DATALOGIC

Matrix 450N™

QUICK REFERENCE GUIDE

SUPPORT THROUGH THE WEBSITE

Your product Reference Manual including installation procedures is available for download on our website as well as the configuration program.

Datalogic provides several services as well as technical support through its website. Log on to **www.datalogic.com** and click on the **SUPPORT** > **Unattended Scanning Systems** category link. From this page you can select your product model from the dropdown list which gives you access to:
Downloads including Data Sheets, Manuals, Software & Utilities, and Drawings; Repair Program for On-Line Return Material Authorizations (RMAs) plus Repair Center contact information; Service Program containing details about Maintenance Agreements; Technical Support through email or phone.

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 a NO READ result.

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

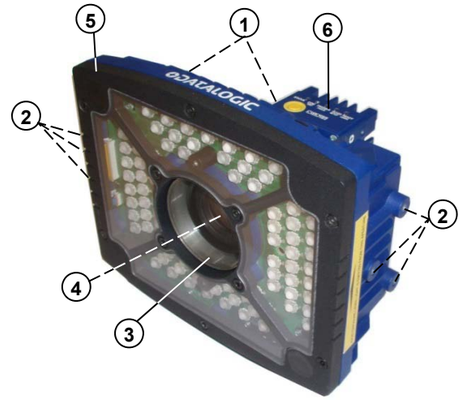
HMI X-PRESS™

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

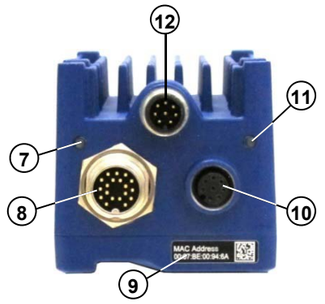
- Test Mode with bar graph visualization to check static reading performance
- Aim/Focus turns on the laser pointers or blue diamonds to aim the reader at the target. For liquid lens versions the autofocus procedure is incorporated into this function.
- AutoSetup to self-optimize and auto-configure photometry parameters
- AutoLearn to self-detect and auto-configure for reading unknown barcodes (by type and length)

Matrix 450N™

1. Device Class and Warning Labels
2. Bracket Mounting Holes (6)
3. Lens Cover
4. Lens (separate accessory)



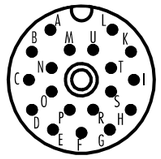
5. LT-03x Lighting System (separate accessory)
6. HMI X-PRESS™ Interface
7. Power On LED
8. Power - Serial - I/O Connector



9. MAC Address Label
10. GigaEthernet Connector
11. Ethernet Connection LED
12. Lighting System Control - Power Connector

General View

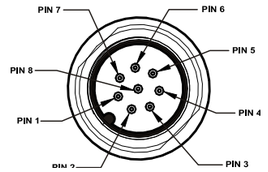
WARNING: Matrix 450N can only receive input power through these connectors, it cannot source power from these connectors. See Reference Manual for details.



Matrix 450N Power, COM, I/O

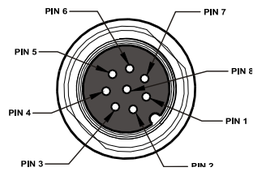
M16 19-pin Power, Serial (COM), and I/O Connector Pinout			
Pin	**Name**	**Function**	
A	Vdc	Power supply input voltage +	
L	GND	Power supply input voltage -	
K	CHASSIS	Cable shield internally connected by capacitor to the chassis	
B	I1A	External Trigger A (polarity insensitive)	
C	I1B	External Trigger B (polarity insensitive)	
D	I2A	Input 2 A (polarity insensitive)	
E	I2B	Input 2 B (polarity insensitive)	
H	O1+	Output 1 +	
F	O1-	Output 1 -	
G	O2+	Output 2 +	
I	O2-	Output 2 -	
S	RX	Auxiliary RS232 RX	
O	TX	Auxiliary RS232 TX	
R	ID+	ID-NET™ network +	
P	ID-	ID-NET™ network -	
Pin	**Name**	**RS232**	**RS422 Full-Duplex**
M	Main Serial Port (sw selectable)	TX	TX+
U		RX	*RX+
N		-	TX-
T		-	*RX-

* do not leave floating. See Reference Manual for connection details.



