

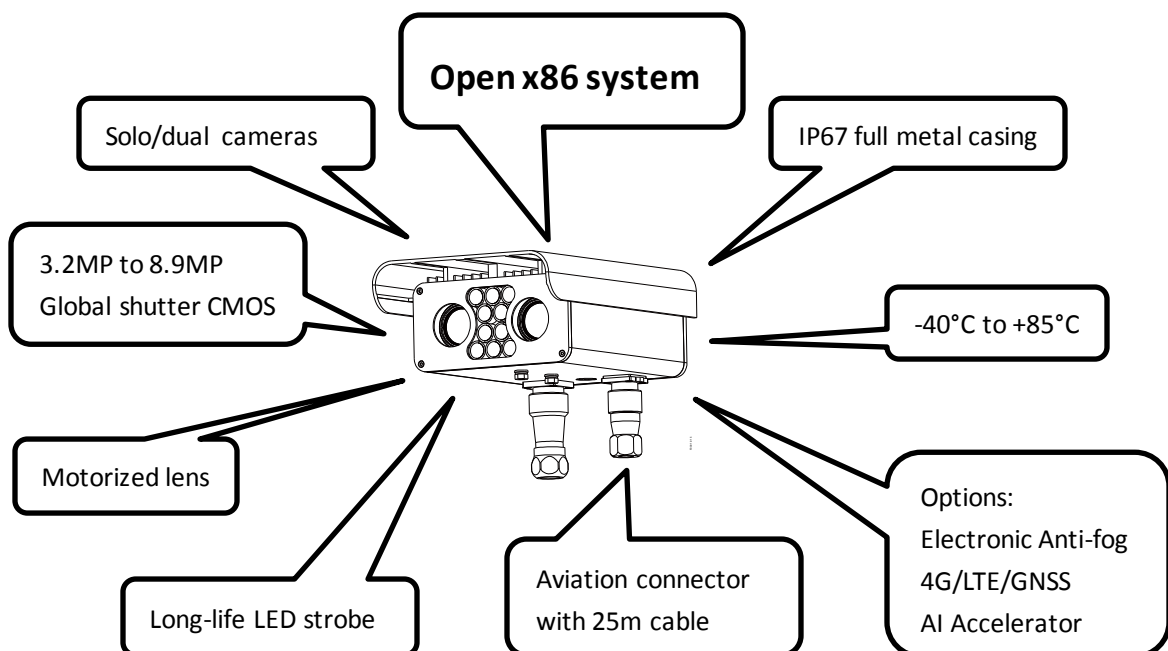
Lynx1 Series All-in-one Smart Camera Brief

Features

1. **All-in-one design with waterproof IP67 rating**
2. Open x86 system for user's real-time image analysis algorithm
3. Support 3.2MP to 8.9MP global shutter CMOS sensors for grabbing
4. Support 1080P rolling shutter CMOS for overview recoding
5. **Solo/dual cameras for grabbing picture and video stream synchronously**
6. **Solo/dual motorized focusing lens for easy installation**
7. Long-life LED strobe light for grabbing high-speed vehicles all day
8. Wide temperature 4G/LTE and GNSS module (optional)
9. AI Accelerator for deep learning (optional)
10. Electronic dehumidifying for anti-fog on the glass (optional)
11. Support 8-28VDC and PoE+ power supply
12. A ready 25m cable with an aviation connector (optional)
13. Rugged and compact full metal casing
14. Wide operation temperature -40°C to +85°C
15. 3-year warranty

Applications

- Red Light Enforcement
- Speed Enforcement
- Bus Lane Enforcement
- Traffic Surveillance
- Intelligent Video Analysis



