

# OPTIDRIVE™ CP<sup>2</sup>

AC Variable Speed Drives

Powerful Performance

0.75kW – 160kW / 1HP – 250HP  
**200–480V** Single & 3 Phase Input



# Powerful Performance

World leading control for the latest generation of permanent magnet and standard induction motors.

Manufacturing Pumping Conveyer Systems Machine Tools Processing Plants Chemical Rubber Elevators Cranes



## World Leading Motor Control

The all new Optidrive P2 provides world leading control for both standard induction motors and permanent magnet motors – open and closed loop

**Open loop vector control of standard induction motors provides up to 200% torque from zero speed**

**Open and closed loop control of the latest generation of high efficiency PM motors**

**Closed loop encoder feedback capability for standard induction motors**

Extensive I/O and communications interface capabilities ensure the drive can be integrated quickly and efficiently into a wide variety of control systems.

A simple parameter structure and carefully selected factory settings ensure fast and easy commissioning.

150% overload for 60 seconds

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High Performance AC Variable Speed Drives



## Key Features

- Safe Torque Off meets IEC 61508 SIL2
- Pluggable control terminals
- Internal RFI filter for compliance with the latest EMC standards
- Just 14 basic parameters allows fast commissioning of powerful features
- 32kHz Output Switching Frequency for ultra quiet motor operation

Compliant with international standards.  
Manufactured in the UK.



**IP20**

Available up to 11kW

**IP55**

Available up to 160kW

**IP66**

Available up to 7.5kW

# At a Glance...

High performance, excellent usability and flexible to meet the needs of your application.





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High Performance AC Variable Speed Drives

Modbus RTU & CANopen compatibility  
built-in as standard

Modbus  
CANopen



Convenient  
Reference Card



Output Chokes & additional  
EMC Filters available

Expansion  
Module Slot

## Plug-in Expansion Modules

Optidrive P2 supports a range of plug-in modules that can be used to increase network compatibility or extend a drive's standard functionality.

- **Communication Interfaces**  
(PROFIBUS, DeviceNet, EtherNet/IP)
- **Encoder Feedback**
- **Additional I/O**
- **Additional Relays**



# OLED Operator Interface

Convenient on-drive control with multi-language OLED text display.

## OLED Display

Clear Graphical Display

- Operates to  $-10^{\circ}\text{C}$
- Wide viewing angle, effective in dark and light conditions
- Customisable display
- Multi-language selection

Wide Viewing Angle

Multi-language Selection

## The remote alternative...

### OPTIPAD

Remote Keypad & OLED Display

IP55 panel mount touch sensitive operator interface with intuitive sliding bar parameter adjustment.

IP55 rated



## High Contrast OLED Display



## Intuitive Keypad Controls



### Start

Used to start a stopped drive, when in keypad mode or to reverse the direction of rotation if bi-directional keypad mode is enabled.



### Reset/Stop

Used to reset a tripped drive or stop a running drive, when in keypad mode.



### Navigate

Used to display real-time information, to access and exit parameter edit mode and to store parameter changes.



### Up

Used to increase speed in real-time mode or to increase parameter values in parameter edit mode.



### Down

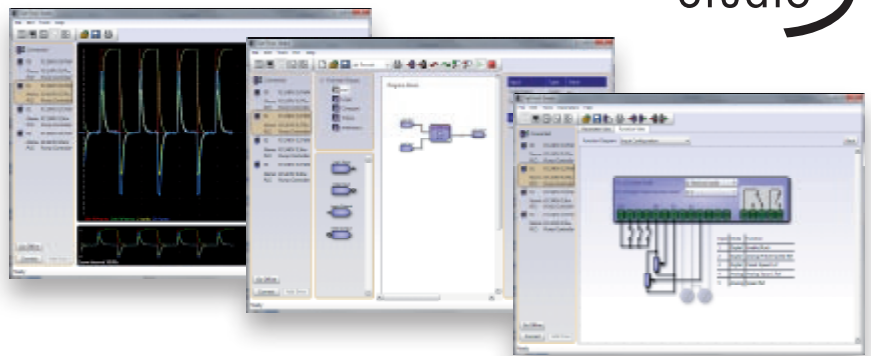
Used to decrease speed in real-time mode or to decrease parameter values in parameter edit mode.

# Communications

Easy to use, fast setup with extensive network compatibility.



