MATRIX 320™ 5MP

The next step beyond intralogistics traceability

Matrix 320 5MP image based code reader has been designed to EMPOWER INTRALOGISTICS TRACEABILITY applications providing benefits for End Users and Machine Builders. Matrix 320 5MP brilliantly solves traceability applications in Intralogistics, Distribution, 3PL, Retail, logistics and in the Shop Floor and Factory Automation.

Matrix 320 5MP offers a COMPLETE SOLUTION and TOP PERFORMANCE to achieve higher productivity at the best price/performance ratio. Matrix 320 5MP has excellent reading performance with a powerful smart configurable lighting system allowing 2 color options (blue, white) and 2 power options (Very and Ultra High Power) able to solve extremely challenging traceability applications.

To boost productivity in Intralogistics and Logistics segments, hands-free operations enjoy higher performance with Matrix 320 5MP snappy reactivity because of its outstanding Depth of Field (DOF), a new grid pattern aiming system, a new embedded distance sensor for the best user experience and reading throughput.

Matrix 320 5MP modular design with a complete portfolio of lenses, lightings, filters, and accessories provides the highest market application 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.

Matrix 320 5MP is very easy to install with its new embedded orientation sensor, the new fast replacing bracket, the smart adapter that allows live focus and iris calibration without exposing the inside product to harsh environmental condition, the improved integrated aiming system, the embedX-Press button HMI and DL.Code software powered by an intuitive autolearning/autosetup features.

Full industrial connectivity, overall compactness, rotating connectors, a top industrial grade make Matrix 320 5MP 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 fast FTP image saving. The new web Device Discovery simplifies the access and monitoring of all the readers in the network.

Matrix 320 5MP models together with Matrix 320 2MP, compliment the current Matrix family of Matrix 120 and Matrix 220, once again establishing Datalogic leadership in Stationary Industrial Scanners.

HIGHLIGHTS

- C-Mount models for maximum optical configurability and high intrinsic DOF
- Standard VHP (Very High Power) and new UHP (Ultra High Power) lightings for challenging applications
- Covers and filters for special applications provided as accessories for easy stock management
- Packtrack capability to minimize the gap between objects and increase system productivity
- New embedded orientation sensor and smart aiming systems for easy installation
- Grid pattern aiming system and embedded distance sensor to improve throughput in presentation applications
- Web monitoring and fast image saving at Gigabit Ethernet speed for complete performance diagnostics
- Configurable 360 degree visual feedback for enhanced operator experience
- Full industrial connectivity and Top Industrial Grade for easy and safe integration

APPLICATIONS

Intralogistics, Logistic, E-Commerce – Retail Logistic Automation
- Inbound / Outbound Pallet Picking (Fork Lift)
- Print & Apply verification (Re-labelling)
- Order Fulfillment (Automatic/Manual) and Order Verification
- Tote verification
- Apparel and Small Items traceability
- Depalletizing, Palletizing, Cage Preparation
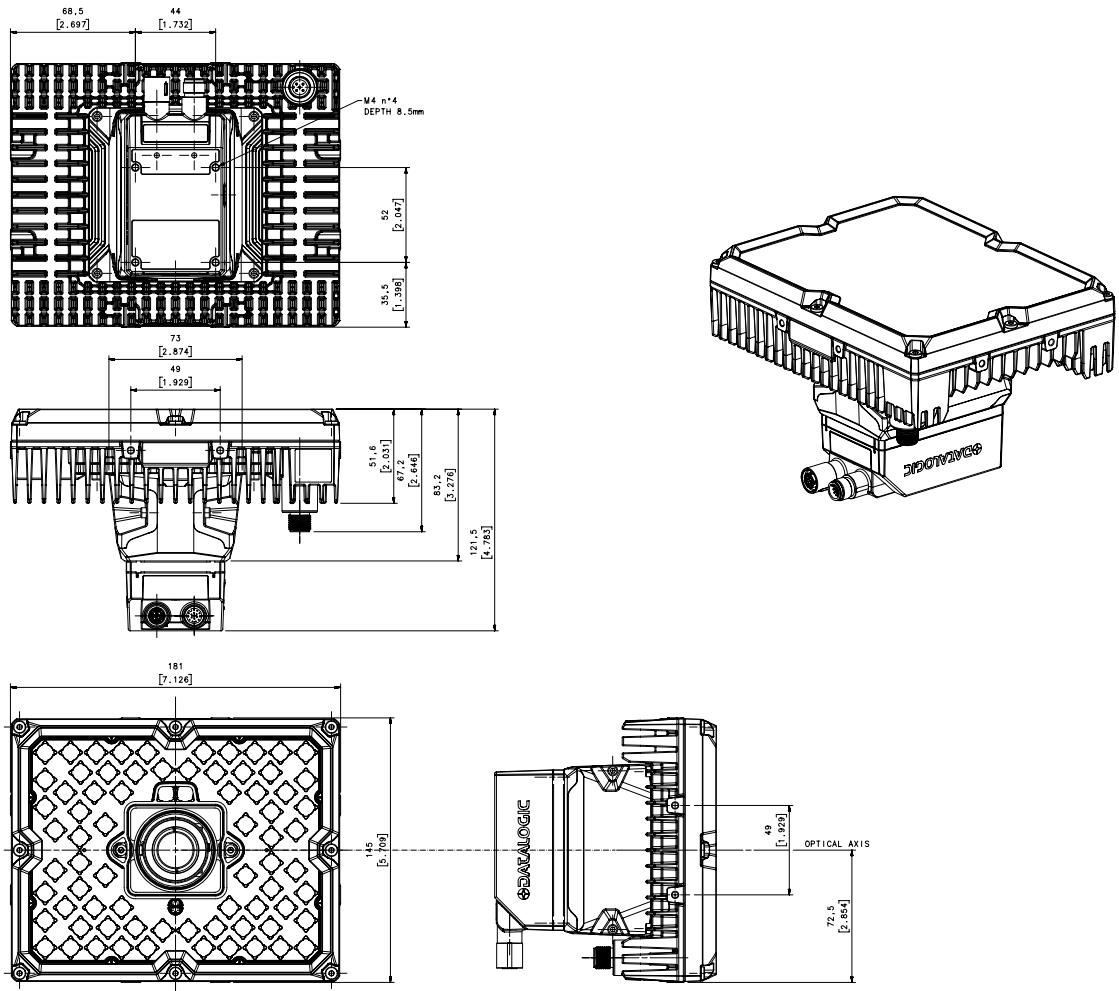- Pallet Traceability / Pallet Wrapping
- Reverse Logistic