Profile



Figure 1-1 Picture - Front Panel

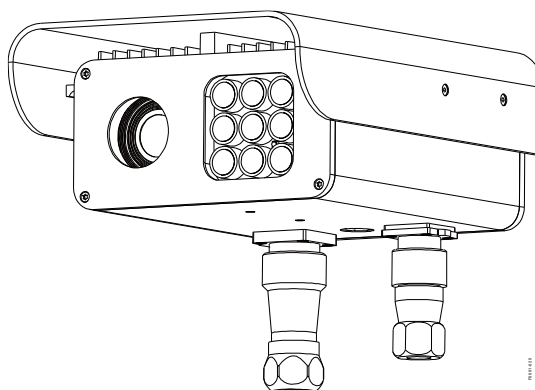


Figure 1-2 Profile of Solo-camera

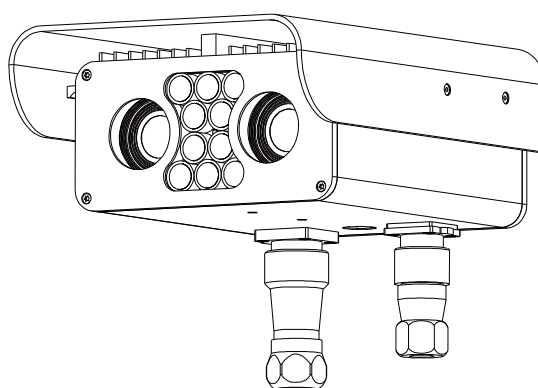


Figure 1-3 Profile of Dual-camera

ROSEEEK reserves the right to change without notice.

Specifications

Table 1-1 Specifications

CPU Subsystem	CPU Model	Intel® ATOM™ processor E3845, soldered onboard
	CPU Type	1.91GHz, Quad Cores, 2MB L2 Cache, 64-bit
	DRAM ^[1]	4GB (default) or 8GB (optional) DDR3L-1333, soldered onboard
	Storage	64GB eMMC5.1 Flash for OS, soldered onboard 1x micro-SD card slot for up to 256GB extended storage
I/O Port	Display Port	1x HDMI port for development
	Network Port	1x Giga Ethernet port with Intel® I210 controller
	USB Port	1x USB2.0 Port for development
	Serial Port	1x RS232, 1x non-isolated RS485 1x dedicated RS232 for debugging
	Digital I/O	1x photo-isolated input, 2x photo-isolated outputs
Special Function	Lens Control	User can control the motorized focusing lens via Ethernet even after installation on the pole
	LED Strokes	Constant-current LED drivers with sync to cameras LED options: NIR (850nm), white (6000K), far-red (740nm), blue(458nm)
	Power Sync	Power sync to AC main supply
	Watchdog Timer	1 to 256 second, setup by software
	Temperature Monitor	Embedded temperature sensor for mainboard monitor
	AI Accelerator (optional)	Embedded Intel® Movidius™ MA2450 AI Accelerator for deep learning Algorithm. ROSEEEK provides method for easy development like the Neural Compute Stick
	4G/LTE, GNSS(optional)	Embedded 4G/LTE and GNSS module
	Wi-Fi (optional)	Embedded Wi-Fi module with AP mode support
Software Function	OS Support (64-bit)	Windows 10 IoT Enterprise, Ubuntu 16.04
	Compatibility	Software is basically compatible with Cheetah1 smart camera
	Protocols	ONVIF, GB/T28181, GigE, RTSP
	Web Server	Embedded web server for remote access via web browser
	Video Streaming	H.264 1080P/30fps color video streaming of the overview camera
	Remote Update	Support Wake on LAN (WoL), remote debugging, software update and power on/off via Ethernet
Embedded Lens ^[2] (two options)		[1] 1" format, 8 MP resolution, fixed F1.4 (non-adjustable), distortion < -0.5%, IR correction, motorized focusing, fixed focal length options: 12mm, 20mm, 25mm, 35mm [2] 1/1.8", 8 MP resolution, F1.8, IR correction, Distortion < -10%, 11-40mm motorized zooming, focusing and iris control
Consumption		30W max
Power Supply		8-28VDC (24VDC recommended) / 5A max ^[3] or PoE+ (802.3at type2, 25.5W) PD power supply ^[4]
Operation Temperature		-40°C to +85°C wild temperature ^[5]
MTBF		350,000 hours
Construction		Rugged full metal casing, fanless, IP67 rating
Dimensions and Weight		180x94x250mm, 3.5 kg
Regulation		CE

Ordering Information

The underlined option is the recommended option.