## OptiTools Studio



### Powerful PC Software

Drive Commissioning and Parameter Backup

- Real Time Parameter Editing
- Parameter Upload, Download and Compare Functions
- Function Block Commissioning Diagrams
- Multi Channel Scope and Datalogger functions
- Simple PLC function programming

Compatible with Windows XP,  
Windows Vista & Windows 7



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Modbus RTU & CANopen compatibility  
built-in as standard

**Modbus**  
**CANopen**

## OPTISTICK



 **Bluetooth**®

### Rapid Commissioning

- Allows rapid copying of parameters between multiple drives.
- Provides Bluetooth wireless interface to a PC running OptiTools Studio.
- Backup and restore of drive parameters.

## Plug-in Modules

### Communication Interfaces

Additional Network Compatibility

 **DeviceNet**



 **PROFINET**



 **EtherNet/IP**



### Expansion Modules

Extended Functionality



- **Encoder Feedback**  
Closed-loop encoder feedback, compatible with a wide range of incremental encoders.
- **Additional I/O**  
Provides an additional three digital inputs and one relay output.
- **Extended Relay**  
Provides an additional three user configurable output relays.

# Specification

AC variable speed drives (0.75kW – 160kW, 200 – 480V Single & 3 phase) with integrated cable management, long-life fans & innovative OLED graphic display.

## Dimensions

Size	2	3	4	5	6	7
Height (mm)	257	310	440	540	865	1280
Width (mm)	188	210.5	173	235	290	330
Depth (mm)	238	256	230	270	340	370



## Connection Diagram

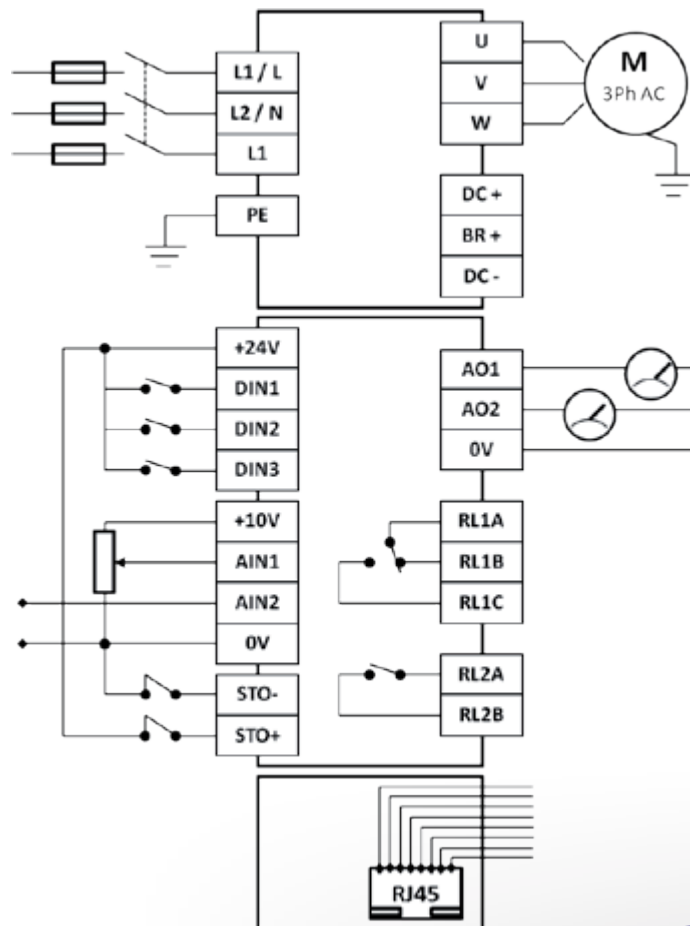
**AC Mains Power Supply**  
380–480V ± 10% 3 Phase  
200–240V ± 10% 1 Phase

Protective Earth

24V DC Output, 100mA  
Digital Input 1 (Drive Enable)  
Digital Input 2 (FOR/REV)  
Digital Input 3

10V DC Output, 10mA  
Analog Input 1 (Speed Pot)  
Analog Input 2

Safe Torque Off Inputs



Motor

Optional Dynamic Brake Resistor & DC Bus connections

Analog Output 1 (Output Frequency)  
Analog Output 2 (Motor Current)

Output Relay 1 (Drive Healthy)

Output Relay 2 (Drive Running)

**RJ45 Serial Interface**

1 : NC            5 : PC +  
2 : NC            6 : +24V DC  
3 : 0 Volt        7 : RS485 -  
4 : PC -           8 : RS485 +