Manufacturing
- Automotive Work in Progress (WIP) and Traceability
- Component / Part Traceability
- Secondary Packaging Traceability (bundling)
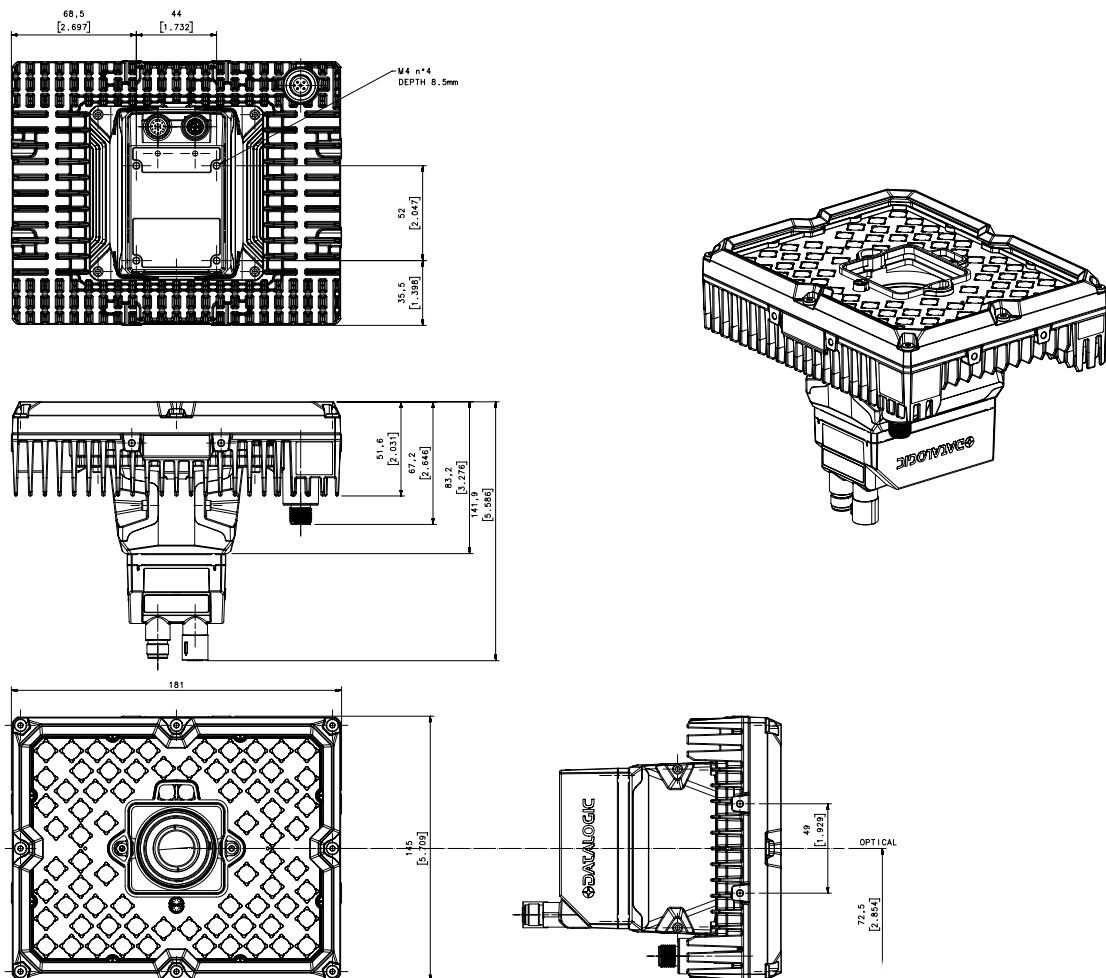- End of Line Traceability

