

ADVANCED IMAGE PROCESSING PRODUCTS

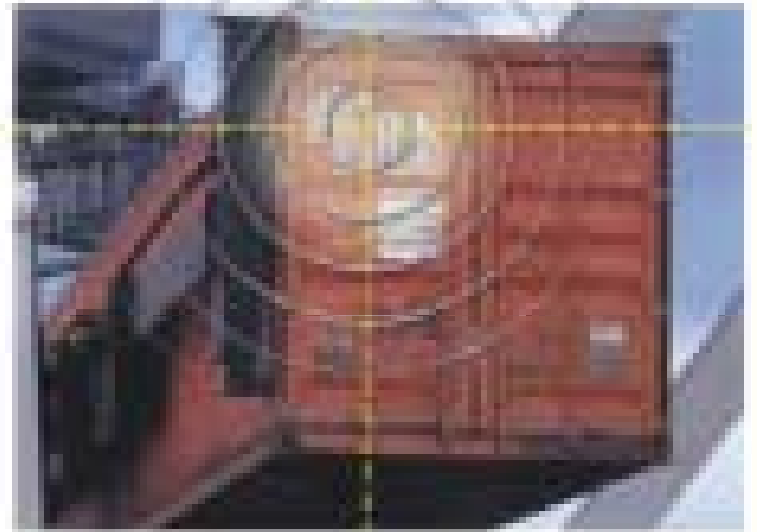


## Hi-Tech Solutions State-of-the-Art OCR Systems

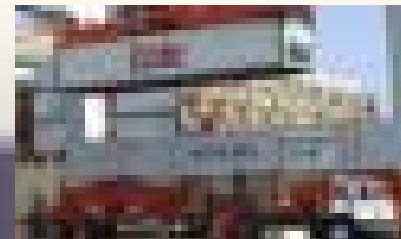
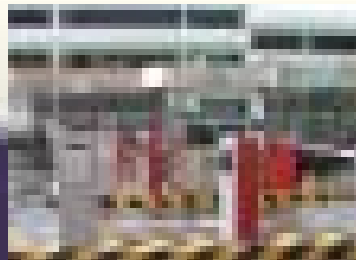
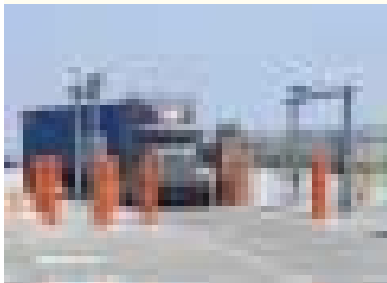
Extending Your Vision™



## Container Code Recognition



**World Leader in OCR Systems  
For Transportation, Security and Intermodal Applications**



# Why Image Analysis?

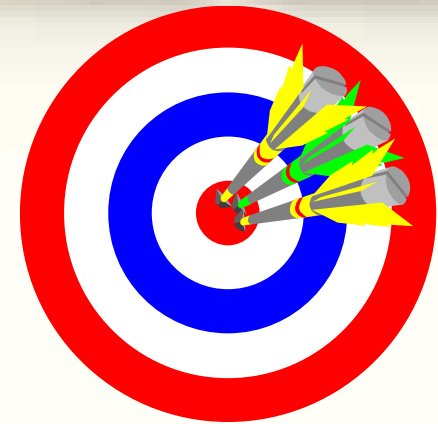
A visual record of all trucks linked to invoices