Matrix 450N Lighting System Control, Power

M12 8-pin Lighting System Connector Pinout		
Pin	**Name**	**Function**
1	SPOT1	Red Spot control signal
2	STROBE	Illuminator control signal
3	SPOT2	Green Spot control signal
4	AIMING	Aiming Lasers control signal
5	LDA	I2C channel data signal
6	LDL	I2C channel clock signal
7	GND	Power supply input voltage negative
8	VDC	Power supply input voltage positive

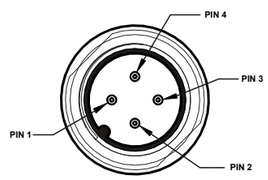


Matrix 450N GigaEthernet

M12 8-Pin GigaEthernet Network Connector pinout		
Pin	**Name**	**Function**
1	DB-	Channel B bi-directional data (negative pin)
2	DD+	Channel D bi-directional data (positive pin)
3	DD-	Channel D bi-directional data (negative pin)
4	DA-	Channel A bi-directional data (negative pin)
5	DC+	Channel C bi-directional data (positive pin)
6	DA+	Channel A bi-directional data (positive pin)
7	DB+	Channel B bi-directional data (positive pin)
8	DC-	Channel C bi-directional data (negative pin)

LT-03x

The LT-03x lighting system must be powered from this connector.



LT-03x Input Power

M12 4-Pin Input Power Connector pinout		
Pin	**Name**	**Function**
1	VDC	Power supply input voltage positive
2	VDC	Power supply input voltage positive
3	GND	Power supply input voltage negative
4	GND	Power supply input voltage negative

TECHNICAL FEATURES

ELECTRICAL FEATURES	
Power Supply Voltage (Vdc) Consumption (A) Max.	 24 Vdc ± 20% 2.5 A (0.5 A Matrix 450N; 2 A LT-03x)
Communication Interfaces Main - RS232 - RS422 full-duplex	 2400 to 115200 bit/s 2400 to 115200 bit/s
Auxiliary – RS232	2400 to 115200 bit/s
ID-NET™	Up to 1Mbaud
Ethernet[1]	1000 Mbit/s GigaEthernet
Inputs:	Opto-coupled and polarity insensitive (see Reference Manual for details)
Outputs:	Opto-coupled (see Reference Manual for details)
OPTICAL FEATURES (see Reference Manual for details)	

PHYSICAL FEATURES	
Dimensions Matrix 450N Matrix 450N + LT-03x	 123 x 64 x 143 mm (4.8 x 2.5 x 5.6 in) 202 x 213 x 179 mm (8.0 x 8.4 x 7.1 in)
Weight (with lens and LT-03x)	3000 g. (6.6 lbs.)
Material	Aluminium
ENVIRONMENTAL FEATURES	
Operating Temperature[2]	0 to 50 °C (32 to 122 °F)
Storage Temperature	-20 to 70 °C (-4 to 158 °F)
Max. Humidity	90% non-condensing
Vibration Resistance[3] EN 60068-2-6	1.5 mm @ 5 to 9 Hz; 0.5 g @ 9 to 150 Hz; 2 g @ 70 to 500 Hz; 2 hours on each axis
Shock Resistance EN 60068-2-27	30g; 11 ms; 3 shocks on each axis
Protection Class[4] EN 60529	IP65
USER INTERFACE	
LED Indicators	Power; Ready, Good, Trigger, Com, Status; Ethernet Network; Green Spot; (see Reference Manual for other LEDs)
Other	X-PRESS™ Keypad Button (configurable via DL.CODE™)

SOFTWARE FEATURES			
Readable Code Symbologies			
1-D and stacked		**2-D**	**POSTAL**
• PDF417 Standard and Micro PDF417 • Code 128 (GS1-128) • Code 39 (Standard and Full ASCII) • Code 32 • MSI • Standard 2 of 5 • Matrix 2 of 5 • Interleaved 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	• 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 SW (DL.CODE™) via Ethernet Host Mode Programming sequences sent over Serial or Ethernet TCP interfaces		
Parameter Storage	Permanent memory (Flash)		

[1] The embedded Ethernet interface supports application protocols: TCP/IP, EtherNet/IP, Modbus TCP

[2] High ambient temperature applications should use metal mounting bracket for heat dissipation.