R S L X 1 - 3 0 S C 3 5 - 2 4 S C B 4 - 2 0 N 1 0 - 0 0 0 - 0 0
 aaaa b cc d e ff gg h j kk mm nnn ppq qq
 grabbing camera overview camera LED flash

aaaa	Lynx series all-in-one smart camera
b	generation
	<u>1</u> the 1st generation, based on Intel ATOM™ E3845
cc	sensor type of grabbing camera
	30 SONY IMX265, 3.2MP 1/1.8" global shutter CMOS, max 55.6fps
	50 SONY IMX264, 5MP 2/3" global shutter CMOS, max 35.7fps
	<u>80</u> SONY IMX267, 8.9MP 1" global shutter CMOS, max 32.2fps for mono type, and max 25fps for color type
d	color of grabbing camera
	<u>S</u> color
	M mono
e	filter type of grabbing camera (refer to chapter 6 for details)
	C fixed filter, IR-cut filter (Figure 6-1)
	P switchable filters, IR-cut and polarizer (Figure 6-1 and polarizer)
	K switchable filters, day/night
	<u>G</u> switchable filters, day/night
ff	lens type of grabbing camera
	25 focal length 25mm, 8MP, 1" size, motorized focusing
	<u>35</u> focal length 35mm, 8MP, 1" size, motorized focusing
	50 focal length 50mm, 8MP, 1" size, motorized focusing
	B4 focal length 11-40mm, 8MP, 1/1.8" size, motorized zooming, focusing and iris control, for 3.2MP (IMX265) sensor only
gg	sensor type of overview camera
	<u>24</u> SONY IMX385LQR, 1080P color 1/2" rolling shutter CMOS, max 30fps, for dual-camera type
	00 for solo-camera type
h	color of overview camera
	<u>S</u> color, for dual-camera type
	Z for solo-camera type
j	filter type of overview camera (refer to chapter 6 for details)
	C fixed filter, IR-cut filter
	K switchable filters, day/night
	<u>G</u> switchable filters, day/night
	Z for solo-camera type

kk	lens type of overview camera	
	00	for solo-camera type
	B4	focal length 11-40mm, 8MP, 1/1.8" size, motorized zooming, focusing and iris control
mm	beam angle of LED flash	
	20	20 degrees (reference: cover 2 lanes from 30 meters away)
	40	40 degrees (reference: cover 3 lanes from 20 meters away)
nnn	type of LED strobe	
	N09	NIR strobe (850nm light), 9 LEDs, for solo-camera type
	N10	NIR strobe (850nm light), 10 LEDs, for dual-camera type
	W09	white strobe (6000K white light), 9 LEDs, for solo-camera type
	W10	white strobe (6000K white light), 10 LEDs, for dual-camera type
	K09	far-red strobe (740nm light), 9 LEDs, for solo-camera type
	K10	far-red strobe (740nm light), 10 LEDs, for dual-camera type
	B09	blue strobe (458nm light), 9 LEDs, for solo-camera type
	B10	blue strobe (458nm light), 10 LEDs, for dual-camera type
ppp	embedded microSD card capacity	
	000	No microSD card (default)
	xxx	xxG-byte microSD card, e.g. 032 means 32GB, 256 means 256GB
qq	special function (optional)	
	00	no special function (default)
	qq	according to the follow table

Table 1-2 Definition of "qq" (part 1 of 4)

Functions \ qq	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Electronic Anti-fog ^[1]		○		○		○		○		○		○		○		○
8GB DDR3L			○	○			○	○			○	○			○	○
AI Accelerator					○	○	○	○					○	○	○	○
Wi-Fi module									○	○	○	○	○	○	○	○
4G/LTE module ^[2]																
GNSS module																

Table 1-2 Definition of "qq" (part 2 of 4)

Functions \ qq	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Electronic Anti-fog ^[1]		○		○		○		○		○		○		○		○
8GB DDR3L			○	○			○	○			○	○			○	○
AI Accelerator					○	○	○	○					○	○	○	○
Wi-Fi module									○	○	○	○	○	○	○	○
4G/LTE module ^[2]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
GNSS module																

Table 1-2 Definition of "qq" (part 3 of 4)

Functions \ qq	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Electronic Anti-fog ^[1]		○		○		○		○		○		○		○		○
8GB DDR3L			○	○			○	○			○	○			○	○
AI Accelerator					○	○	○	○					○	○	○	○
Wi-Fi module									○	○	○	○	○	○	○	○
4G/LTE module ^[2]																
GNSS module	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Table 1-2 Definition of "qq" (part 4 of 4)