Improved Precision

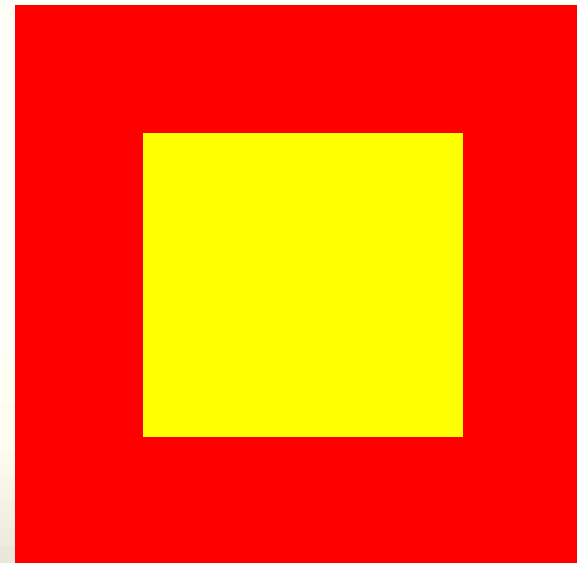
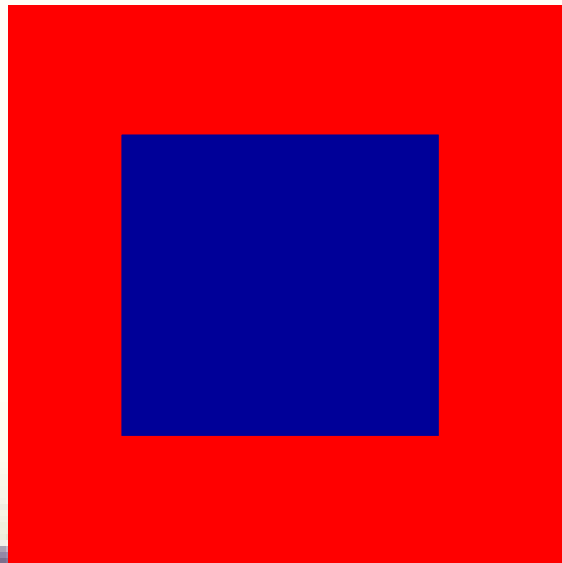
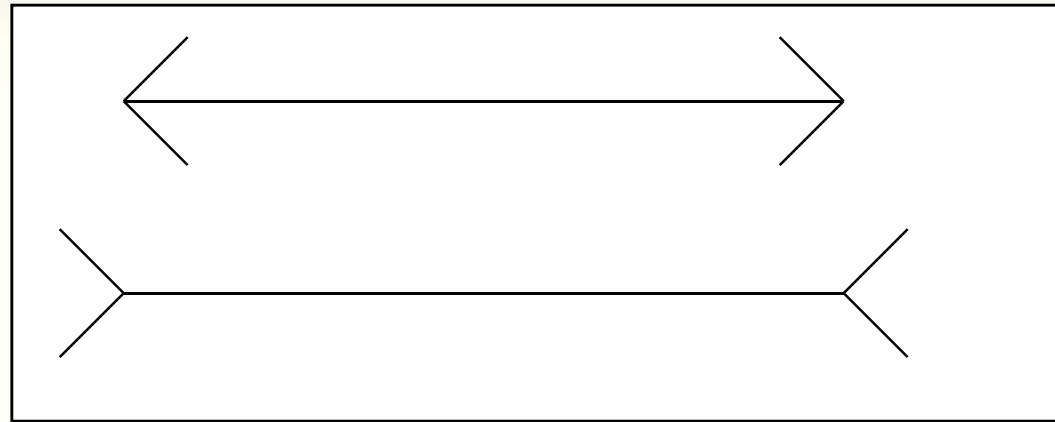
Accuracy in recording

Reproducibility of Results

Higher Throughput than Manual Methods  
(up to 1 vehicle a min / PC)



# SAME SIZE???



## Why do Image Analysis?

- ! Improved Precision /Accuracy in Measurements
- ! Reproducibility of Results
- ! Higher Throughput than Manual Methods
- ! Better Definition of Contrasting Areas
- ! More Measurements / Faster
- ! Real Time Link to Databases

### VEHICLE:

- Size
- Colour
- Shape
- Texture

# Over 1,000 Systems in 30 Countries



## Recent Major OCR Orders



**Securing the Athens 2004 Olympic Games**  
(Access Control of 9 Ports in Greece)



**High-Risk Cargo Container Tracking System**  
(Alameda Corridor Authority- 3 Parallel Rail Tracks)



**ETC Highway - Southern California (CS)**  
(65 Monitoring LPR Systems on High-Speed Hwy)

# Reference List

*P400 Maersk-Sealand terminal, Long Beach*

[SeeGate](#) 56 portal lanes

*WBCT Terminal San-Pedro*

[SeeTrain](#) 2 double-stacked portal systems

*TTI Han-Jin terminal, Long Beach*

[SeeGate](#) (5 portal lanes, 71 pedestal lanes)

*STS Evergreen terminal, Tacoma*

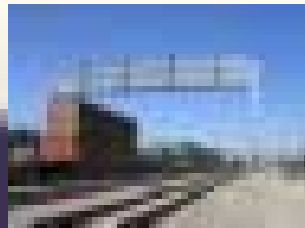
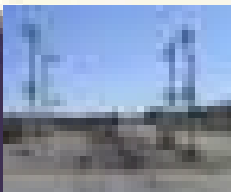
[SeeTrain](#) 2 double-stacked portal systems

*Antwerp, Belgium*

[SeeGate2](#) implementation (single lane)

*ECT, Rotterdam*

[SeeGate2](#) new systems (6 portals)



*Trapac Terminal, San Pedro*

[SeeGate](#) systems (13 portals, 16 pedestals)

*ACTA Site, Los Angeles*

[SeeRail](#) 3 tracks, double-stacked intermodal systems

*TTI terminal, Seattle*

[SeeGate](#) (5 portal lanes, 25 pedestal lanes)

*STS Evergreen terminal, Tacoma*

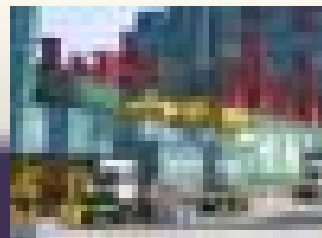
[SeeCrane](#) 5 systems

*Uniport, Rotterdam*

[SeeGate2](#) systems (2 portals)

*U.S. Customs, Port of Algeciras, Spain*

[SeeGate2](#) (2 portals)

