



# TARGA

# 704



**TRIPLE OCR:** performance without compromises.



**FLEXIBILITY:** thanks to its depth of field and adjustable lenses.



**DUAL SENSOR:** OCR for number plate reading and color context sensor.

## DATASHEET

OCR-ANPR camera with high reading accuracy on both number plates and KEMLER-UN tables for road and urban safety.

## CAMERA

**Dual sensor** camera:

- ▶ OCR *number plate reading* sensor CMOS Global Shutter, **2 Megapixels**, frame rate 60 Fps, B/W fitted with a 5-55 mm (10x) varifocal lens with F1.4 aperture and C/CS mount.
- ▶ Optional **5 Megapixels** colour context sensor CMOS Rolling Shutter, fitted with 8 or 12 mm lens and IR filter for *panoramic view*.
- ▶ Optional colour context sensor CMOS Rolling Shutter, for *panoramic view* with **Full HD** resolution (**Night Vision**), fitted with 8 or 12 mm lens and IR filter.

## ANPR-OCR

Triple OCR algorithm embedded directly into the camera that can read both number plates and *dangerous goods* codes (Kemler-UN) automatically (free flow) on single lanes without the need for external synchronisation devices. It should be remembered that unlike other systems, Selea character reading cameras **are not based on** imprecise motion detection systems. Number plates and Kemler codes can also be read even when the vehicle is stationary (0 Km/h = no motion detection).

The OCR recognizes the characters of the Latin alphabet and some of the Arabic alphabet (Iran-Iraq, Morocco, Turkey and others). The camera is able to recognize the *nationality* of the vehicle without having to work with syntax limitations or constraints of syntax libraries of over 28 Member States of the European Community such as: *Austria, Belgium, Bulgaria, Cyprus, Croatia, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, the United Kingdom, the Czech Republic, Romania, Slovakia, Slovenia, Spain, Sweden, Hungary and non-EU countries such as Albania, Azerbaijan, Belarus, Bosnia and Herzegovina, the Vatican City, Florida, Georgia, Iceland, Kazakhstan, Kosovo, Macedonia, Moldova, Monaco, Montenegro, Nigeria, Norway, San Marino, Serbia, Switzerland, Turkey, Ukraine*, as well as character sets from countries such as Canada, Iran, South Africa and others, for a total of **over 50 countries**. The camera can work both with and without syntax and *without losing accuracy* when switching from one mode to another. In syntax-free mode, the camera offers the advantage of having no nationality limits, apart from constraints imposed by the character sets that the OCR is able to recognise. You can choose between operating modes that use syntax, which is useful where a well-defined syntax exists (such as in Italy) - and that don't use syntax (syntax free) like in most European countries, without the loss of reading accuracy.

The system recognises a wide range of vehicle types from cars to goods vehicles, mopeds and motorcycles, Law Enforcement vehicles, Military vehicles and Ambulances. It can read both front and rear number plates. Reading accuracy of up to 99% in various environmental conditions, even for dirty number plates.

## EMBEDDED ALGORITHMS

In addition to the OCR, other algorithms are installed on the camera, that have been developed to make number plate reading as reliable and as error-free as possible, such as:

- ▶ *Dirt elimination*: to eliminate issues associated with dust, snow, mud and insects on the body of the number plate.
- ▶ *Angle compensation*: to allow readings to be taken even at sharp angles.
- ▶ *Symbol elimination*: such as labels, badges, symbols or advertising.
- ▶ *Predictive character analysis*: probability based, to improve reading accuracy.
- ▶ *Magic spot*: which makes the number plate visible even if the image is dark.

## SECURITY AND PRIVACY

The stored data is encrypted. TARGA-CPS is ISDP 10003:2018-certified to emphasize the importance Selea has placed on data protection and to comply with GDPR regulations. Data and image security are ensured by:

- ▶ HTTPS encryption.
- ▶ FTPS (FTP over TLS/SSL) encryption.
- ▶ Micro SD memory encryption.
- ▶ Automatic deletion of data and images after specified period of time (privacy management).

