



Member of Sumitomo Drive Technologies

# Crane and Hoist Systems

## Variable Frequency Drives

Applications



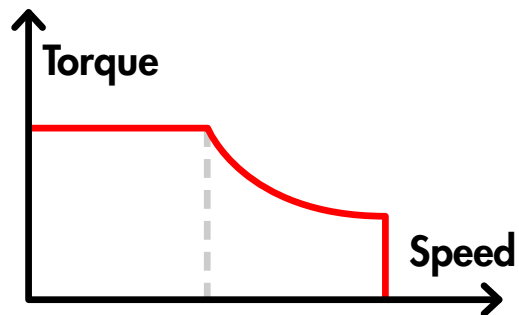
## Cranes and Hoists Control

Accurate and precise motion governing of all motor types with a multitude of techniques.

The **Optidrive P2** features advanced control algorithms that manage the hoist brake sequence securely and reliably, eliminating the need for a costly, failure-prone motor encoder.

## Hoist Speed Optimisation

Optimise hoist speed in the motor field weakening area.



## Torque Proving

Ensures a motor generates sufficient torque before releasing a brake in applications like hoists & cranes. The VFD applies a current to the motor to build torque without rotation. Once the drive confirms that the torque meets the required threshold, it signals the system to safely release the brake or proceed with the operation.

## Cranes



### Requirements:

- High starting torque
- Smooth motor operation throughout starting and stopping phases
- Motor holding brake control
- Avoidance of load droop and sag
- Regeneration and braking capability during load lowering

### Optidrive P2 provides:

- Dedicated Hoist Mode Operation with motor holding brake control algorithm
- Up to 200% torque from zero speed in vector operation without encoder feedback
- Multiple Preset Speed or variable speed operation
- Built in dynamic braking transistor, requires only an external resistor

### IM

IE2 & IE3  
Induction Motors

### PM

AC Permanent  
Magnet Motors

## Options & Software

A range of external EMC filters, brake resistors, input chokes and output filters are available.

## Brake Resistors

### Dissipating Regenerative Energy

When a motor decelerates, especially in high-inertia systems, it acts like a generator and sends energy back into the VFD. This energy increases the DC bus voltage. A brake resistor safely dissipates this energy as heat, preventing overvoltage faults.

### Built in brake channel

An internal circuit designed to manage excess energy generated during motor deceleration. When a crane motor lowers, it generates energy that flows back into the VFD. This causes the DC bus voltage to rise too high; the brake channel helps manage this.

## External Keypad

Displays to control or monitor your Invertek Drive.



## Optistick Smart



NFC

Bluetooth®

## Rapid Commissioning Tool

- Allows copying, backup and restore of drive parameters
- Provides Bluetooth interface to a PC running OptiTools Studio or the OptiTools Mobile app on a smartphone
- Onboard NFC (Near Field Communication) for rapid data transfer

## OPT-3-STICK-IN

**Modbus RTU**  
**CANopen**

on board as standard



**IP20**  
Up to 250kW

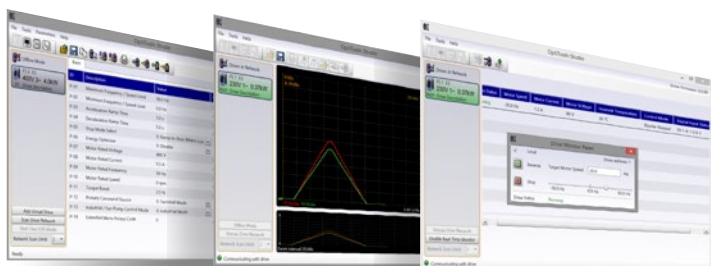


**IP55**  
Up to 250kW



**IP66**  
Up to 30kW





## In-depth Scope Function

The Scope Function enables real-time display and logging of signal levels from within the connected drive. It is primarily designed as a commissioning and fault-finding tool, allowing users to visualize the drive's operation.