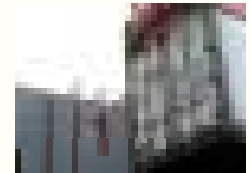


*Trapac Terminal, San Pedro*

[SeeCrane](#) 11 systems

*B100 Terminal, San Pedro*

[SeeCrane](#) 4 ZPMC systems



*STS Evergreen terminal, Tacoma*

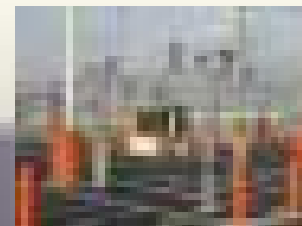
[SeeGate](#) (5 portal lanes, 20 pedestal lanes)

*Kramer, Rotterdam*

[SeeGate2](#) systems (5+8 portals)

*Port of Southampton, UK*

[SeeGate2](#) (3 portals),  
[SeeTruck](#) (2 lanes)



# U.S. West Coast Implementations

Gate Systems: 92

Crane Systems: 57

Rail Systems: 9



## SEEGATE

**SeeGate is a full turn-key system that recognizes the Containers, truck and wagon/chassis numbers, and transmits the recognized IDs to the port or gate computer. The system scans the ID numbers while the truck is in motion, based on a set of sensors. It automatically operates the illumination, takes pictures from a number of cameras, extracts the ID numbers, classifies the type of containers, verifies the results, then displays and outputs the results.**

## **Benefits: Major features & advantages**

**Handles container/truck/chassis identification simultaneously on a single computer**

- **Covers all types of containers (20,40, 45, 20/20feet and combinations)**
- **Easily integrated to other Windows applications, to network or to port logistics database**
- **Has a high recognition rate, and has multiple redundancy levels**
- **Low energy and maintenance bills (solid-state illumination operates in pulses during truck motion only)**
- **Powerful operational, maintenance and networking utilities**

# OCR: RELIABLE, ACCURATE & SECURE SOURCE OF TERMINAL OPERATIONS DATA

## APPLICATIONS OF OCR IN TERMINAL OPERATIONS

### OCR IS USED TO ID:

- CONTAINERS VIA UNIVERSAL ISO CODES (EVERY CONTAINER HAS A UNIQUE CODE).
- CHASSIS VIA ID NUMBERS ON CHASSIS.
- TRUCKS VIA (FRONT) LICENSE PLATES.

