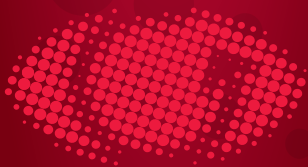


ENHANCING AND STREAMLINING
THE SAFE FLOW OF CARGO



VISY

OCR SYSTEMS FOR THE YARD

Expand | your vision

ENHANCE PRODUCTIVITY AND VISIBILITY IN CONTAINER HANDLING

AI-based OCR solutions for terminal automation

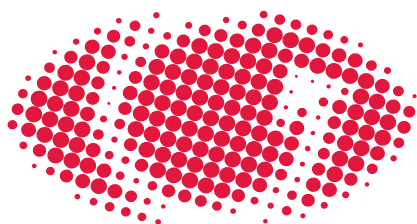
The future-proof partner for all smart gate, access control, and terminal automation needs. With Visy systems, our customers identify and manage all traffic of cargo, vehicles, and people in demanding environments of container terminals all over the world.

We are dedicated to build ever better, more efficient, and easier-to-integrate system solutions with our world-leading AI-based OCR technologies.



**No-nonsense solutions
with long-term commitment
and care for our customers.**

Expand | your
vision



VISY

A red circle with a white border containing the text 'One platform for all terminal automation'.

One platform
for all terminal
automation

CONTENTS

OCR systems for terminal automation

Image-based recognitions

Simple system infrastructure

Different Visy OCR system setups

Standalone and integrated options

Visy TopView - Smart spreader

Visy RTG/ASC OCR

Visy RMG OCR

Professional services

References



This publication is for general informational purposes only. Visy reserves the right, at any time and without notice, to alter or discontinue the products and/or specifications referenced herein. While we strive to ensure the accuracy and timeliness of the information provided, we make no representations or warranties of any kind, express or implied, about the completeness of the information.

The role of OCR systems in terminal automation

Implementing an Optical Character Recognition (OCR) system for yard operations is not just a mere enhancement but a pivotal step towards achieving full transparency of container movements. Integration of OCR technology revolutionizes the operational landscape by significantly reducing manual tasks, streamlining processes, minimizing errors, and ultimately maximizing productivity. The approach sets a new standard for modern operations, ensuring that businesses stay ahead in the dynamic realm of shipping industry.

By seamlessly integrating with existing automation systems, OCR technology enables terminals to achieve unprecedented levels of operational precision and speed. Tasks such as container identification, tracking, and inventory management are no longer dependent on manual processes but rather automated with remarkable accuracy. This not only optimizes resource allocation but also enhances safety protocols within the terminal environment.

Benefits of container OCR system

- ✓ Automatically record every container move
- ✓ Ensure container yard inventory is always up to date and correct
- ✓ Increase operating capacity
- ✓ Reduce operating costs
- ✓ Enhance the transparency of operations
- ✓ Smooth and immediate data exchange with TOS
- ✓ No more lost and ghost containers
- ✓ Improve safety and security



Unlock the value of knowing
exactly what you're moving
at every moment, in all areas.

Expand | your
vision

Image-based recognition

Visy OCR systems rely on sophisticated imaging technology and machine vision algorithms to accomplish the recognition of various attributes. The systems utilize high-resolution cameras to capture high-quality detailed images of containers which are processed using Visy's in-house DNN engine. Through machine learning and feature recognition, the systems can accurately identify and extract the desired characters and objects from containers.

All Visy OCR systems are AI-based, utilizing state-of-the-art deep learning which enables market leading accuracies of 97-99% for all attributes.



Multiple recognition features

- ✓ Container IDs
- ✓ ISO codes
- ✓ ADR/IMO labels
- ✓ Weight / Tare / Payload
- ✓ Bottom twistlocks
- ✓ Door direction
- ✓ Seal presence
- ✓ Door handle

Simple system infrastructure brings reliability

Visy solutions consist of high-quality equipment, recognition software, and user interface applications. The infrastructure ensures that captured data is available in the appropriate system at the necessary moment, and excellent operating performance is maintained 24/7, even in challenging environmental conditions.



Robust high-quality equipment ensures long life-cycle and high recognition accuracy