Functions \ qq	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Electronic Anti-fog ^[1]		○		○		○		○		○		○		○		○
8GB DDR3L			○	○			○	○			○	○			○	○
AI Accelerator					○	○	○	○					○	○	○	○
Wi-Fi module									○	○	○	○	○	○	○	○
4G/LTE module ^[2]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
GNSS module	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Note:

- [1] The built-in electronic dehumidifier discharges water molecules out of the camera casing, so the internal surface of the front window glass does not fog in cold environments. The anti-fog function takes effect 12 hours after power on. **This option is highly recommended if the local temperature is likely to drop below 10 degrees Celsius.**
- [2] For different countries, the standard or 4G/LTE is different, so it is necessary to indicate which country to use when ordering.
- [3] There is an internal USB port which is designed for encryption USB dongle. This port is not soldered by default. If needed, please specify when ordering.

Recommended Part Number

Lynx1 series smart cameras have powerful functions and also complex part number. In order to easy selection, the following part numbers are recommended.

Part Number	RSLX1-80SK35-24SGB4-20N10-000-01
Description	<p>Application: General dual-camera ITS usage. It can grab color pictures of upto 250km/h vehicles during the day, and mono license plate with NIR flash at night. At the same time it can record the color overview video stream in H.264 format. Also it can run own algorithm with x86 CPU to analyse the images, such as ANPR.</p> <p>Grabbing camera: 8.9MP color 1" global shutter CMOS, with day/night switchable filter, and 8MP resolution 1" fixed-focus 35mm F1.4 motorized focusing lens</p> <p>Overview camera: 2MP 1080p color 1/2" rolling shutter CMOS, with day/night switchable filter, 11-40mm motorized zooming and motorized focusing lens</p> <p>LED flash: NIR (850nm) flash with 10 LEDs, 20 degrees</p> <p>Others: Electronic anti-fog function</p>
Part Number	RSLX1-30SK35-00ZZ00-20N09-000-01
Description	<p>Application: General solo-camera ITS usage. It can grab color vehicles pictures of upto 250km/h during the day, and mono license plate with NIR flash at night. It can run own algorithm with x86 CPU to analyse the images, such as ANPR. Also it can achieve 1080p H.264 video streaming.</p> <p>Grabbing camera: 3.2MP color 1/1.8" global shutter CMOS, with day/night switchable filter, 11-40mm motorized zooming and motorized focusing lens.</p> <p>Overview camera: None</p> <p>LED flash: NIR (850nm) flash with 9 LEDs, 20 degrees</p> <p>Others: Electronic anti-fog function</p>

System Block Diagram

The block diagram of Lynx1 series smart camera is as follows:

