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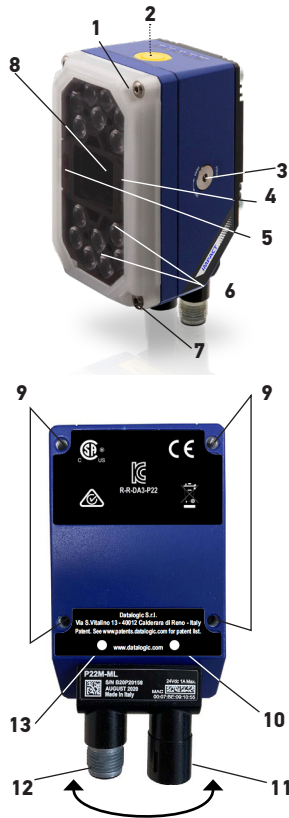Impact, P2x-Series™, Vision Program Manager (VPM), and Control Panel Manager (CPM) are trademarks of Datalogic S.p.A. and/or its affiliates. All other brand and product names may be trademarks of their respective owners.

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, US9396404, US9495607, US9798948, US10095951, US10133895, US10229301, US10540532, ZL200980163411.X, ZL201080071124.9, ZL201180044793.1, ZL201280010789.8

◇DATALOGIC

Industrial Smart Camera

www.datalogic.com

P2x-Series comes with micro-lens holder and is available in color or monochrome version. The lens and the illuminators are replaceable accessories.
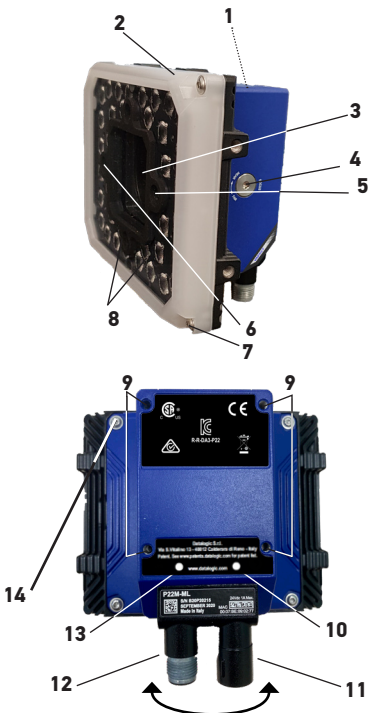
14 LEDs Illuminator

1	Lens Cover
2	Button (Camera Reset - Loader)
3	Focus adjustment screws
4	Red Spot[1]
5	Green Spot[1]
6	Internal Illuminator[1]
7	Lens Cover Screws (4)
8	Lens
9	Bracket Mounting Holes (4)
10	Gigabit Ethernet Connection LED
11	Power - Serial Interfaces - I/O Connector
12	Gigabit Ethernet Connector
13	Power On LED

Connector block rotates to 0° and 90° position

[1] Not included in Configuration A - External Lighting. For more information see the P2x-Series Product Reference Guide.

36 LEDs Illuminator

|	
1	Button (Camera Reset - Loader)
2	Lens Cover
3	Lens
4	Focus Adjustment Screw (on side)
5	Red Spot
6	Green Spot
7	Lens Cover Screws
8	Internal Illuminator
9	Bracket Mounting Holes (4)
10	Gigabit Ethernet Connection LED
11	Gigabit Ethernet Connector
12	Power - Serial Interfaces - I/O Connector
13	Power On LED
14	Illuminator Screws

Connector block rotates to 0° and 90° position

INSTALLATION PROCEDURE

1. Physically mount the P2x-Series reader.
2. All the necessary firmware is installed on the P2x-Series at the factory. Install VPM Software (Vision Program Manager) on an host PC. Machine Vision installation software can be downloaded from the Datalogic website (www.datalogic.com). Refer to the Impact Reference Guide for programming details.
3. Make the necessary electrical connections. Camera commununication

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is provided through the GigaEthernet port. Use the Datalogic cable CAB-ETH-Mxx. Maximum cable length is 10 meters.