### AT TERMINAL (OR PORT) ENTRIES AND EXITS

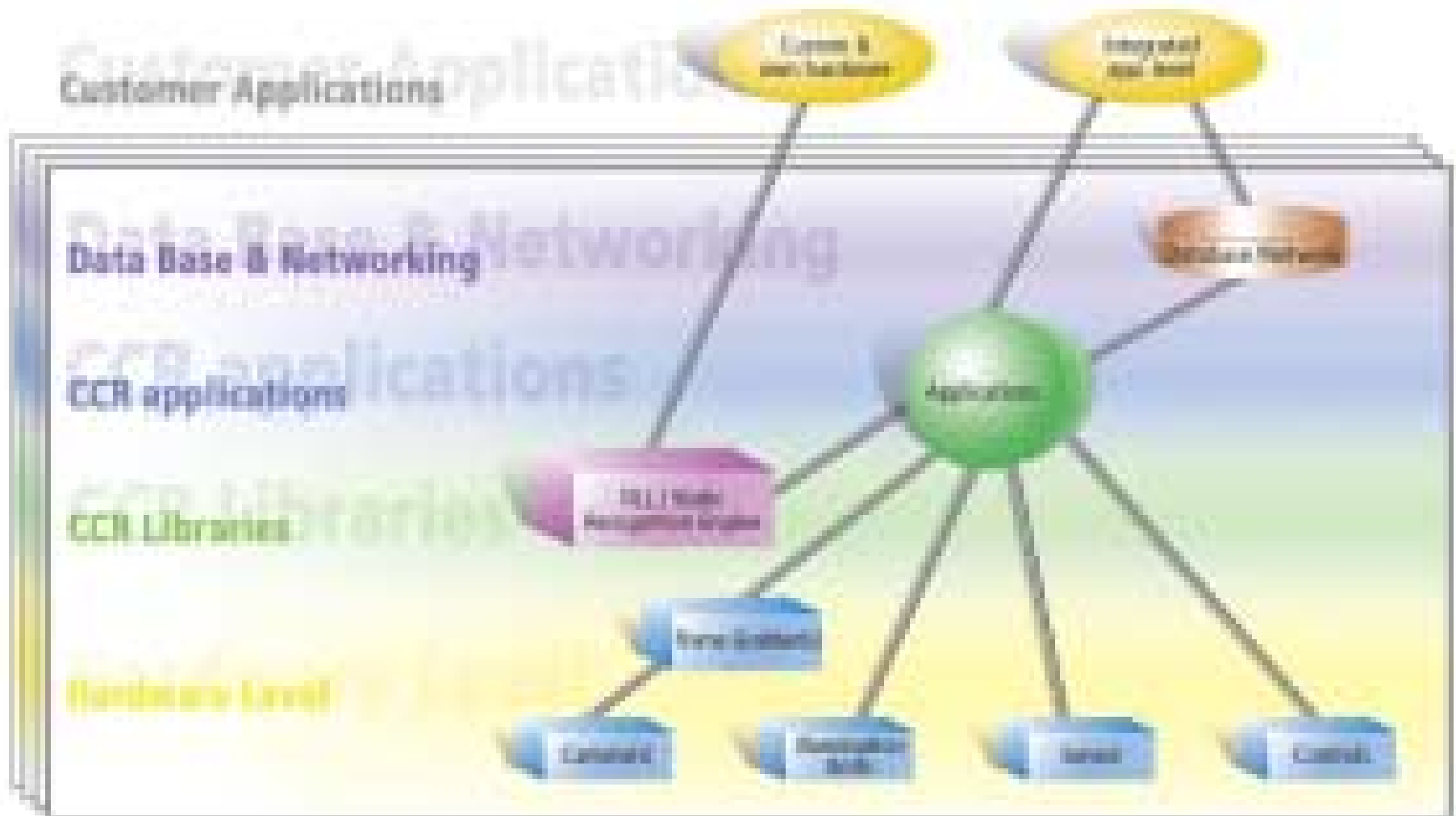
## BENEFITS OF OCR AND VIDEO IMAGING

- DIRECT ID OF CONTAINERS, CHASSIS AND TRUCKS
- ELIMINATES MANIPULATION MEANS OF ID
- AUTOMATES TERMINAL OPERATIONS
- PREVENTS CONTAINERS BYPASSING CHECK POINTS
- PROVIDES FOR SECURITY VERIFICATION VIA ARCHIVING OF IMAGES
- PROVIDES REAL-TIME ACCOUNTING OF INCOMING, OUTGOING AND STORED CONTAINERS



ISO NO. TTNU413542 ON A  
40FT. CONTAINER

## See Container Integration



# SeeCrane System



## Crane-Mounted OCR System

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- Automates tracking on Quay Cranes
- Cameras mounted on sill beams, integrated with PLC

***57 Crane Systems Supplied in U.S. Ports***



# SeeCrane Viewer

The screenshot displays the 'Crane Viewer v1.5.10' application window. It is divided into several sections:

- OCR Results:** A list of timestamped entries with alphanumeric codes. The entry '01:12:57 TRLU3376703' is highlighted in blue.
- Crane View:** A schematic diagram of a crane with a green box containing the number '1' in the top left corner.
- Current | Min/Max:** A control panel on the right with the following settings:
  - Spreader: 40
  - Parked: Parked
  - Twist Locks: Open
  - Trolley: -2301
  - Hoist: 1901
  - Hoist Change: 0
- Image Processing:** Two side-by-side image windows showing the OCR results overlaid on a photograph of a crane component. The text 'TRLU 3376703' and '22C1' is clearly visible on the component. A vertical scale on the right of the images is labeled 'T R L U 3 3 7 6 7 0 3'.

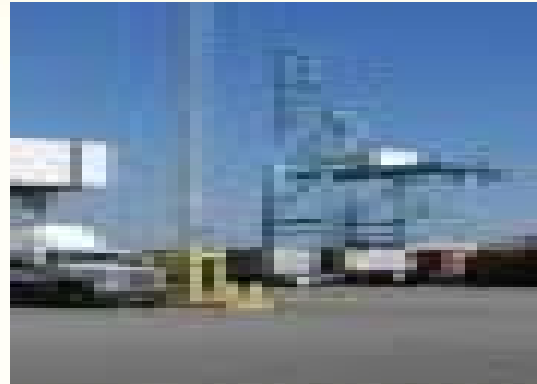


# CRANE OCR

OCR CAMERAS ARE MOUNTED ON THE CRANES TO CAPTURE & READ CONTAINER NUMBERS AS CONTAINER MOVES PAST CAMERAS.

- QUAY CRANES
- GANTRY CRANES
- STRADDLE CARRIERS
- LIFTERS

QUAY CRANES PARTICULARLY IMPORTANT SINCE THEY LOAD AND UNLOAD SHIPS (A CONTAINER POINT OF ENTRY/EXIT)



A QUAY CRANE



QUAY CRANE CLOSE-UP



CAMERAS IN PROTECTIVE HOUSINGS



INITIAL CAMERA INSTALLATION

# SeeTrain System



## Fully-Integrated Rail OCR System

- 
- Container ID, Rail Car
  - Double Stacked
  - Multiple Tracks

***9 Rail Systems Supplied in U.S.***



# Alameda Corridor Rail Security Project

Project Awarded to HTS by Department of Homeland Security



Transportation  
Security  
Administration



# SeeGate System



## Fully-Integrated Gate OCR System

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- Container ID, Chassis & Truck Plate
- IMO Labels
- Damage Images