TECHNICAL DATA

	Very High Power VHP 36 Led Illuminator Model	Ultra High Power UHP 72 Led Illuminator Model
Sensor	Sensor Image resolution 5.0 Mpixel (2560 × 1936) - 1/1.8" CMOS global shutter	
Frame Rate	25 frames/s	
Optical models (Viewing angles)	C-Mount Lens 8mm (50°), 12mm (34°), 16mm (25°), 25mm (16°), 35mm (12°), 50mm (8°)	
Optical Focus Control	Manual focus adjustment	
Illumination	Internal illuminators colors: Blue, White, IR, UV	Internal illuminators colors: Blue, White
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	0.85 A, 20,5 W max.	1.30 A, 31 W max.
Protection Class EN60529	IP65 and IP67	
Operating Temperature	-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 115.5 x W 126 x L 124.8 mm (4.6 x 4.9 x 4.91 in) Connector at 0° H 101 x W 126 x L 138.2 mm (4.6 x 4.9 x 5.44 in) Connector at 90°	H 145 x W 181 x L 121.5 mm (5.7 x 7.1 x 4.8 in) Connector at 0° H 145 x W 181 x L 142 mm (5.7 x 7.1 x 5.9 in) Connector at 90°
Weight	reader body 300 gr (10.6 oz) illuminator adapter 300 gr (10.6 oz) illuminator 300 gr (10.6 oz)	reader body 300 gr (10.6 oz) illuminator adapter 300 gr (10.6 oz) 850 gr (29.9 oz)
Sulfur gas resistance	Available for all models according to ISO EN 60068-2-43	
YAG Laser Protection	Available as filter accessory	Not available
Embedded communication interfaces	- Ethernet 10/100/1000 Mbit/s: TCP/IP, UDP, FTP, SFTP and Fieldbus PROFINET IO, Ethernet IP, Modbus TCP - Serial RS232/RS422FD up to 115.2 Kbit/s + Serial Aux RS232 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	Cross aiming Laser Class II Grid pattern aiming Laser Class I	Dual spot aiming Laser Class II
Embedded distance sensor	Distance range: 100mm to 2500mm Viewing angle: Horizontal: 18°; Vertical 12°	
Embedded orientation sensor	Measure the device orientation (pitch and roll angles) Can be enabled to generate alarm in case of device orientation change	
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	