### ■ STANDARD BUILT-IN FUNCTIONS

The camera, with embedded Linux OS, has the following built-in functions:

- Double FTP server and double IP notification server.
- Dynamic FTP notification forwarding customization.
- IP notification customization.
- Multiple user management using HTTPS protocol protected access credentials for accessing the camera.
- List management (white/black, no list) with independent actions for each list.
- Synchronized recording of metadata and captured code/number plate image.
- Integration and saving of context camera images.
- Privacy management with automatic deletion of image data after a specified period of time.
- Integration with third party VMS video surveillance software solutions.
- Save data on a local server or remote NAS.
- HTTPS security management.
- FTPS (FTP over TLS/SSL) security management.
- E-mail forwarding security using TLS/SSL protocol.
- Multiple action alarm management.
- Live and check control function for checking the operation of the entire system.
- Possibility of updating firmware from a web page.

### ■ ACCURACY

Unlike other systems, the SELEA cameras character reading **does not depend** on the activation of the motion detection system. So the camera can read even when a vehicle is stationary. The camera is also able to read number plates at speeds higher than 200 km/h, bearing in mind that the higher the speed the more the accuracy will depend on the actual environmental conditions and the condition of the number plate (dirty, non-reflective etc.).

**On roads** Selea guarantees an accuracy of:

- up to 99% of plate reading transits, in all conditions, for speeds from 0 km/h (vehicle stationary) to 140 km/h for the standard system: PAN  $\leq 30^\circ$ ; TILT  $\leq 25^\circ$ ; H  $\leq 4$  m.
- up to 96% of oncoming ADR plate (Kemler-UN) reading transits, in all conditions, for speeds from 0 km/h (vehicle stationary) to 130 km/h for the standard system: PAN  $\leq 30^\circ$ ; TILT  $\leq 25^\circ$ ; H  $\leq 4$  m.
- 100% accuracy according to UNI 10772:2016 class A parameters for rear, two-line, motorcycle and moped number plates.

### ■ INSTALLATION

Number plate and ADR table reading on a single lane: The system will work best when the camera is installed to read:

- rear number plates; the recommended reading distance is 27 m; Mounting height = 4 m; Lane width = 4 m; TILT = 7.1°.
- front ADR tables (Kemler-UN); the recommended reading distance is 27 m; Mounting height = 4 m; Lane width = 4 m; TILT = 7.1°.

### ■ INTEGRATION

The camera is compatible with the most widely used plate reading and video surveillance software platforms on the market and with CPS, a software developed in-house by Selea, which being an open platform, is able to integrate standard third party ANPR-OCR cameras.

### ■ INTERNAL MEMORY

The camera is fitted with an internal 16 GB (expandable on request up to 256 GB of MLC type) *High Endurance* (-40°C ~ +85°C) industrial microSD SLC memory card as standard, which is used for entering number plates (white/black list) and for saving the captured images. When the memory is full, the camera will automatically delete the oldest files to free up space for new ones (Fi.Fo method). If the data connection is lost, the camera automatically stores all transits locally. When the connection is restored, the camera automatically updates the operations centre database. The memory can be expanded using the USB interface provided to connect storage disks of the capacity currently available on the market ( $\leq 1$ TB - optional).

### ■ VIDEO OUTPUT

The camera:

- can transfer captured number plate images in JPEG format with a resolution of 2.2 megapixels for OCR and 5 megapixels for context.
- can video stream data read by the number plate reading sensor and the panoramic context sensor in HD, RTP/RTSP, Mpeg4 and H264 video formats.

### ■ IR ILLUMINATOR

The camera is fitted with an IR illuminator consisting of 12 high power 820 nm/47° (940 nm on request) IR LEDs that are compliant with the EN62471: 2008 standard on photobiological safety. The multiple exposure pulsed lamp is able to regulate the output power according to the lighting in the environment and the reflectance of the number plate. This avoids underexposed or overexposed images, which improves number plate reading and recognition accuracy. The recommended lighting distance for maximum reading accuracy for dirty or non-reflective number plates is between 15 and 30 metres.