***92 Gates Supplied in U.S. Ports***

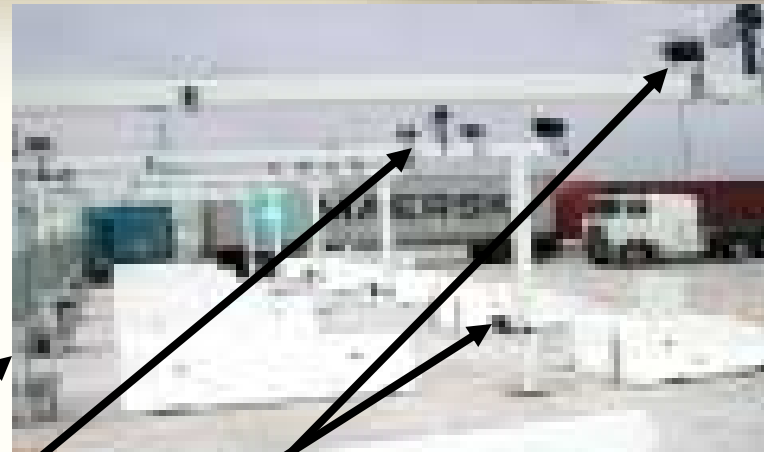


# GATE OCR

WE INSTALLED THE WORLD'S LARGEST TERMINAL OCR SYSTEM AT L.A. PIER 400 (APM TERMINALS) IN MID 2002 + GATE, PORTAL, AND CRANE SYSTEMS AT TRAPAC L.A. TERMINAL.

TOTAL: 68 ( 56 APM, 12 TRAPAC ) :

- ALL READ CONTAINER & CHASSIS
- 21 ALSO READ LICENSE PLATES
- PORTAL & PEDESTAL GATES



APM Terminal Long Beach North In Plaza 24 Lanes



License Plate Camera System

Chassis  
Cameras



APM Terminal Long Beach Out Plaza 20 Lanes

Cameras capture container numbers from sides and

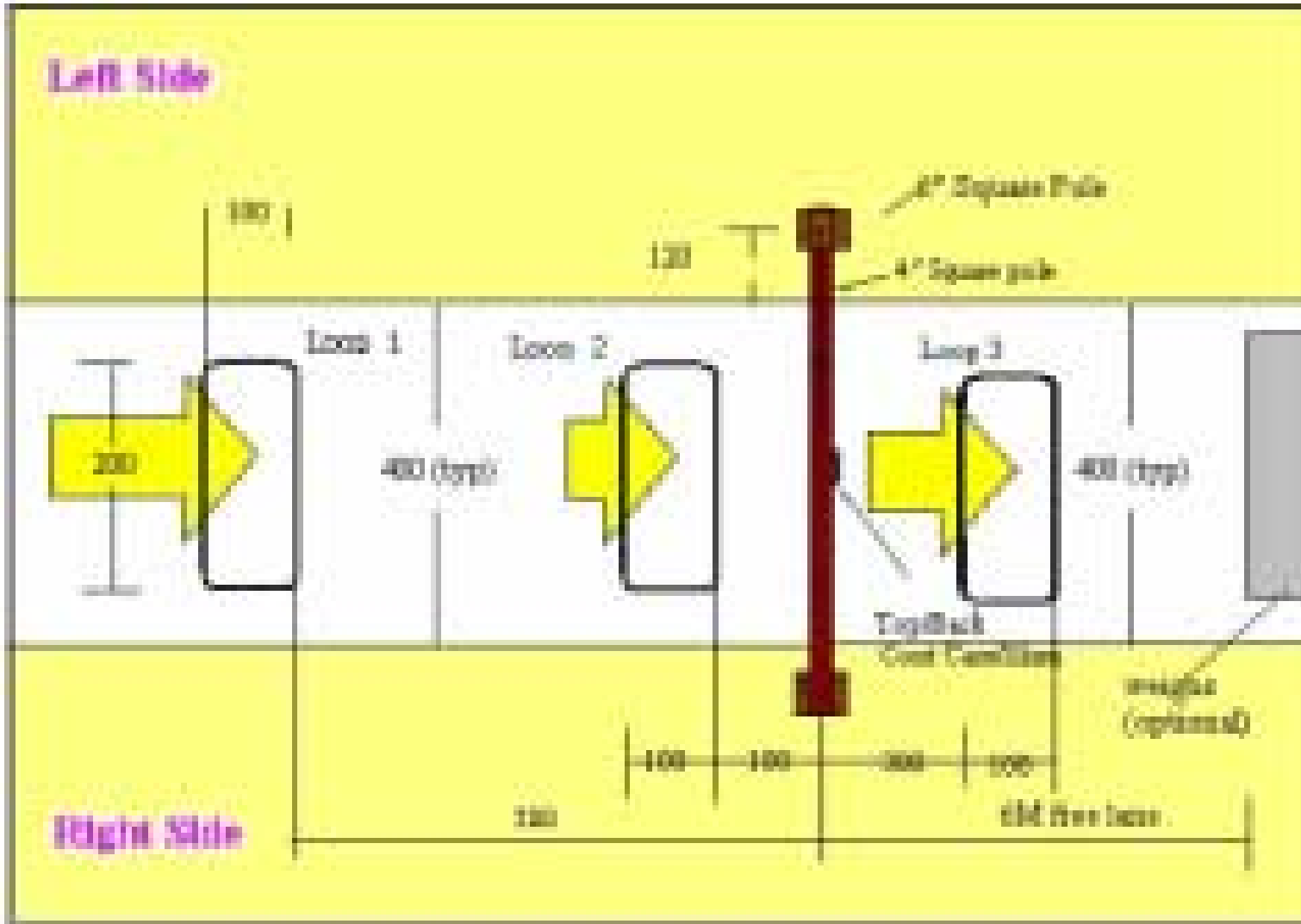
[Back](#)