4. Start VPM.
5. Choose the camera.
6. If the default IP mask and address work for your installation, you don't need to change them. Otherwise, you can modify the settings.
7. To enable the illuminator go to the Settings Tab. Select Camera and choose the Illuminator Tab. Go to Mode then set the Illuminator's operating mode to Normal or Power.
8. In the Settings Tab, select Camera then choose the desired photometric parameters and the trigger type.
9. Load an existing Vision Program file or create a new one.
10. Put the camera online.
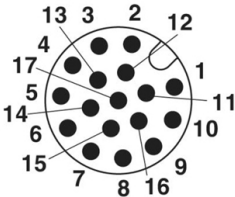
M12 17-pole male Power, COM, and I/O connector

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 *
8	O2	Output 2 *
16	O3	Output 3
14	RX	Reserved
4	TX	Reserved
17	Main Interface (SW selectable)	TX: RS232 Transmit
11		RX: RS232 Receive
12		Reserved
10		Reserved

* Output 1 and Output 2 are opto-coupled when using a CBX.
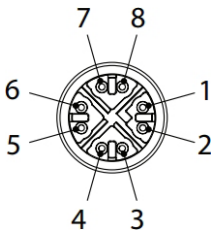
M12 X-Coded female Ethernet Network connector

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+

STATUS LED AND BUTTON

| 1	Power	On - camera is connected to power
2	ETH	On - Gigabit Ethernet link is established. Blinking - data transmission
3	Busy	LED blinks during task execution and flash memory access
4	Out 1	On - Output 1 is on
5	Out 2	On - Output 2 is on
6	Out 3	On - Output 3 is on
7	Online	On - Loaded task will be executed based on their trigger parameters
8	Button	Camera Reset: restores the default camera settings. Loader: the device will enter the Loader program sequence and the LEDs will begin to cycle through various patterns. Camera Button Event: press and release the button (Internal software event only)
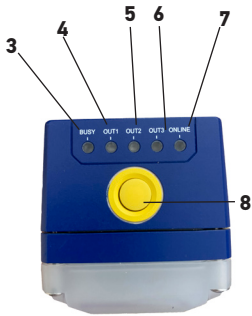
ILLUMINATOR AND LENS REPLACEMENT

CAUTION: Disconnect the power before removing the cover.

Toolset required

- 2.5 mm Allen Wrench Spacer
- Flat blade screwdriver (max. width 1.2 mm)

To remove the cover

Using the 2.5 mm Allen Wrench remove the lens cover screws and carefully remove the cover. Be sure the sealing gasket stays with the cover.
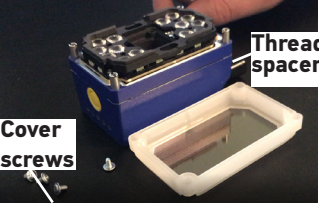

To remove the camera micro-lens

NOTE: Adjust the focus to "NEAR" to easily handle the micro-lens.

1. Remove the cover and the illuminator.
2. Grasp the lens firmly, then press until the lens stops moving.
3. Turn the lens 90° counter-clockwise.
4. Lift the lens stright up until it clears the lens housing.

To replace the camera micro-lens

1. Align the tabs on the lens with the notches in the lens housing.
2. Grasp the lens firmly, then press in until the lens stops moving.
3. Turn the lens 90° clockwise.
4. Release the lens.
5. When the lens is mounted, it should not turn in the housing.
6. Mount the illuminator or the spacer.

Lens release position   **Lens lock position**
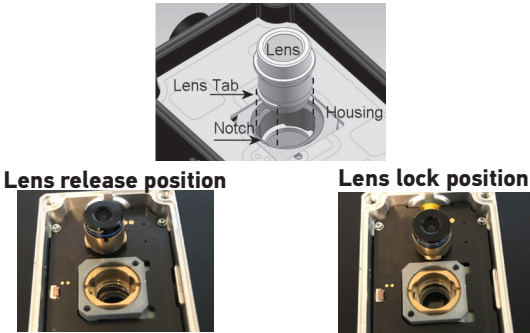
7. Carefully put the cover back on. Be sure the sealing gasket fits into the grooves in the camera body.
8. Mount the four cover screws. Over tightening can damage the cover. Maximum tightening torque 0.8 N m

### To remove and replace the internal illuminator (14 LEDs)

1. Remove the four lens cover screws and the cover.
2. Unscrew the four threaded spacers using the flat-blade screw-driver, then remove the illuminator.
3. Align the new illuminator with the camera case and gently press down until the illuminator is tight to the case.
4. Tighten the four new illuminator threaded spacers. Maximum tightening torque 1.2 N m
5. Position the cover and replace the four cover screws. Maximum tightening torque 0.8 N m