◆DATALOGIC

DIMENSIONS

MATRIX 320 C-MOUNT 36 LED FULL PRODUCT - STRAIGHT 0° CONNECTOR

MATRIX 320 C-MOUNT 36 LED FULL PRODUCT - STRAIGHT 90° CONNECTOR
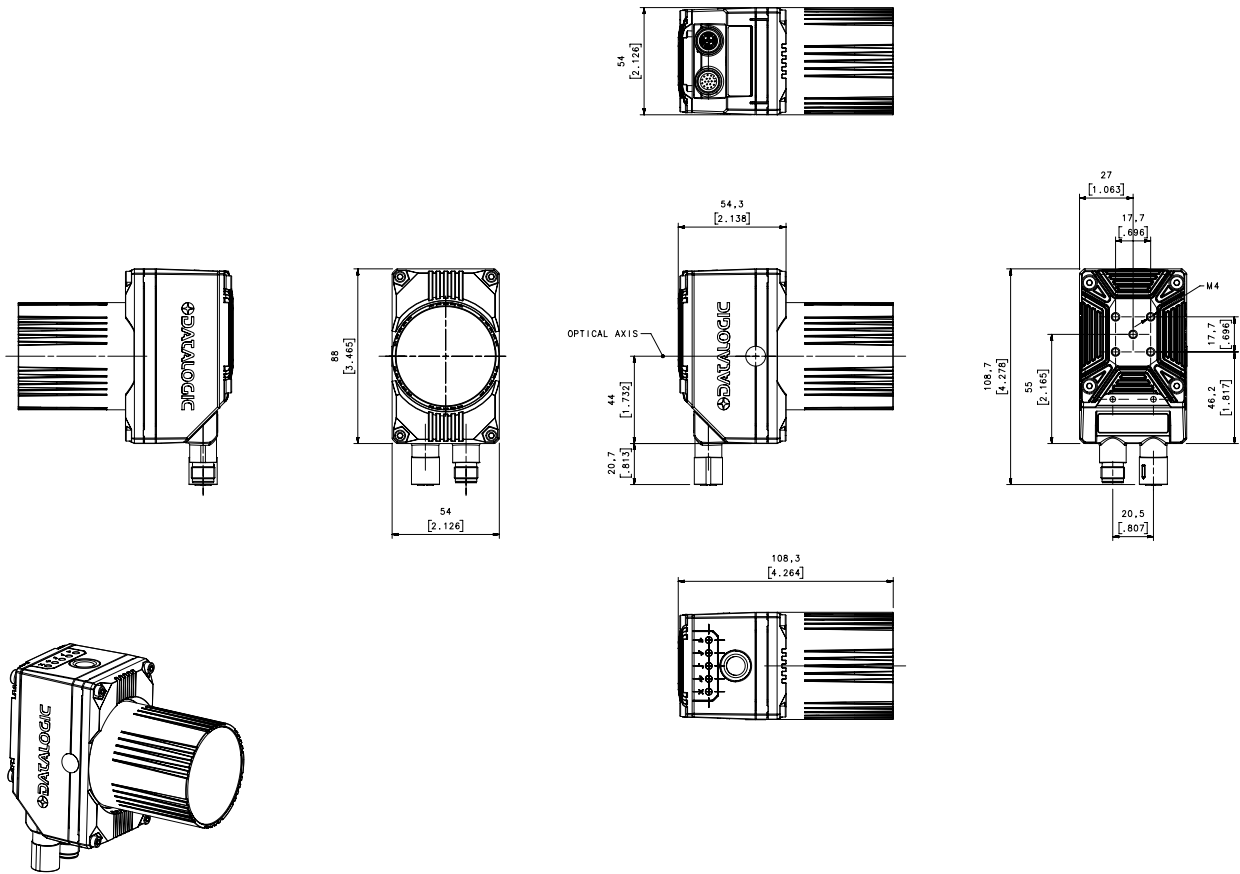
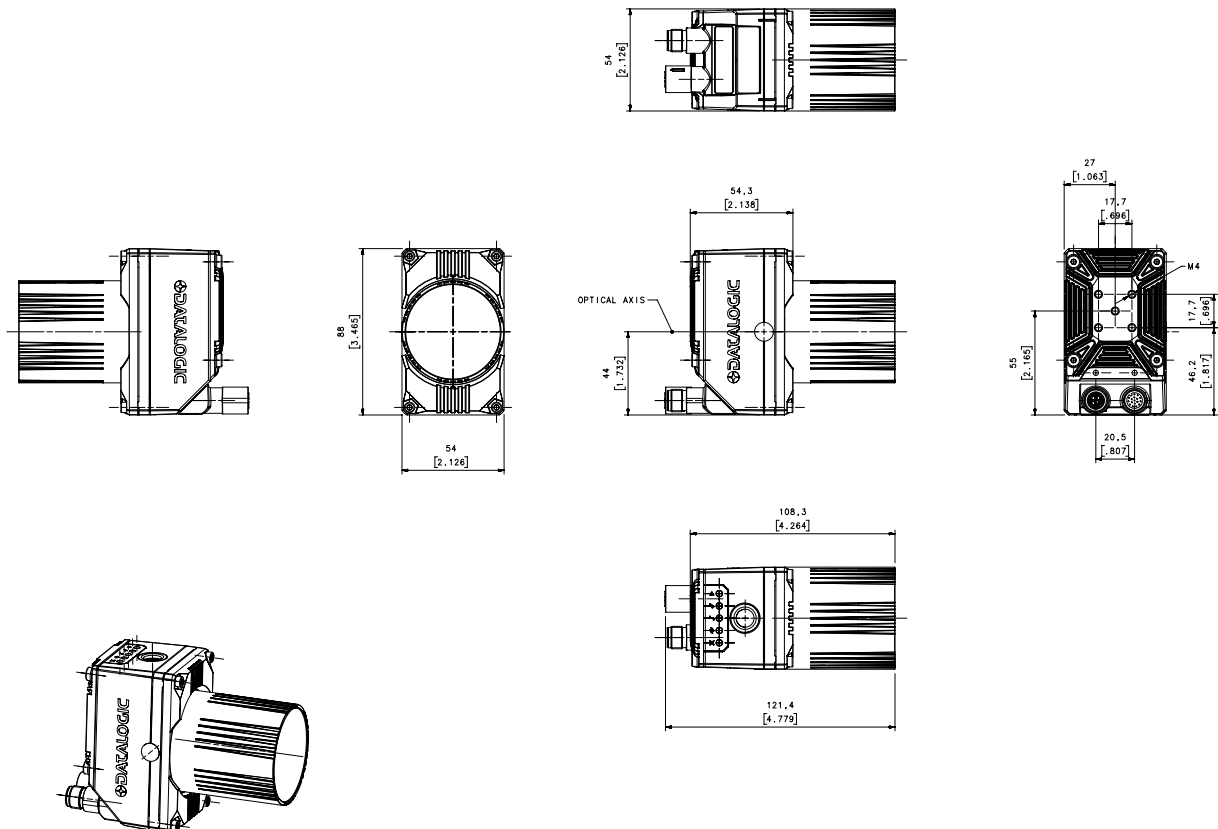# MATRIX 320 C-MOUNT 72 LED FULL PRODUCT - STRAIGHT 0° CONNECTOR