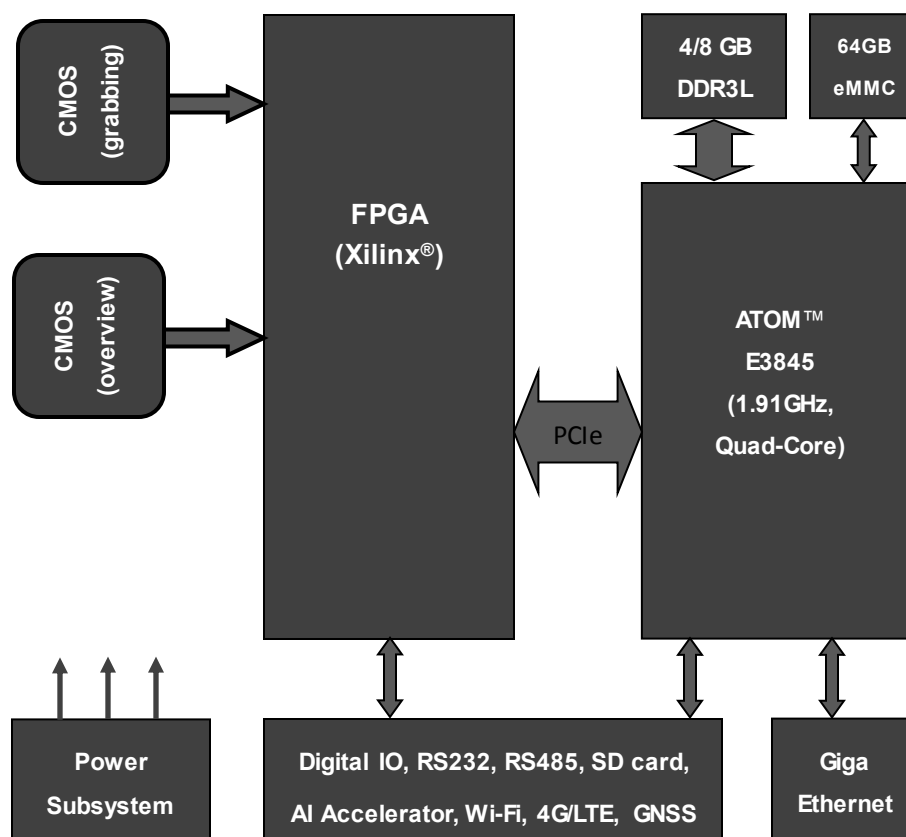


Figure 1-4 System Block Diagram

Available Accessories

Table 1-3 Available Accessories

P/N	Description	Note
RSAN090N	A ready 25m cable with an aviation connector	Weight 2.2kg. Refer to Figure 1-5
RSAN100N	A large omni-directional bracket	Weight 0.7kg. Refer to Figure 1-6



Figure 1-5 the Ready Cable (P/N: RSAN090N)



Figure 1-6 the Omni-directional Bracket (PN: RSAN100N)

Dimensions

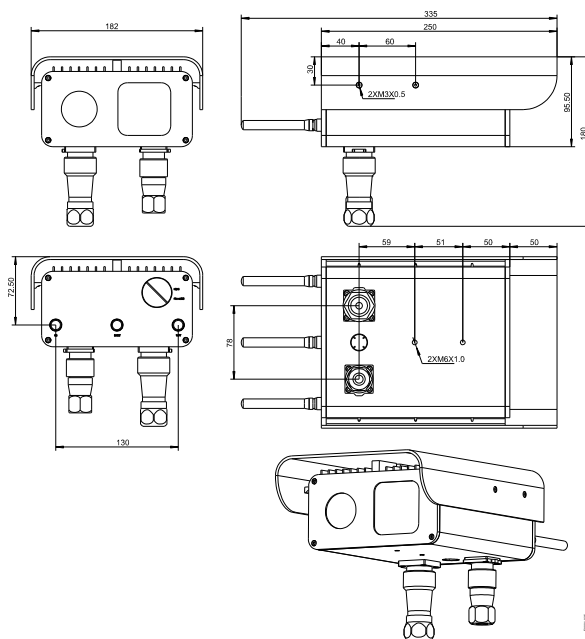


Figure 1-7 Dimensions of Solo-camera with antennas

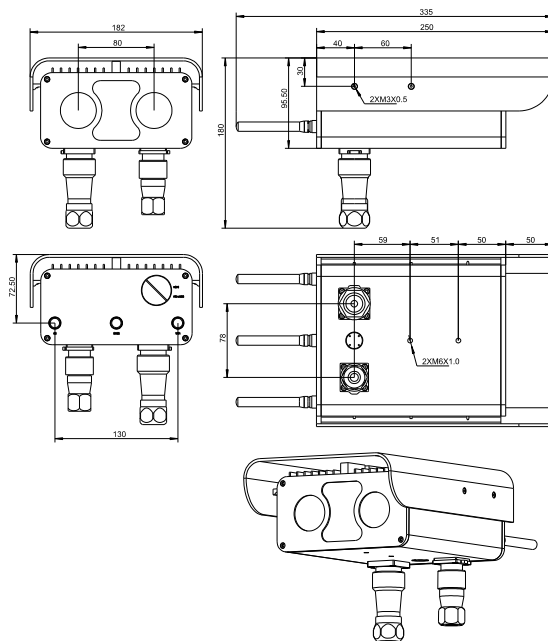


Figure 1-8 Dimensions of Dual-camera with antennas

Note:

- [1] Unit: mm
- [2] Materials: aluminum alloy with anodizing process
- [3] Color: silver