## Powerful PC Control

Drive commissioning and parameter backup

- Powerful PC based commissioning and programming software
- Multi Drive Network Support

## Supports 2 key functions

- Function Blocked Based PLC Logic Programming
- Advanced Drive Control Functions
- Multiple Functions can be easily combined to produce powerful solutions
- Program protection to prevent unauthorised copying

**Complete flexibility and easy support for OEMs!**



**Cranes**



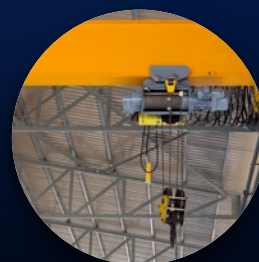
**Overhead Cranes**



**Gantry Cranes**



**Jib Cranes**



# OPTIDRIVE™ CP<sup>2</sup>

0.75 - 250kW  
200-600V Single & 3 Phase Input

## Powerful Performance

Advanced Motor Control

IP20

IP55

IP66

## Dedicated Hoist Mode

- ✓ Fast, Safe commissioning
- ✓ Intended for typical crane and hoist applications
- ✓ Dedicated on board 'Hoist' Mode, enabled by single parameter
- ✓ Safe operation
- ✓ Open Loop vector control gives excellent performance for Crane applications

## 3GV Vector Control

- ✓ Accurate control of motor speed and torque
- ✓ "Shear Pin" torque limit
- ✓ Dedicated Brake Control.
- ✓ High Starting torque for applications, Hoists
- ✓ Accurate control for applications, e.g.
- ✓ Winding tensions control
- ✓ Simple, fast commissioning with only basic parameter settings required



150% Overload  
for 60 seconds

200% Overload  
for 3.75 seconds

# Optidrive™ E3

0.37 - 37kW  
110-480V Single & 3 Phase Input

## General Purpose Drive

Easy control for all motor types

IP20

IP66

## Lateral Motion Control

## Low Power Applications

- ✓ Dedicated to low power applications, Optidrive E3 combines innovative technology, reliability, robustness and ease of use in a range of compact IP20 & IP66 enclosures.

## Simple Commissioning

- ✓ 14 parameter basic setup. Default settings suitable for most applications. Contactor style connection for simple wiring.

## Industrial Mode

- ✓ Optimises Optidrive E3 for load characteristics of typical industrial applications

## Torque control saves time Sensorless Motor Control

Supports sensor-less control for PMAC and BLDC motors, eliminating encoders and simplifying installation.

## High Torque and Smooth Operation

Delivers high starting torque with smooth acceleration and deceleration to reduce load swing.

## Safety and Efficiency Features

Includes anti-sway control and dynamic braking for enhanced safety and operational efficiency.

## Energy Saving and Diagnostics

Adapts motor speed to load for energy efficiency and offers integrated diagnostics for easy monitoring.

# Proven Worldwide Solution in Crane and Hoist Systems

Optidrive P2 powers dual function crane in Indonesia



Marine Winch controlled by Optidrive P2 in Netherlands



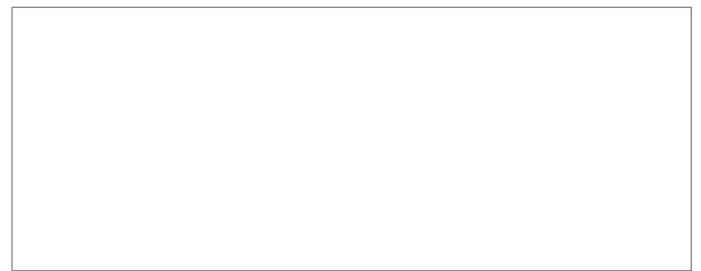
Torque control saves time and money in demanding crane environment in South Africa



Optidrive P2 helped ensure a Hollywood movie starring Tom Cruise had the right special effects in United States



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