### ■ DATA INTERFACE

The camera is a web-server device, i.e. a device that allows the images to be viewed, the memory to be accessed and the parameters to be configured via a browser. It is fitted with a 10/100 Mbps standard 802.3 Ethernet/IEEE port and uses well known standard communication protocols such as TCP/IP, UDP, HTTP, HTTPS, FTP, FTPS, RTP/RTSP and DHCP. In addition to the LAN interface, the camera also has serial interfaces such as RS232, RS485 half duplex. An optional Wiegand and OSDP interface is also available.

### ■ DATA COMMUNICATIONS

- Save data directly to local server or remote NAS.
- Integration with third party VMS software solutions.
- Synchronized recording of metadata, number plate/Kemler table and context image.
- Context images synchronised with number plate/Kemler table.
- Dynamic creation and updating of multiple lists (black/white).
- Integration and HTTP storage of JPEG snapshot images of external TCP/IP context cameras of any make or model.
- Multiple action alarm management.
- Alarm-triggered transmission of the image associated with the captured number plate to remote devices (such as MOTOROLA and HYTERA mobile radio communication equipment, PC, Tablet etc.) with *vocal reception* of the number plate.
- Double (triple on request) FTP and/or TCP/IP server.

### ■ I/O, INPUTS-OUTPUTS

The camera is fitted with 10A - 250 Vac, 30 Vdc volt-free contact relays for opening the barrier/gate automatically. It also has 2 digital inputs for synchronization devices, if required.

### ■ INBUILT PROTECTION

The camera is protected against:

- reverse polarity.
- voltage fluctuations greater than 30 Vdc.
- overloads with thermal protection.
- overvoltages (TVS) on USB and Ethernet ports.

### ■ POWER SUPPLY

The camera is fitted with a 230 Vac, and on request a 24 Vdc and PoE+ ("T" option) power supply including high power injector. Absorbed power max. 15 W.

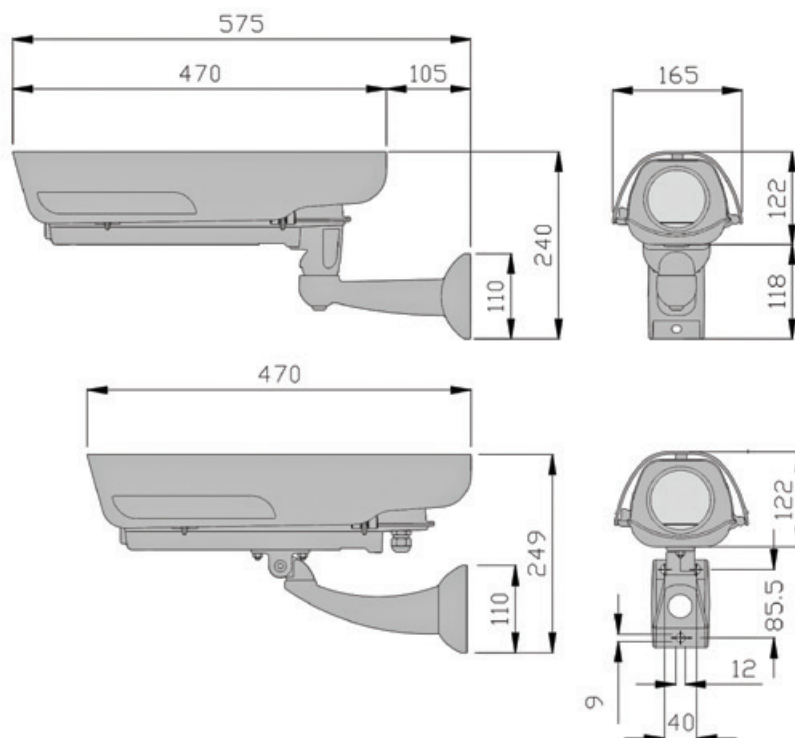
### ■ GENERAL

The camera is made of powder coated die-cast aluminium with an ABS weather-shield. It can operate in temperatures from -40°C to +65°C without the need for fans or heaters. Protection rating IP66. IP67 and IK10 on request. Its dimensions are: L=165 H=122 D=470 mm - Weight: 3 kg.