# SeeGate2



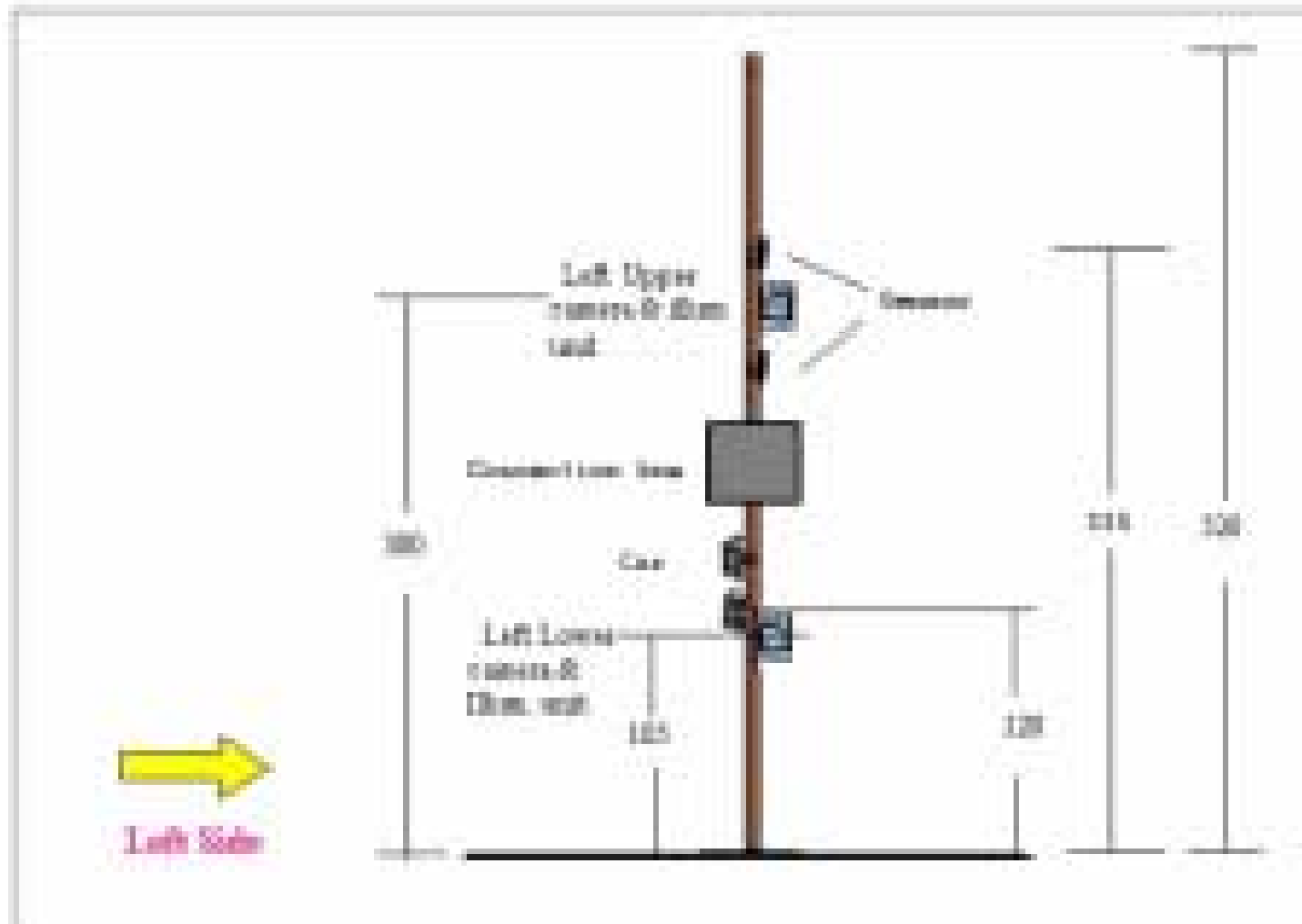
# SeeGate Top View



## SeeGate Rear Container Code Camera



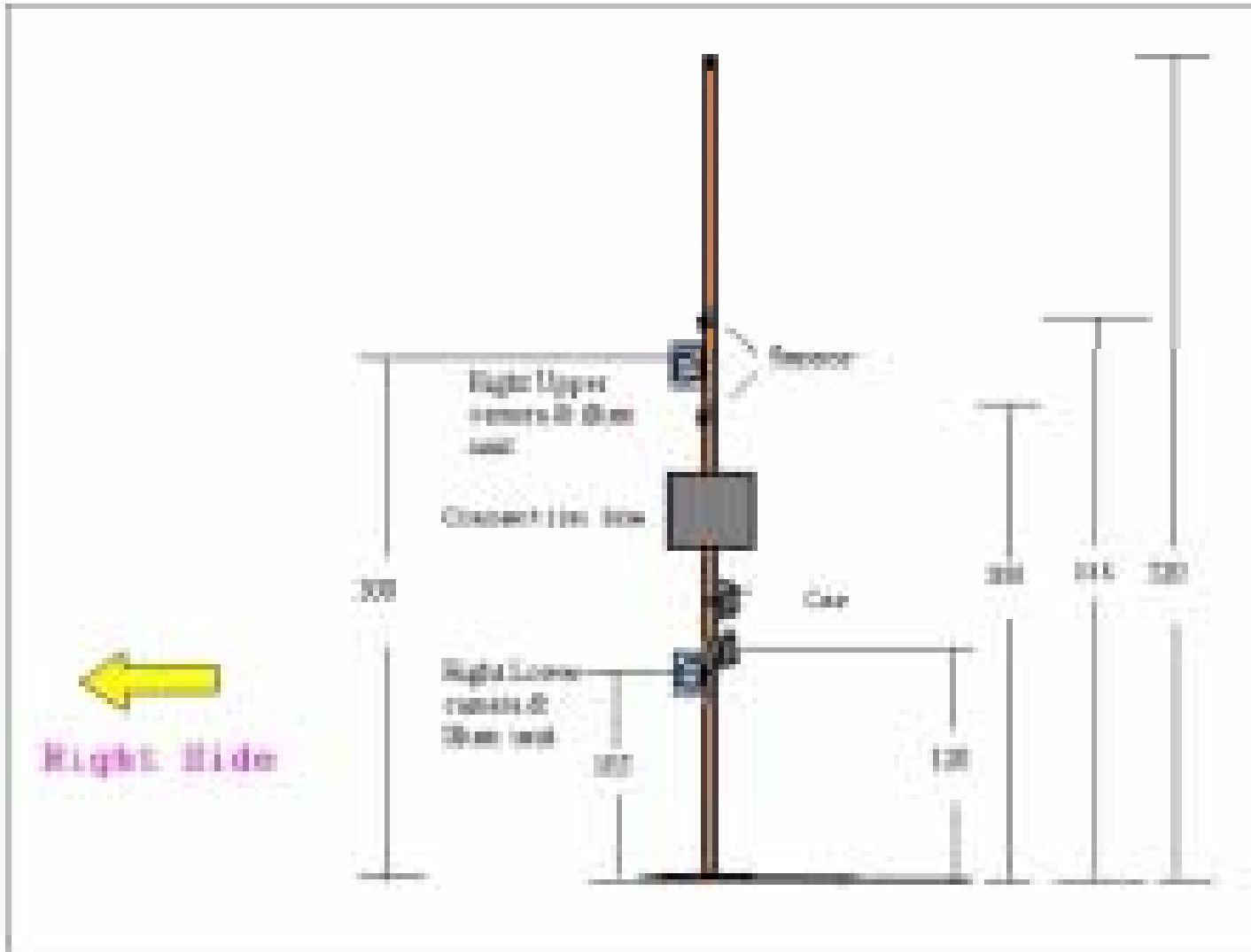
# SeeGate Left View



## SeeGate Container Code Side Recognition View



# SeeGate Right View



## SeeGate LPR View



## SeeGate LPR View (2 lanes)



# SeeCarHead - Camera/Illumination unit

**Camera/Illumination unit for access-control applications**



B&W camera with mounted lens

Pulsed LED array (Near Infra-Red or Red spectrums)

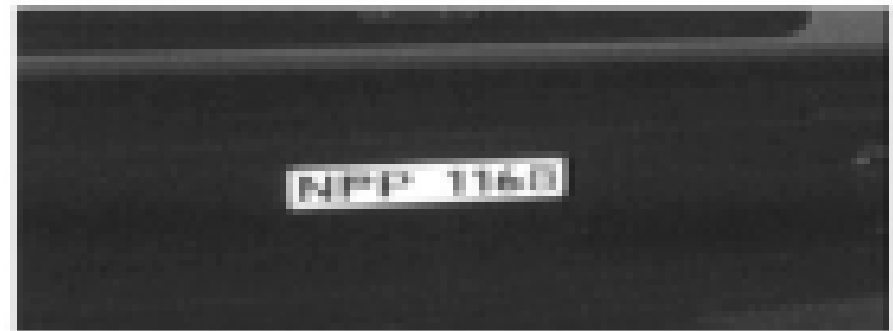
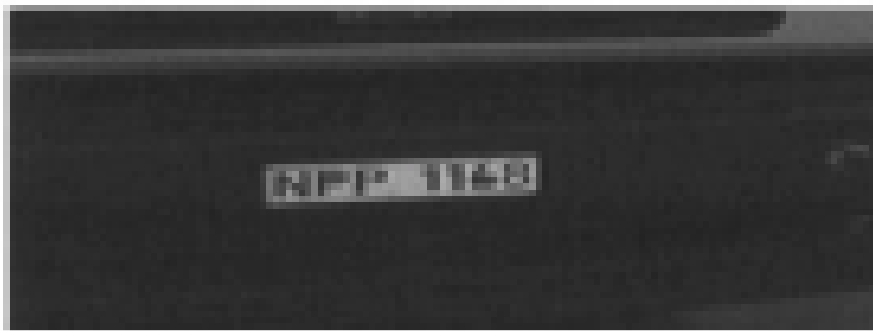
Weatherproof Case: IP 65 , Enforced Poly-Carbonate, UV protected

