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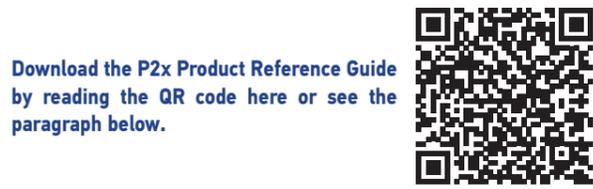
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P2X-SERIES™

QUICK REFERENCE GUIDE



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Download the P2x Product Reference Guide by reading the QR code here or see the paragraph below.

SUPPORT THROUGH THE WEBSITE

Datasensing provides several services as well as technical support through its website. Log on to www.datasensing.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.

PATENTS

See www.patents.datalogic.com for patent list. This product is covered by one or more of the following patents: Utility patents: EP2517148B1, EP2616988B1, EP2649555B1, EP2946338B1, EP3016028B1, EP3074915B1, EP3092597B1, IT1404187, JP5947819B2, US10095951, US10133895, US10229301, US10540532, US10552699, US10762405, US10796117, US11010875, US7433590, US8245926, US8888003, US8915443, US9122939, US9349047, US9361503, US9396404, US9495607, US9798948, ZL200980163411.X, ZL201080071124.9, ZL201180044793.1, ZL201280010789.8, ZL201480072926.X

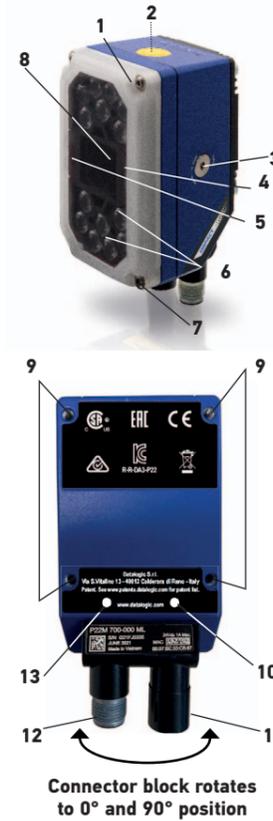


821007093 (Rev. D) May 2022

The P2x-Series has two lens bases: the micro-lens or the C-Mount lens. Both models are available in color or monochrome version. The lenses and the illuminators are replaceable accessories.

MICRO LENS BASE

14 LEDs Illuminator

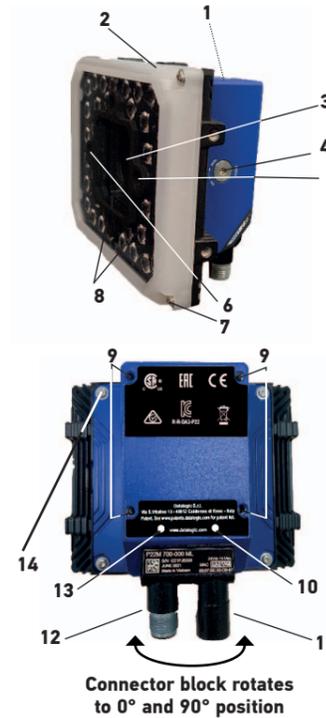


1	Lens Cover
2	Button (Camera Reset - Loader)
3	Focus adjustment screw
4	Red Spot ¹
5	Green Spot ¹
6	Internal Illuminator ¹
7	Lens Cover Screws (4)
8	Lens
9	Heat Sink Mounting Holes (4)
10	Gigabit Ethernet Connection LED
11	Gigabit Ethernet Connector
12	Power - Serial Interfaces - I/O Connector
13	Power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

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

Connector block rotates to 0° and 90° position

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	Heat Sink 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

C-MOUNT LENS BASE

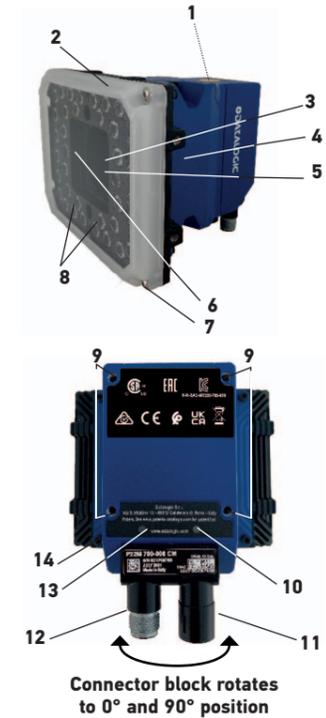
External Lighting



1	C-Mount Lens Cover
2	Button (Camera Reset - Loader)
3	Base Cover screws
4	Lens
5	Heat Sink Mounting Holes (4)
6	Gigabit Ethernet Connection LED
7	Gigabit Ethernet Connector
8	Power - Serial Interfaces - I/O Connector
9	Power On LED