## Model Reference

### 200–240V ± 10% 1 Phase Input IP20 with LED Display

kW Models	kW	HP Models	HP	Output Current (A)	Size
ODP-2-22075-1KF42	0.75	ODP-2-22010-1HF42	1	4.3	2
ODP-2-22150-1KF42	1.5	ODP-2-22020-1HF42	2	7	2
ODP-2-22220-1KF42	2.2	ODP-2-22030-1HF42	3	10.5	2

### 200–240V ± 10% 3 Phase Input IP20 with LED Display

kW Models	kW	HP Models	HP	Output Current (A)	Size
ODP-2-22075-3KF42	0.75	ODP-2-22010-3HF42	1	4.3	2
ODP-2-22150-3KF42	1.5	ODP-2-22020-3HF42	2	7	2
ODP-2-22220-3KF42	2.2	ODP-2-22030-3HF42	3	10.5	2
ODP-2-32040-3KF42	4	ODP-2-32050-3HF42	5	18	3

### 380–480V ± 10% 3 Phase Input IP20 with LED Display

kW Models	kW	HP Models	HP	Output Current (A)	Size
ODP-2-24075-3KF42	0.75	ODP-2-24010-3HF42	1	2.2	2
ODP-2-24150-3KF42	1.5	ODP-2-24020-3HF42	2	4.1	2
ODP-2-24220-3KF42	2.2	ODP-2-24030-3HF42	3	5.8	2
ODP-2-24400-3KF42	4	ODP-2-24050-3HF42	5	9.5	2
ODP-2-34055-3KF42	5.5	ODP-2-34075-3HF42	7.5	14	3
ODP-2-34075-3KF42	7.5	ODP-2-34100-3HF42	10	18	3
ODP-2-34110-3KF42	11	ODP-2-34150-3HF42	15	24	3

### 200–240V ± 10% 3 Phase Input IP55

kW Models	kW	HP Models	HP	Output Current (A)	Size
ODP-2-42055-3KF4N	5.5	ODP-2-42075-3HF4N	7.5	30	4
ODP-2-42075-3KF4N	7.5	ODP-2-42100-3HF4N	10	39	4
ODP-2-42110-3KF4N	11	ODP-2-42150-3HF4N	15	46	4
ODP-2-52150-3KF4N	15	ODP-2-52020-3HF4N	20	61	5
ODP-2-52185-3KF4N	18.5	ODP-2-52025-3HF4N	25	72	5
ODP-2-62022-3KF*N	22	ODP-2-62030-3HF*N	30	90	6
ODP-2-62030-3KF*N	30	ODP-2-62040-3HF*N	40	110	6
ODP-2-62037-3KF*N	37	ODP-2-62050-3HF*N	50	150	6
ODP-2-62045-3KF*N	45	ODP-2-62060-3HF*N	60	180	6
ODP-2-72055-3KF*N	55	ODP-2-72075-3HF*N	75	202	7
ODP-2-72075-3KF*N	75	ODP-2-72100-3HF*N	100	240	7
ODP-2-72090-3KF*N	90	ODP-2-72120-3HF*N	120	302	7

### 380–480V ± 10% 3 Phase Input IP55

kW Models	kW	HP Models	HP	Output Current (A)	Size
ODP-2-44110-3KF4N	11	ODP-2-44150-3HF4N	15	25	4
ODP-2-44150-3KF4N	15	ODP-2-44200-3HF4N	20	30	4
ODP-2-44185-3KF4N	18.5	ODP-2-44250-3HF4N	25	39	4
ODP-2-44220-3KF4N	22	ODP-2-44300-3HF4N	30	46	4
ODP-2-54300-3KF4N	30	ODP-2-54040-3HF4N	40	61	5
ODP-2-54370-3KF4N	37	ODP-2-54050-3HF4N	50	72	5
ODP-2-64045-3KF*N	45	ODP-2-64060-3HF4N	60	90	6
ODP-2-64055-3KF*N	55	ODP-2-64075-3HF*N	75	110	6
ODP-2-64075-3KF*N	75	ODP-2-64100-3HF*N	100	150	6
ODP-2-64090-3KF*N	90	ODP-2-64150-3HF*N	150	180	6
ODP-2-74110-3KF*N	110	ODP-2-74160-3HF*N	160	202	7
ODP-2-74132-3KF*N	132	ODP-2-74200-3HF*N	200	240	7
ODP-2-74160-3KF*N	160	ODP-2-74250-3HF*N	250	302	7