Control circuit (sync and pulse control, 4-levels illumination control)

2-Degrees freedom Mechanical interface

Low energy consumption (15VDC 3A)

# Pulsed Illumination for 24 HR operation





## SeeGate Rear Camera View



# SeeGate Application for Real-time Viewing

The screenshot displays the SeeGate application interface. At the top, there is a menu bar with 'File', 'Edit', 'View', and 'Help'. Below the menu is a toolbar with various icons. The main area is divided into several sections:

- Vehicle Identification:** Four icons representing different vehicle types (a truck, a trailer, another trailer, and a truck) with their respective identification numbers: 1272457, HJCU8909246, TPHU8046981, and 1860300.
- Camera Feeds:** Four small video windows, each showing a close-up of a vehicle's license plate or identification tag, corresponding to the numbers above. Each window has 'Prev' and 'Next' navigation buttons.
- Data Table:** A table listing vehicle and trailer information.
- System Status:** A section with a traffic light icon and a checkmark, indicating 'System ready' and 'System is working ok'.
- Footer:** Shows 'Ready' on the left and 'Uptime: 04:24 (hh:mm)' on the right.

Id	Vehicle Code	Trailer Code	Front Container	Rear Container
101	3846100	3846100	CAXU2585222	
102	2967800	2967800	SPLU0215866	TPXU7074984
103	2420554	2420554	SPLU0215866	
104	7220200	9531000	YMLU4251498	TPHU2519789
105	1272457	1860300	HJCU8909246	TPHU8046981

## *Options: System Description*

Basic SeeGate2 System SGB Container Code Recognition (CCR) Basic System with three (Right, Left and Top/Rear-View) Color Cameras

SeeGate2 with Truck License Plate Recognition (LPR)

Basic SeeGate2 System Integrated with additional two Front Truck License Plate Camera System (2 SeeCarHeads)

SeeGate2 with Chassis Recognition

Basic SeeGate2 System Integrated with additional two Side Chassis Number Camera System (2 SeeChassisHeads)

SeeGate2 with LPR and Chassis Recognition

Fully integrated CCR, Truck LPR and Chassis Number System with 3 CCR, 2 Truck LPR and 2 Chassis Cameras

# SeeGate OPTIONS

SeeGate2 Basic with Truck License Plate Recognition (CCR & LPR)

OPTION

Damage Inspection (4 Container Side) Archiving Option Y/N

OPTION

IMO Label Recognition Option Y/N

OPTION

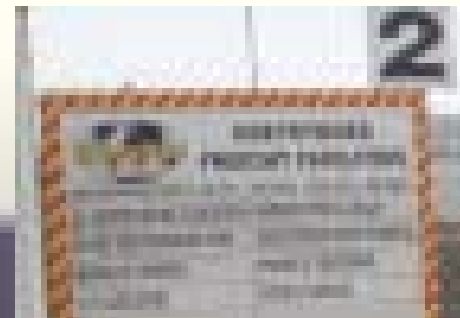
Bi-Directional Traffic Support Option Y/N

HTSOL See Monitor See Service Y/N

## SeeGate Location: Before or / & after Weigh Bridge



SeeGate2: 12M footprint



## SeeGate OPTION: Driver Facial Capture



# PRICING OPTIONS?

Capital amount

Rental option with performance monitoring

Profit share solution

# COMPLETE SOLUTION

Foundations  
Gantry Structures Design  
Structures  
Site Layout Design  
Connection Box  
Cabinet Protection  
Cables (DC Power, Video, Control)  
Bosal for cable protection  
K Rails  
Trenches  
SeeGate2 Basic System – Container Code Recognition (CCR)  
Cameras (SCH2 & Other)  
Illumination Units (HTS)  
Frame Grabbers (Santos)  
I/O Cards & TBL (Advantech 1751)  
User Application  
Software Components & Licenses (SG2)  
Power Supplies  
OR  
SeeGate2 Basic with Truck License Plate Recognition (CCR & LPR)  
OPTION  
Damage Inspection (4 Container Side) Archiving Option  
OPTION  
IMO Label Recognition Option  
OPTION  
Bi-Directional Traffic Support Option

HTSOL See Monitor See Service  
IR Sensors  
IR Reflectors  
Loop Sensors  
Loop (Relay) Detectors  
Surge Protection  
Server & Storage System  
PC Rack  
UPS  
Interface to existing databases / software  
Installations and Configurations  
Tuning Testing & Calibration  
End User Instructions/Training  
Speed Bumps  
Auto Barrier  
Lane Signage  
2Mb ADSL connection  
AC Power 220V  
LAN Connectivity  
PC  
Product Liability Insurance  
Contactor's All Risk Insurance

# PRICING

**(BASED ON 400 CONTAINERS A DAY)**

Cost per container

**R 2.45 OVER 5 YEARS**

Cost per container

**R 3.93 OVER 3 YEARS**

## PRICING

R 27,492.20 RENTAL over 5 years

R 44,021.17 RENTAL over 3 years

Capital Amount if all  
R 1,401,948.00 options are taken

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Internet: [www.I-Cube.co.za](http://www.I-Cube.co.za)





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**I-CUBE**

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