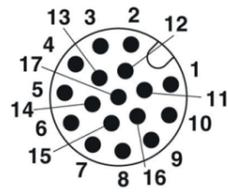
Connector block rotates to 0° and 90° position

36 LEDs Illuminator



1	Button (Camera Reset - Loader)
2	Lens Cover
3	Lens
4	Adapter Side Cover
5	Red Spot
6	Green Spot
7	Lens Cover Screws
8	Internal Illuminator
9	Heat Sink 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

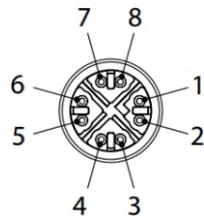
Connector block rotates to 0° and 90° position



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 Inter-	TX: RS232 Transmit
11	face (SW	RX: RS232 Receive
12	selectable)	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+

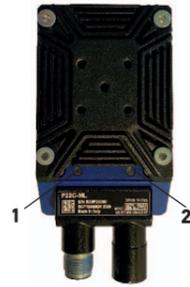
INSTALLATION PROCEDURE

1. Physically mount the P2x-Series Smart Camera.
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 datasensing website (www.datasensing.com). Refer to the Impact Reference Guide for programming details.
3. Make the necessary electrical connections. Camera communication is provided through the GigaEthernet port. Use the 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.

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)



TECHNICAL SPECIFICATIONS

Electrical Features	
Power	
Supply Voltage	24 Vdc ± 10%
Peak Supply Current	1 A max.
Average Supply Current	14 LEDs illuminator: 0.42 A 36 LEDs illuminator: 0.62 A
Communication interfaces	
Gigabit Ethernet	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	
Outputs¹	
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

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; P₀ = 90 mW max. @ 50 °C ambient temperature.

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	5.376mm x 3.024mm 6.168 mm (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 temperature²	-10° to 50° (14 to 122° F)
Storage Temperature	-20° to 70°C (-4 to 158°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 60529³	IP65/IP67

Physical Features		
P2X-SERIES WITH MICRO LENS	14 LEDs illuminator	36 LEDs illuminator
Dimensions (with heat-sink)	H x W x L 108.7x54x62.5 mm (4.28x2.13x2.46 in.)	H x W x L 115.5x126x77.3 mm (4.55x4.96x3.04 in.)
Weight	about 380g. (13.4 oz.)	about 640g. (22.5 oz.)
P2X-SERIES WITH C-MOUNT LENS	External lighting (with Lens Standard Cover)	36 LEDs illuminator
Dimensions (with heat-sink)	H x W x L 108.7x54x108.3mm (4.27x2.12x4.26 in.)	H x W x L 115.5x126x124.8 mm (4.55x4.96x4.91 in.)
Weight	about 300g. (13.4 oz.)	about 900g. (22.5 oz.)

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

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 Smart Camera. 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 device 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.

European Declaration of Conformity

Hereby, Datasensing S.r.l. declares that the full text of the European Declaration of Conformity is available at: www.datasensing.com. Select the link from the downloads section of the product page.

UKCA Declaration of Conformity

Hereby, Datasensing S.r.l. declares that the full text of the UKCA Declaration of Conformity is available at: www.datasensing.com. Select the link from the downloads section of the product page.

LED Safety

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

WARRANTY

Datasensing 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 Datasensing has no obligation to modify or update Products once sold. The Warranty Period shall be two years from the date of shipment by Datasensing, unless otherwise agreed in an applicable writing by Datasensing. Datasensing will not be liable under the warranty if the Product has been exposed or subjected to any: (1) maintenance, repair, installation, handling, packaging, transportation, storage, operation or use that is improper or otherwise not in compliance with Datasensing's instruction; (2) Product alteration, modification or repair by anyone other than Datasensing or those specifically authorized by Datasensing; (3) accident, contamination, foreign object damage, abuse, neglect or negligence after shipment to Buyer; (4) damage caused by failure of a Datasensing-supplied product not under warranty or by any hardware or software not supplied by Datasensing; (5) any device on which the warranty void seal has been altered, tampered with, or is missing; (6) any defect or damage caused by natural or man-made disaster such as but not limited to fire, water damage, floods, other natural disasters, vandalism or abusive events that would cause internal and external component damage or destruction of the whole unit, consumable items; (7) use of counterfeit or replacement parts that are neither manufactured nor approved by Datasensing for use in Datasensing-manufactured Products; (8) any damage or malfunctioning caused by non-restoring action as for example firmware or software upgrades, software or hardware reconfigurations etc.; (9) loss of data; (10) any consumable or equivalent (e.g. cables, power supply, batteries, etc.); or (11) any device on which the serial number is missing or not recognizable.

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