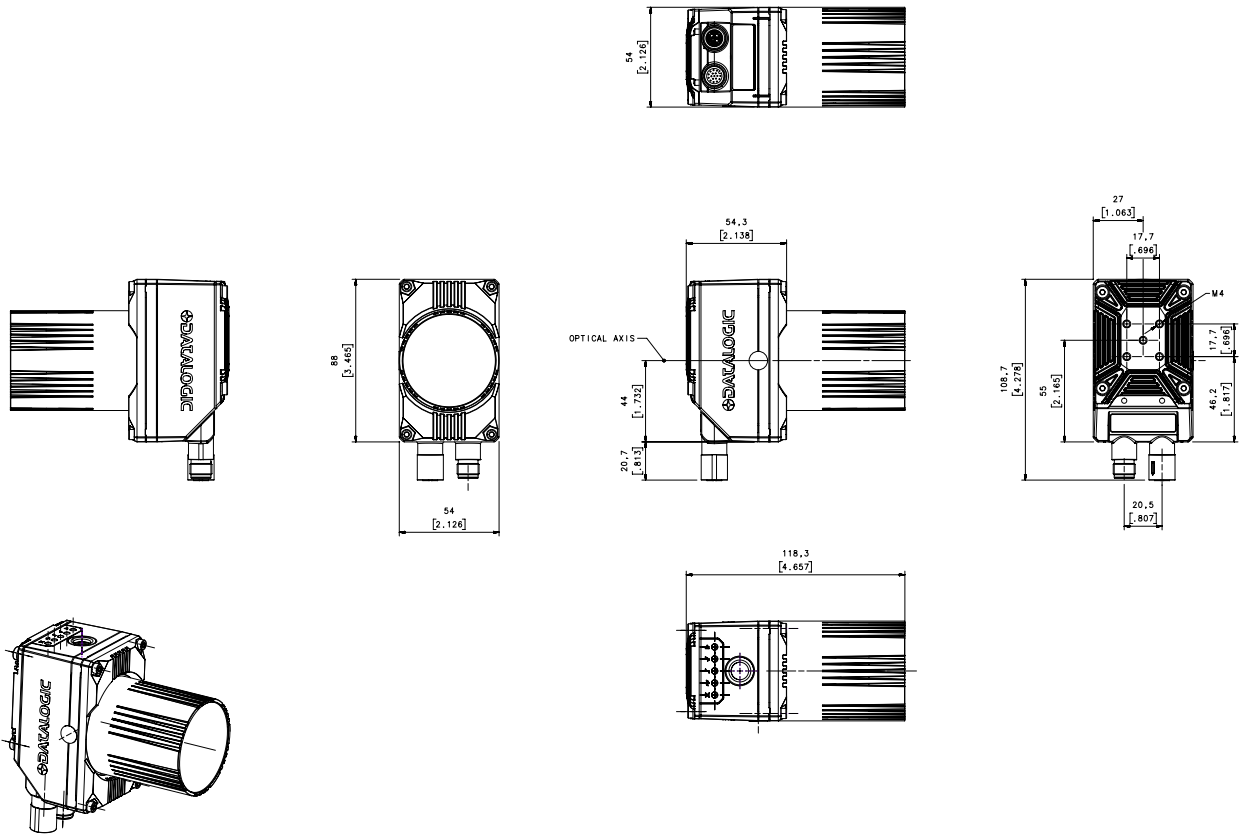# MATRIX 320 C-MOUNT 72 LED FULL PRODUCT - STRAIGHT 90° CONNECTOR

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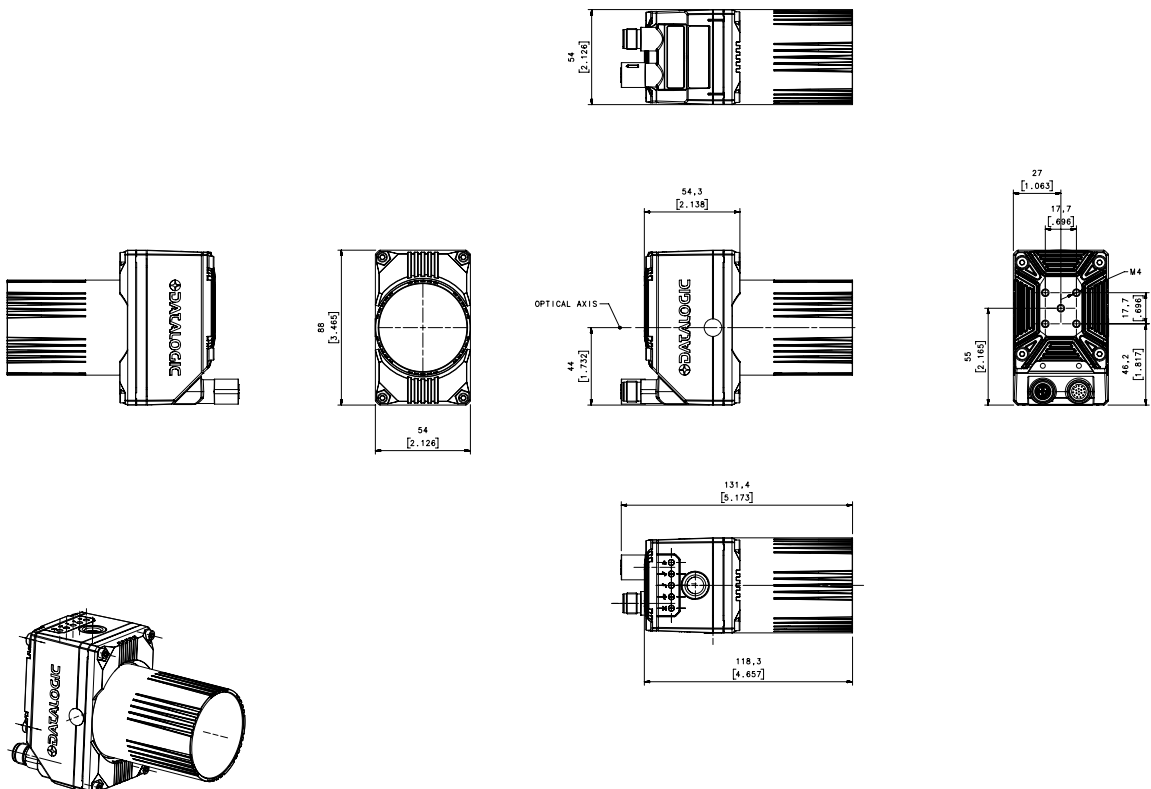

MATRIX 320 C-MOUNT READER and COVER LENS SHORT - 90° CONNECTORS

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

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

MODELS

MATRIX 320 5MP C-MOUNT MODELS

P/N	DESCRIPTION								
938100041	Matrix 320 800-030 CM 5.0MP 1/2"	Matrix 320 5MP reader body							
93ACC0281	Adapter LT to CM M320	ILLUMINATOR ADAPTER to Matrix 320 reader body							

C-MOUNT LENSES

P/N	DESCRIPTION	Focal lenght (mm)	RED	Max Sensor Format	Aperture (f/#)	Min working distance (mm) from lens front	Max working distance (mm) from lens front
93ACC0287	LNM 003-021 CM 8MM VF1.8 1/2" ED	8		1/2"	f/1.8-f/11	50	∞
93ACC0288	LNM 005 021 CM 12MM VF1.8 1/1.8" ED	12		1/1.8"	f/1.8-f/11	100	∞
93ACC0289	LNM 007-021 CM 16MM VF1.8 1/1.8" ED	16		1/1.8"	f/1.8-f/11	200	∞
93ACC0290	LNM 009-031 CM 25MM VF1.85 1/1.8" ED	25		1/1.8"	f/1.85-f/16	200	∞
93ACC0292	LNM 030-011 CM 35MM VF1.85 1/1.8" ED	35		1/1.8"	f/1.85-f/16	200	∞
93ACC0343	LNM 011-042 CM 50MM VF2 2/3" AZ	50		2/3"	f/2-f/32	400	∞

