

i2i LICENSE PLATE READER

MORE than an ANPR-Cam

EFKON's i2i LICENSE PLATE READER combines a highly sensitive camera, a strong infrared flash and a processing unit in one compact unit to provide high performance number plate recognition.

The latest technological developments have made it possible to shrink both the units size and its price. With its compact size the i2i LICENSE PLATE READER is easy and quick to install almost anywhere. Requiring only at most 13W the unit is powered over Ethernet which means that a single cable provides both data and power at up to 100m.

The unit can be set to auto trigger whenever a license plate is visible but it can also be triggered from an external source such as a ground loop. It also features an opto-coupled output which can for example be used to open barriers.

Also available is an optional color camera in case a context image is required. This is not a separate camera, it is integrated in the same enclosure.

The i2i LICENSE PLATE READER is the ideal solution for unobtrusive number plate recognition in low to medium speed single lane applications. It is a completely weather proof IP65 compliant in- and outdoor solution that beats the toughest lighting conditions.



Parking garage, from behind barrier, distance 6m
reflective and non-reflective license plate against head lights

Features

- High accuracy number plate recognition
- Most compact integrated system on the market
- Single cable solution using Power-over-Ethernet 802.3af
- Intelligent exposure control for robustness to outdoor light conditions
- Optional color camera
- No blooming, no smearing
- Optional digital zoom for magnified license plate image
- Advanced heat management for use in extreme atmospheric conditions (-20 ~ + 50°C), extended temperature range available upon request



SYMBOLIC PICTURE

Technical Specifications

- **Technology:** Digital image acquisition camera
- **Image resolution:** 752 x 480 pixel (0.36 megapixel)
- **Frame rate:** Max. 15 fps
- **Sensor:** 1/3" CMOS, visible light and near infrared
- **Focal length:** 8mm, 12mm and 16mm
Optional auto zoom to license plate
- **Range:** Up to 15m
- **Vehicle speed:** Up to 70km/h depending on geometry
- **Max off axis deviation:** 20°
- **Input Voltage:** Power over Ethernet 802.3af, 48 V DC
- **Input Power Requirements:** typ. 6W, max. 12.95W
- **Data interface:** Ethernet
- **Temperature Range:** Operating: -20°C ~ +50°C
(extended range upon request)
Storage: -25°C ~ +70° C
- **Housing material:** Aluminum
- **Dimensions (WxDxH):** 115 x 104 x 72 mm
- **Weight:** 1.5 kg
- **EMC, Safety:** CE according to all applicable standards
- **Protection class:** IP65

Scope of Supplies

- Camera body
- Sunshield
- Mounting bracket
- Ethernet cable

Applications

Enforcement and surveillance for:

- Parking
- Access control
- Video tolling (toll plazas)
- Border control



International license plates

Version: 01E07

Additional Information about the i2i LICENSE PLATE READER



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The first impression of the i2i LICENSE PLATE READER is that it is tiny. Being only 115mm wide and 72mm high it fits easily onto a hand and is very lightweight. Yet, it densely packs a lot of power: The i2i LICENSE PLATE READER is a completely integrated unit. It truly realizes the motto "photons in – license plates out". Any new license plate appearing in its field of view is detected, recognized and recorded. It can then search the license plate in its black or white lists, report them to the back office or perform other actions such as setting the trigger output. In addition to this free running mode, the i2i LICENSE PLATE READER also offers a triggered mode. In this mode images are taken only when an external trigger signal is received. This signal may originate from a ground loop or a light barrier.

Components

The basis for high performance license plate recognition are high quality images. EFKON has a long standing tradition of high quality image acquisition and it shows – literally. The i2i LICENSE PLATE READER sports a highly sensitive, high dynamic range (110dB) camera with a resolution of 752 by 480 pixels. Together with its high power flash it beats even the toughest lighting conditions. The images are analyzed by a fast processing unit which runs all of the detection and recognition software.

Installation and configuration

It takes only minutes to get the i2i LICENSE PLATE READER up and running. With the appropriate mounting kit the i2i LICENSE PLATE READER can be mounted just about anywhere. The main requirement is that the license plates are clearly visible. An optimal mounting height is about 2,30m to 2,50m. Lower heights can be realized if the vehicles do not block each other. Using Power-over-Ethernet only a single standard Ethernet cable is required to supply the i2i LICENSE PLATE READER with both data and power.

Power-over-Ethernet uses 48V to power the units. If this voltage is not available, the i2i LICENSE PLATE READER can also be powered via the trigger interface. A wide input range from 9V to 32V can be supplied there.

The unit runs its own web server with a WebGUI. This GUI can be used to configure the i2i LICENSE PLATE READER and even to run it. Any standard web browser can be used to connect to the unit. All necessary configuration can be done via the browser. The web browser can even function as a minimal back office software.

Interfaces and communication

All of the communication is done via Ethernet using standard open protocols. Data are sent in XML format via secure HTTP. Images are sent in either JPEG, PNG or PGM formats. Using only standard formats and protocols and restricting the number of standards to only a few has the advantage that integration is quite straightforward and is supported by any standard programming library. Thus, any programming language such as C/C++, C#, VB with any development environment under any operating system can be used to integrate the unit in your system.

Whenever the i2i LICENSE PLATE READER reads a license plate, it generates an internal traffic event. The event is then stored to its local mass storage device. Up to 2GB are available. A back office software can either ask the unit at regular intervals if new events have been generated (pull) or it can request to immediately receive events when they occur (push). The events are sent in XML format and include the image that led to the detection of the license plate.

The push mechanism is implemented the same way as is done on the Web. The advantage is that as software for testing one may use any standard web browser. One can point the web browser at the i2i LICENSE PLATE READER and each time the i2i LICENSE PLATE READER generates another traffic event, the browser automatically displays it together with all meta information that the i2i LICENSE PLATE READER provides. In fact, a web browser is the minimal back office software.

The i2i LICENSE PLATE READER contains a complete computer and can be connected directly to a UMTS router. This makes it possible to use the i2i LICENSE PLATE READER in remote areas where no network connection is available. If the connection fails, the i2i LICENSE PLATE READER continues to store events in its local mass storage until the connection is restored.