In-house recognition software carries out various identification tasks



User-friendly applications provide a good customer experience

Visy utilizes different system setups to support all CHE and operation types

Visy OCR camera system for spreaders



Visy TopView cameras are installed on the spreader

Visy OCR system - Fixed cameras



Fixed cameras are used to image short sides of containers

Visy OCR system - PTZ cameras



PTZ cameras are used in cases that require the imaging of long container sides

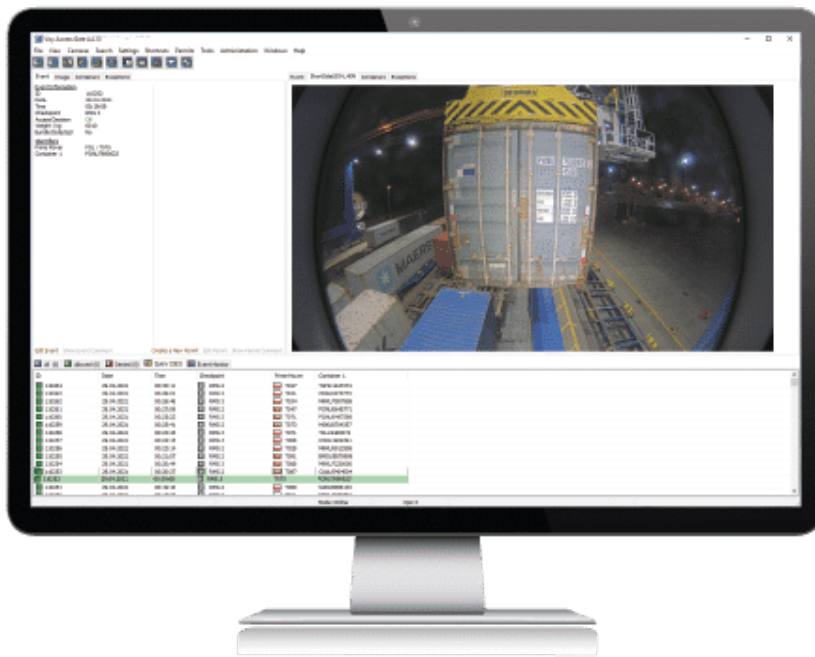
Visy OCR solutions offer standalone and integrated options

The product portfolio is extensive to match the diversity of different container handling equipment and possible operational moves. It covers every part of the terminal in which automatic identification, imaging, and tracking of cargo and vehicles brings new opportunities to streamline operations.

Complete standalone solution

For comprehensive data management and operational oversight, Visy offers solutions that consolidate all OCR data and images from all cranes. These solutions provide comprehensive exception handling capabilities within a robust database environment. All of the above can be accessed through the intuitive Visy Crane Gate user interface.

This centralized platform provides convenient access to a wealth of information, enabling operators to make informed decisions and respond promptly to operational challenges. With Visy's database solutions, operators benefit from the reliability and performance of Oracle databases, which are renowned for their ability to handle large quantities of data while maintaining stringent security measures.



Visy Crane Gate user application for reviewing the events and exception handling

Light option

The Visy Crane OCR system can be implemented as lightweight, flexible solutions per crane, where only the results are seamlessly transmitted to third-party platforms such as Terminal Operating Systems (TOS) or Position Detection Systems (PDS). The lightweight option is a cost-effective solution for existing systems with minimal tailoring work but significant benefits of OCR.

In all cases, the captured data is exchanged through integration with the Terminal Operating System (TOS) and other third-party systems.

**Visy TopView
installed on a
reach stacker**

Expand | your
vision

**Visy TopView transforms any
spreader into a smart device with
OCR technology.**

Expand | your
vision

VISY TOPVIEW – SPREADER OCR

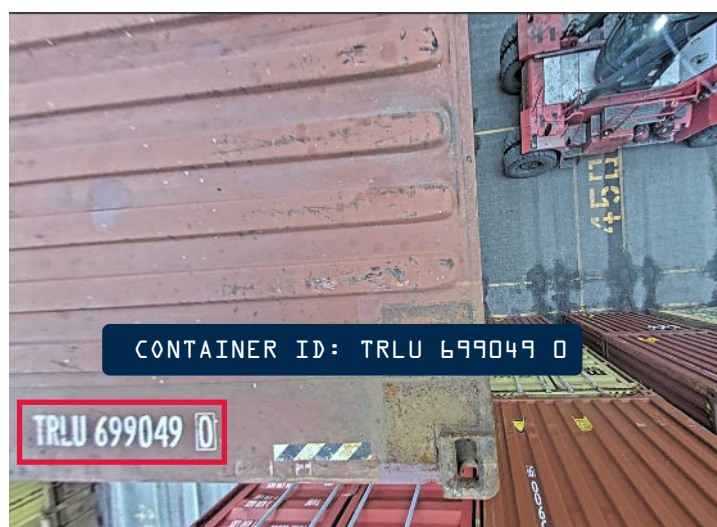
Enhance visibility in container handling

Visy TopView transforms any spreader into a smart device. The compact camera system automatically identifies container IDs from the roofs of containers and is compatible with any CHE type and brand. Equipment is installed on the spreaders, including cameras, illuminators, cabling, and device cabinets. The recognition PC is either inside or outside the cabin.

TopView accelerates container handling processes, records every container move and prevents time-consuming false lifts, which instantly helps to increase any terminal's operating capacity and stack accuracy.

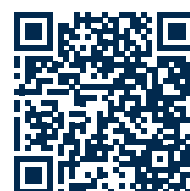
TopView on reach stackers

- ✓ Automatically save and record every container handling event with container ID and images
- ✓ Visy in-house recognition software with high accuracy rate
- ✓ Smooth data exchange to TOS
- ✓ Camera setup includes three cameras – two to capture codes on roof and one for the long side
- ✓ All equipment is directly installed on the spreader and CHE



Learn more about
Visy TopView

With Visy TopView, no containers are stacked or loaded to a wrong location. By confirming each container move with TopView, container handling procedures become more visible and accurate. This brings reliability to box moves if exception handling cases occur.