INCLUDES ILLUMINATOR, STANDARD COVER, ADAPTER, BRACKET

P/N	DESCRIPTION	36 LED Very High Power	72 LED Ultra High Power	RED	BLU	WHT	IR	UV	Aiming	Illuminator adapter	Mounting Bracket
93ACC0391	KIT LTM 002-001 S36L 120D WHT white NL	x				x			cross	93ACC0281 included in the illuminator KIT	93ACC0283 included in the illuminator KIT
93ACC0356	KIT LTM 002-601 S36L 60D WHT white	x				x			cross		
93ACC0357	KIT LTM 002-451 S36L 45D WHT white	x				x			cross		
93ACC0393	KIT LTM 522-451 SA36L 45D WHT white	x				x			grid		
93ACC0394	KIT LTM 002-351 S36L 35D WHT white	x				x			cross		
93ACC0395	KIT LTM 002-151 S36L 15D WHT white	x				x			cross		
93ACC0396	KIT LTM 002-000 S36L 120D RED 625nm NL	x		x					cross		
93ACC0397	KIT LTM 002-600 S36L 60D RED 625nm	x		x					cross		
93ACC0398	KIT LTM 002-450 S36L 45D RED 625nm	x		x					cross		
93ACC0399	KIT LTM 002-350 S36L 35D RED 625nm	x		x					cross		
93ACC0400	KIT LTM 002-150 S36L 15D RED 625nm	x		x					cross		
93ACC0358	KIT LTM 002-002 S36L 120D BLU 475nm NL	x			x				cross		
93ACC0359	KIT LTM 002-602 S36L 60D BLU 475nm	x			x				cross		
93ACC0360	KIT LTM 002-452 S36L 45D BLU 475nm	x			x				cross		
93ACC0361	KIT LTM 002-352 S36L 35D BLU 475nm	x			x				cross		
93ACC0362	KIT LTM 002-152 S36L 15D BLU 475nm	x			x				cross		
93ACC0401	KIT LTM 002-003 S36L 90D IR 850nm NL	x					x		cross		
93ACC0363	KIT LTM 002-453 S36L 45D IR 850nm	x					x		cross		
93ACC0402	KIT LTM 002-353 S36L 35D IR 850nm	x					x		cross		
93ACC0403	KIT LTM 002-253 S36L 25D IR 850nm	x					x		cross		
93ACC0364	KIT LTM 002-004 S36L 130D UV 365nm NL	x						x	cross		
93ACC0368	KIT LTM 034-601 S72L 60D WHT white		x			x			2 spot		93ACC0284 included in the illuminator KIT
93ACC0369	KIT LTM 034-351 S72L 35D WHT white		x			x			2 spot		
93ACC0370	KIT LTM 034-151 S72L 15D WHT white		x			x			2 spot		
93ACC0365	KIT LTM 034-602 S72L 60D BLU 475nm		x		x				2 spot		
93ACC0366	KIT LTM 034-352 S72L 35D BLU 475nm		x		x				2 spot		
93ACC0367	KIT LTM 034-152 S72L 15D BLU 475nm		x		x				2 spot		

ILLUMINATOR (INCLUDES STANDARD COVER)