## Drive Specification

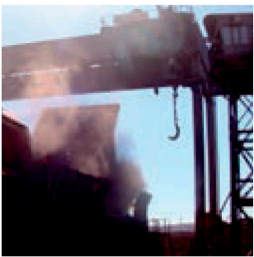
Input Ratings	Supply Voltage	<b>230V:</b> 200 – 240V ± 10% <b>400V:</b> 380 – 480V ± 10%
	Supply Frequency	48 – 62Hz
	Phase Imbalance	3% maximum
	Inrush Current	< rated current
	Power Cycles	120/hour max, evenly spaced
Output Ratings	Output Power	<b>230V 1 Phase Input:</b> 0.75 – 2.2kW <b>230V 3 Phase Input:</b> 0.75 – 90kW <b>400V 3 Phase Input:</b> 0.75 – 160kW
	Overload Capacity	150% for 60 seconds, 200% for 2 seconds
	Output Frequency	Up to 500Hz
Ambient Conditions	Temperature	<b>Storage:</b> -40 to 60°C <b>IP20 Operating:</b> -10 to 50°C at default switching frequency (60°C max possible with derating) <b>IP55 and (optional) IP66 Operating:</b> -10 to 40°C at default switching frequency (50°C max possible with derating)
	Altitude	1000m with no derating (derate 1%/100m above 1000m) 2000m max UL Approved 4000m max without UL Approval
	Humidity	95% max, non-condensing
	Enclosure	Ingress protection
Programming	Keypad	Yes
	PC	Yes
	Preset speeds	8 user adjustable
	PID control	Internal
	Spin start	Yes
	Acceleration	0–3000 secs, 0.1 resolution
	Deceleration	<b>1<sup>st</sup> Ramp:</b> 0–3000 secs, 0.1 resolution <b>2<sup>nd</sup> Ramp:</b> 0–30 secs, 0.1 resolution
Performance	Speed regulation	<b>Open Loop:</b> ± 20% of motor slip <b>Open Loop Vector:</b> Better than ± 0.5% of motor speed <b>Closed Loop Vector:</b> Better than ± 0.1% of motor speed
	Torque control	0–200% of motor rated torque
Control Specification	Control method	V/F Voltage Vector Energy Optimiser V/F Permanent Magnet Encoderless Sensorless Vector Speed Control Sensorless Vector Torque Control Closed Loop (encoder) Vector Speed Closed Loop (encoder) Vector Torque Closed Loop PM
	Stopping mode	Coast Stop Ramp to Stop DC Injection Dynamic Braking with external resistor
	Skip frequency	Single point, user adjustable
	Setpoint control (internal)	0–10V -10–10V 0–20mA 20–0mA 4–20mA 20–4mA Master / Slave (Optibus) Modbus RTU CANbus
Setpoint control (optional)	PROFIBUS DeviceNet EtherNet	
I/O Specification	Digital inputs	10–30V DC, internal or external supply, NPN Response time < 4ms
	Power supply	24V DC, 100mA, Short Circuit protected 10V DC, 10mA for Potentiometer
	Analog inputs	-10–10V DC 0/4–20mA 0/24V, 30V DC max Resolution: 12 bits ± sign Response time < 4ms Accuracy: Better than 1% of full scale Parameter adjustable Scaling and Offset
	Analog outputs	0–10V 0/4–20mA
	Relay outputs	Maximum Voltage : 250V AC, 30V DC Switching Current : 6A AC, 5A DC



UK Head Office, Welshpool

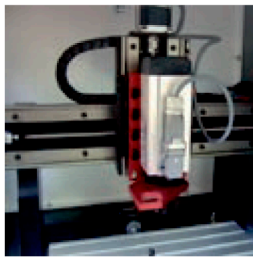
## Global Drive Solutions

Invertek Drives operate at the heart of automated systems around the world



### Crane Control

Demanding application at South African mine



### Machine Tool OEM

UK educational supplier specifies Optidrive



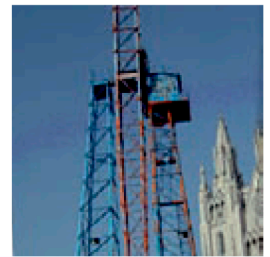
### Manufacturing

IP55 washdown duty drives in Singapore



### Food Processing

Precision conveyor control in Spain



### Amusement Parks

Accurate control of difficult loads in Spain

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