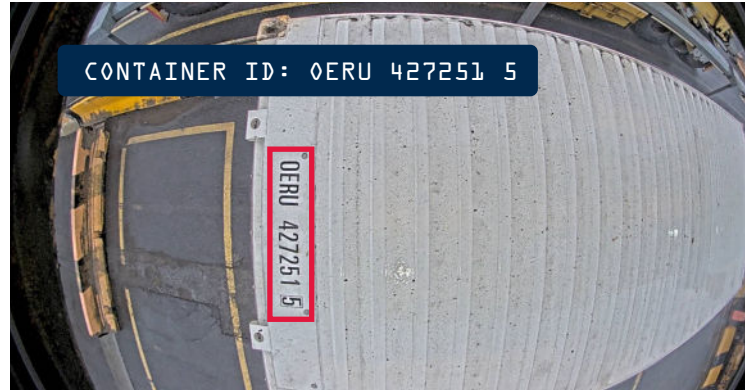
VISY OCR APPLICATIONS FOR RTG/ASC OPERATIONS

Enhance operational efficiency and improve safety

Automating RTG/ASC crane operations with vision technology increases efficiency, safety, and control in container handling. Visy imaging applications automatically recognize container IDs and verify that each move is being recorded and the lift event information is exchanged with TOS.

The system setup is chosen according to the type of equipment, operation type, and environmental conditions. The most convenient way to implement OCR technology on an RTG crane is Visy TopView. However, if the location experiences seasonal weather changes, the system can be equipped with additional PTZ cameras to capture long-side images of containers as well. This ensures that the recognition rate remains high despite changes in the operating environment.

Every Visy OCR solution is built with the customer's needs in mind, using OCR features and a system setup that complement their operations the best.



Learn more about Visy RTG OCR

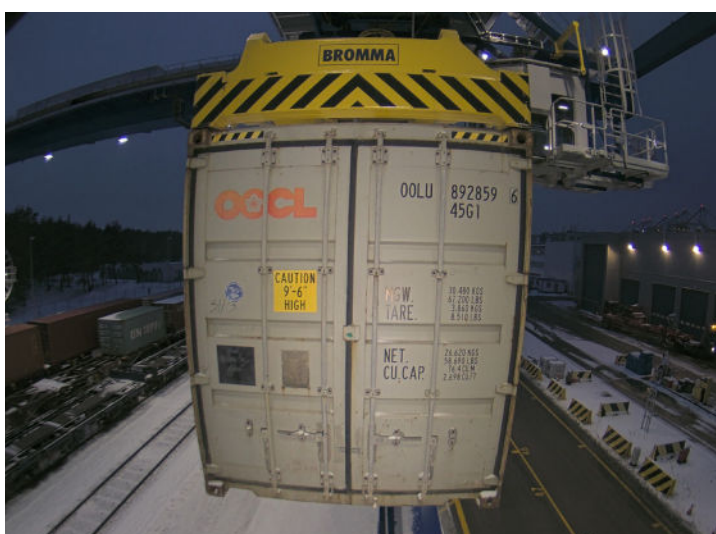


VISY RMG OCR

Automate the management of containers

Visy RMG OCR images and identifies containers while they are being handled by RMG cranes. The system captures images of both short container sides to acquire identification data such as container IDs, ISO codes, and door direction.

The fixed camera system is mounted on the legs of the crane at a favorable height for the spreader's flying paths and is connected with PLC/CCS to trigger imaging events. The camera system captures high-quality images, and the Visy container OCR software recognizes attributes with high recognition rates of 98-99%. The digitized container data and images are exchanged with the TOS in real-time to leverage the advantages of more accurate and efficient operations.



The OCR system and integrations cover and record the entire container handling process, while lifting the box from the stack, train, or terminal tractor.

Multiple recognition features

- ✓ Container IDs
- ✓ ISO codes
- ✓ ADR/IMO labels
- ✓ Door direction
- ✓ Seal presence
- ✓ Door handle
- ✓ Terminal tractors / trucks

Learn more about
Visy RMG OCR





PROFESSIONAL SERVICES

Visy's global high-quality partner network minimizes response times, and our experienced project management team ensures top-class solutions, delivery, and support worldwide.

- ✓ Project management
- ✓ Software customization
- ✓ Simulations
- ✓ Integrations
- ✓ Consulting

Read Visy customer case studies at visy.fi

VISY

OPERATING WITH VISY

Visy's customers are united by their drive toward continuous development of operations and their desire to gain the benefits of advanced pioneering technologies.



Lifting Global Trade..

APM TERMINALS



DP WORLD



SANTOS BRASIL



See more at visy.fi

GLOBALLY LOCAL



Visy Oy
Hatanpään valtatie 34 D, 3rd Floor
33100 Tampere, Finland
Tel. +358 3 211 0403

www.visy.fi
sales@visy.fi





VISY

www.visy.fi
sales@visy.fi