## ACCESSORIES

The camera can be equipped with the following accessories:

- D8** Colour sensor CMOS Rolling Shutter, 5 Megapixels resolution, fitted with a 8 or 12 mm fixed focus lens with an M12 mount. We recommend using the sensor only in daylight or with street lighting.
- D12** Colour sensor CMOS Rolling Shutter, 5 Megapixels resolution, fitted with a 8 or 12 mm fixed focus lens with an M12 mount. We recommend using the sensor only in daylight or with street lighting.
- N8** Colour sensor CMOS Rolling Shutter, Night Vision with high sensitivity and Full HD resolution, fitted with an 8 or 12 mm fixed focus lens with an M12 mount. We recommend using the sensor even in poor public lighting conditions.
- N12** Colour sensor CMOS Rolling Shutter, Night Vision with high sensitivity and Full HD resolution, fitted with an 8 or 12 mm fixed focus lens with an M12 mount. We recommend using the sensor even in poor public lighting conditions.
- S** Industrial Ethernet Switch10/100 developed by Selea to be installed inside the camera, with 3 LAN ports, one of which with P.O.E. 802.3at to power any type of external IP camera or any type of Wireless, Wi-Fi or GPRS/UMTS device with a single network cable.
- W** Wiegand serial interface for the integration with many access control systems.
- I** Illuminator invisible to the human eye, consisting of 940 nm IR LEDs instead of standard 820nm LEDs. The invisible illuminator is suitable for all applications where discretion and confidentiality are required.
- B** Power supply from 10 to 32 Vdc.
- T** PoE+ (Power Over Ethernet Plus) power supply including high power injector.
- Z** Natural white light, replacing the standard IR illuminator, for reading car plates with red characters.





**COMPARISON TABLE** showing the main differences

<p>● = included (built-in) ○ = optional (on request)</p>	TARGA <b>205</b>	TARGA <b>704</b>	TARGA <b>805</b>	TARGA <b>750</b>	TARGA <b>850</b>
Lanes	1	1	1	2	2
Built-in OCR sensor	2 Mpx	2 Mpx	5 Mpx	3,2 Mpx	5 Mpx
5 MPX colour panoramic sensor	●	○	●	○	●
Dangerous goods tables reading (Kemler)		●	●	●	●
Nationality recognition	●	●	●	●	●
Speed detection			○		●
Vehicle Type recognition			○		●
Colour recognition			○		●
Make & Model recognition (on board)			○		○
Memory expansion ports		●	●	●	●
Expansion ports of deep learning (AI) - future modules			○		○
White/Black list storage and backup		●	●	●	●
PoE+ power supply with power injector	○	○	○	○	○

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## WHERE TO BUY

Selea has a network of authorised Distributors throughout the country with whom it establishes design and market protection policies.

## SUPPORT

We provide both a pre-sales and after-sales technical support service to customers.

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## About us

SELEA is specialized in the manufacture of number plate reading solutions, both for vehicle access control and for territorial security and traffic control. All of our products are developed and manufactured entirely in Italy. This means that our customers benefit from continuous and comprehensive technical support.

The experience accumulated in over 10 years of collaboration with various law enforcement agencies on video surveillance and license plate reading systems, give us today the opportunity to offer solutions capable of guaranteeing excellent results, and advanced tools for the **repression and prevention of crimes** (search for accomplices, stolen vehicles, vehicles without insurance/roadworthiness certificate, traffic analysis, and much more). These products can be part of an integrated urban security system, allowing the sharing of information between law enforcement and smart cities.

- **HARDWARE MANUFACTURING**
- **SOFTWARE DEVELOPMENT**
- **IN-HOUSE RESEARCH & DEVELOPMENT**
- **100% MADE in ITALY by SELEA**