P/N	DESCRIPTION	36 LED Very High Power	72 LED Ultra High Power	RED	BLU	WHT	IR	UV	Aiming	Illuminator Adapter	Mounting Bracket
93ACC0294	LTM 002-001 S36L 120D WHT white NL	x				x			Cross	Not included in the illuminator box	
93ACC0298	LTM 002-601 S36L 60D WHT white	x				x			Cross		
93ACC0302	LTM 002-451 S36L 45D WHT white	x				x			Cross		
93ACC0329	LTM 522-451 SA36L 45D WHT white	x				x			Grid		
93ACC0306	LTM 002-351 S36L 35D WHT white	x				x			Cross		
93ACC0354	LTM 002-151 S36L 15D WHT white	x				x			Cross		
93ACC0293	LTM 002-000 S36L 120D RED 625nm NL	x		x					Cross		
93ACC0297	LTM 002-600 S36L 60D RED 625nm	x		x					Cross		
93ACC0301	LTM 002-450 S36L 45D RED 625nm	x		x					Cross		
93ACC0305	LTM 002-350 S36L 35D RED 625nm	x		x					Cross		
93ACC0353	LTM 002-150 S36L 15D RED 625nm	x		x					Cross		
93ACC0295	LTM 002-002 S36L 120D BLU 475nm NL	x			x				Cross		
93ACC0299	LTM 002-602 S36L 60D BLU 475nm	x			x				Cross		
93ACC0303	LTM 002-452 S36L 45D BLU 475nm	x			x				Cross		
93ACC0307	LTM 002-352 S36L 35D BLU 475nm	x			x				Cross		
93ACC0355	LTM 002-152 S36L 15D BLU 475nm	x			x				Cross		
93ACC0296	LTM 002-003 S36L 90D IR 850nm NL	x					x		Cross		
93ACC0300	LTM 002-453 S36L 45D IR 850nm	x					x		Cross		
93ACC0304	LTM 002-353 S36L 35D IR 850nm	x					x		Cross		
93ACC0308	LTM 002-253 S36L 25D IR 850nm	x					x		Cross		
93ACC0309	LTM 002-004 S36L 130D UV 365nm NL	x						x	Cross		
93ACC0332	LTM 034-601 S72L 60D WHT white		x			x			2 Spot		
93ACC0336	LTM 034-351 S72L 35D WHT white		x			x			2 Spot		
93ACC0340	LTM 034-151 S72L 15D WHT white		x			x			2 Spot		
93ACC0331	LTM 034-602 S72L 60D BLU 475nm		x		x				2 Spot		
93ACC0335	LTM 034-352 S72L 35D BLU 475nm		x		x				2 Spot		
93ACC0339	LTM 034-152 S72L 15D BLU 475nm		x		x				2 Spot		

Matrix 320 800-030

Sensor
8 = 5MP

Interface
3 = Gigabit Ethernet (GIGE)

LNM 0XX-0XX

Focal length
03 = 8mm
05 = 12mm
07= 16mm
09= 25mm
10= 35nn
11= 50mm

Min F number
2 = F1.8
3 = F1.85
4 = F2

Lens Type
1 = Edmund
2 = Azure

Different options of Total Internal Reflection (TIR) lenses on the illuminator LEDs to match smart camera lens aperture
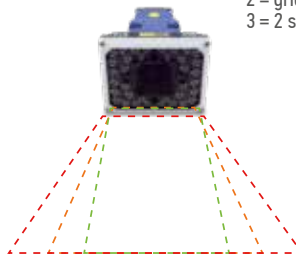
0=M320 2MP and M320 5MP
1=M320 2MP only
2=M320 5MP only

LTM XXX-XXX

Aiming type
0 = cross aiming
2 = grid aiming
3 = 2 spot aiming

Illuminator size
2 = 36 LED
4 = 72 LED

Illuminator LED lens aperture
15 = ultra narrow (15D)
35 = narrow (35D)
45 = narrow (45D)
60 = wide (60D)
120 = ultra wide (120D)

Color
0 = red
1 = white
2 = blue
3 = IR
4 = UV

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ILLUMINATORS

36 LED VHP ILLUMINATOR COLORS AND LED CHAIN CONFIGURATION	
Lights ON	**LEDs COLOR**
All Chains	White, Blue
Top Left	White, Blue
Top right	White, Blue
Bottom left	White, Blue
Bottom right	White, Blue
Left	White, Blue
Right	White, Blue
Any combination of the above chain options	White, Blue

72 LED UHP ILLUMINATOR COLORS AND LED CHAIN CONFIGURATION	
Lights ON	**LEDs COLOR**
Top	White, Blue
Bottom	White, Blue
Left	White, Blue
Right	White, Blue
Internal Left Chain	White, Blue
Internal Right Chain	White, 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)
	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)
	93A050129	Adapter Cable GIGA Ethernet X-Coded to Ethernet D-Coded
	93ACC0268	Serial RS232 to USB HID E Keybrd Converter Cbl
	93A050141	Adapter Cable FULL GIGA Ethernet X-Coded M12 to RJ45
	93A050033	CAB-LP-03 LIGHTING POWER 3M
	93A050037	CAB-LP-05 LIGHTING POWER 5M
	93A050076	CAB-GD03 M12 F/L 3M
	93A050077	CAB-GD05 M12 F/L 5M
	93A050078	CAB-GD10 M12 F/L 10M
COVER	93ACC0272	Cover STD LT 36L M320/P2
	93ACC0341	Cover STD LT 72L M32
	93ACC0274	Cover Polarizer LT 36L M320/P2
	93ACC0342	Cover Polarizer LT 72L M320
	93ACC0279	Cover Lens and CM Base Short
	93ACC0280	Cover Lens and CM Base Long
FILTER	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
	95A900022	Filter YAG Cut LT 36L M320/P2
BRACKET	93ACC0283	BK-32-010 PIVOT FIX BRACKET M320/P2 BODY
	93ACC0284	BK-32-020 FAST REPLACEMENT BRACKET M320