35D BLU 475nm	x	x				x	x
93ACC0363	KIT LTM 002-453 S36L 45D IR 850nm	x			x		x	x
93ACC0364	KIT LTM 002-004 S36L 130D UV 365nm NL	x				x	x	x

P/N	DESCRIPTION	ILLUMINATOR						
		36 LED Very High Power	BLU	WHT	IR	UV	Illuminator adapter	Mounting Bracket
93ACC0298	LTM 002-601 S36L 60D WHT white	x		x				
93ACC0306	LTM 002-351 S36L 35D WHT white	x		x				
93ACC0295	LTM 002-002 S36L 120D BLU 475nm NL	x	x					
93ACC0299	LTM 002-602 S36L 60D BLU 475nm	x	x					
93ACC0303	LTM 002-452 S36L 45D BLU 475nm	x	x					
93ACC0307	LTM 002-352 S36L 35D BLU 475nm	x	x					
93ACC0300	LTM 002-453 S36L 45D IR 850nm	x			x			
93ACC0309	LTM 002-004 S36L 130D UV 365nm NL	x				x		

Matrix 320 7 X X - X X 0

Sensor
7 = 2MP

Internal Illuminators

00 = No internal illuminator
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
0 = no lens
2 = 6mm electronic focus control (liquid lens)
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
CABLE	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)*
	93A050129	Adapter Cable GIGA Ethernet X-Coded to Ethernet D-Coded
	93ACC0268	Serial RS232 HID E Keybrd Converter Cbl
	93A050141	Adapter Cable FULL GIGA Ethernet X-Coded M12 to RJ45
COVER	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
	93ACC0278	Cover ESD LT 14L M320/P2
	93ACC0279	Cover Lens and CM Base Short
	93ACC0280	Cover Lens and CM Base Long
FILTER	93ACC0275	Filter Half Polarizer LT 14L M320/P2
	95A900016	Filter BLU Bandpass 475nm LT 14L M320/P2
	95A900015	Filter RED Bandpass 625nm LT 14L M320/P2
	95A900017	Filter IR Bandpass 850nm LT 14L M320/P2
	95A900039	Filter UV Cut Longpass 415 LT 14L M320/P2
	95A900020	Filter BLU Bandpass 475nm LT 36L M320/P2
	95A900019	Filter RED Bandpass 625nm LT 36L M320/P2
	95A900021	Filter IR Bandpass 850nm LT 36L M320/P2
	95A900040	Filter UV Cut Longpass415 LT 36L M320/P2
	95A900018	Filter YAG Cut LT 14L M320/P2
	95A900022	Filter YAG Cut LT 36L M320/P2
BRACKET	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
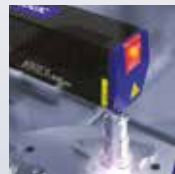
Sensors   Handheld Scanners   Mobile Computers   Laser Marking Systems   Safety Laser Scanners   Vision Systems   Stationary Industrial Scanners   Safety Light Curtains