To remove and replace the internal illuminator (36 LEDs)

1. Place the camera on a flat-surface, such as the illuminator side faces downwards. Remove the four illuminator screws and the illuminator.
2. Turn the camera case as the illuminator side faces upwards.Align the new illuminator with the case and gently press down until the illuminator is tight to the case.
3. Turn the camera upside down. Hold it firmly with both hands to be sure that the illuminator stays with the case.
4. Replace the four illuminator screws. Maximum tightening torque 0.8 N m

To replace the optional Yag Cut lens filter

1. Remove the four cover screws and carefully remove the cover.
2. Gently squeeze the clips on each side of the filter holder while you gently pull straight up from the illuminator.
3. Align the Poron filter holder to the lens. Gently squeeze the clips on each side of the filter holder while you gently press straight down on the filter.
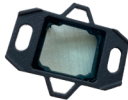
Poron Filter Holder

TECHNICAL SPECIFICATIONS

Electrical Features

Power	
Supply Voltage	24 Vdc ± 10%
Consumption (including accessory internal illuminator)	14 LEDs illuminator: 0.42 A, 10 W max.; 36 LEDs illuminator: 0.62 A, 15 W max.
Communication interfaces	
Gigabit Ehternet	1000 Mbit/s (supports application protocols: TCP/IP, EtherNet/IP, Profinet IO, Modbus TCP)
RS232	2400 to 115200 bit/s
Inputs	
Input 1 (External Trigger) and Input 2	Opto-isolated and polarity insensitive
Max. Voltage	30 Vdc
Max. Input Current	10 mA

Electrical Features

Outputs[1] Output 1 - Output 2	NPN or PNP short circuit protected Opto-isolated only when connected to CBX500/800
Output 3	NPN or PNP short circuit protected Opto-isolated only when connected to CBX800 Strobe signal is shared with Output 3. Output 3 is active only if the External Strobe is disabled.
V_{OUT} (I_{LOAD} = 0 mA) max.	24 Vdc
V_{OUT} (I_{LOAD} = 100 mA) max.	3 Vdc
I_{LOAD} max.	100 mA

Optical Features

Image Sensor	CMOS with Global Shutter	
Image	Color, Monochrome	
Pixel size	2.0 Mpixel: 2.8 µm square	qHD: 5.6 µm square
Image Format	2.0 Mpixel: 1920x1080	qHD: 960x540
Imager Size	6.168 µm diagonal 1/2.8 inches	
Max. Frame Rate (sensor)	60 frame/s	
LED Safety	according to EN 62471	
Lighting System	Internal illuminator (14 or 36 LEDs) and External Strobe (Output 3)	

Environmental Features

Operating temperature[2]	–10° to 50° (14 to 122° F)
Storage Temperature	–20° to 70°C (-4 to158°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	30g; 6 ms; 5000 shocks on each axis
Shock Resistance EN 60068-2-27	30g; 11 ms; 3 shocks on each axis
Protection Class EN 60529[3]	IP65/IP67

Physical Features

	14 LEDs illuminator	**36 LEDs illuminator**
Dimensions (with lens cover)	H x W x L 109x54x56 mm (4.3x2.1x2.2 in.)	H x W x L 116x126x70 mm (4.6x4.9x2.8 in.)
Weight	about 380g. (13.4 oz.)	about 640g. (22.5 oz.)
Material	Aluminium	

User interface

LED indicators	Power, Busy/Trigger, Out 1; Out 2; Out 3, Online
Keypad Button	Reset; Camera Button Event (internal software event only); Loader

Hardware features

Storage	380 MB
RAM	1 GB

1 When connected to the CBX connection boxes, the electrical features for Output 1 and 2 become the following:
Opto-isolated, 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.
2 High ambient temperature applications should use metal mounting brackets for heat dissipation.
3 When correctly connected to IP67 cables with seals and the Lens Cover is correctly mounted.

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
This 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.

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.

LED Safety

For all Datalogic P2X compatible internal illuminators, LED emission is classified as Risk Group 1 according to EN 62471:2010.

WARRANTY

Datalogic warrants that the Products shall be free from defects in materials and workmanship under normal and proper use during the Warranty Period. Products are sold on the basis of specifications applicable at the time of manufacture and Datalogic has no obligation to modify or update Products once sold. The Warranty Period shall be **two years** from the date of shipment by Datalogic, unless otherwise agreed in an applicable writing by Datalogic.

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