[3] When operating in high vibration environments use two L-shaped mounting brackets and mount the anti-vibration kit for C-mount lenses

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

PATENTS

See www.patents.datalogic.com for patent list.

Matrix 450N is covered by one or more of the following patents:

Design patents: EP001950486, JP1462298, USD696707, USD720788, ZL201230182040.4, ZL201230182042.3

Utility patents: EP0996284B1, EP0999514B1, EP1014292B1, EP1128315B1, EP1396811B1, EP1413971B1, EP2168076B1, EP2517148B1, EP2649555B1, IT1404187, JP4435343B2, JP4571258B2, JP5947819B2, US6512218, US6616039, US6808114, US6997385, US7053954, US7387246, US7433590, US8058600, US8289387, US8368000, US8888003, US8915443, US9268982, US9349047, US9430689, ZL200780053699.6, ZL200980163411.X, ZL201280010789.8

LT-03x is covered by one or more of the following patents:

Design patents: EP001950445, JP1468086, USD676595, ZL201230182041.9

Utility patents: EP1128315B1, EP1396811B1, EP1413971B1, US6808114, US6997385, US7387246

COMPLIANCE

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.

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;
- connect pin "Earth" of the CBX connection box to a good Earth Ground;

CE COMPLIANCE

CE marking states the compliance of the product with essential requirements listed in the applicable European directive. Since the directives and applicable standards are subject to continuous updates, and since Datalogic promptly adopts these updates, therefore the EU declaration of conformity is a living document. The EU declaration of conformity is available for competent authorities and customers through Datalogic commercial reference contacts. Since April 20th, 2016 the main European directives applicable to Datalogic products require inclusion of an adequate analysis and assessment of the risk(s). This evaluation was carried out in relation to the applicable points of the standards listed in the Declaration of Conformity. Datalogic products are mainly designed for integration purposes into more complex systems. For this reason it is under the responsibility of the system integrator to do a new risk assessment regarding the final installation.

Warning
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 adequate measures.

FCC COMPLIANCE

Modifications or changes to this equipment without the expressed written approval of Datalogic could void the authority to use the equipment.

This device complies with PART 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference which may cause undesired operation.

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.

EAC COMPLIANCE

Customs Union:
The CU Conformity certification has been achieved; this allows the Product to bear the Eurasian mark of conformity.

LT-03X LED SAFETY

LED emission according to EN 62471.

LT-03X LASER SAFETY

The LT-03x Series Lighting Systems contain two aiming Laser LEDs used to position the reader.

These products conform to the applicable requirements of IEC 60825-1 and comply with 21 CFR 1040.10 except for deviations pursuant to Laser Notice N° 50, date June 24, 2007. These products are classified as Class 2 laser products according to IEC 60825-1 regulations.

WARNING: 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 each of the laser equipped products indicated in the respective General View illustration (item ⓘ) on the opposite page.

Example Laser Warning Labels

Produit(s) conforme selon 21CFR 1040.10 sauf des dérogations relatives à la Laser Notice N° 50, date Juin 24, 2007.

Dans le paquet il y a l'étiquette(s) pour les pays où le texte d'avertissement en français sont obligatoires.
Le(s) mettre sur le produit à la place de la version anglaise.

Exemple d'étiquettes d'avertissement laser

POWER SUPPLY

This product is intended to be installed by Qualified Personnel only.

This product is intended to be connected to a UL Listed Direct Plug-in Power Unit marked LPS or "Class 2".

LEGAL NOTICES