OPTIDRIVE™ E³
AC Variable Speed Drive

General Purpose Drive
Easy control for all motor types

0.37kW – 22kW / 0.5HP – 30HP
110 – 480V Single & 3 Phase Input

Easy to Use
General Purpose Drive

Focused on ease of use, Optidrive E3 provides unrivalled simplicity of installation, connection and commissioning, allowing the user to benefit from precise motor control and energy savings within minutes.

Simple Commissioning
With just 14 basic parameters and application macro functions providing rapid set up, Optidrive E3 minimises start-up time.

Intuitive Keypad Control
Precise digital control at the touch of a button.

Application Macros
Switch between Industrial, Pump & Fan modes to optimise Optidrive E3 for your application.

Industrial | Pump | Fan
See Page 6

Take a closer look at the stunning Optidrive E3

www.invertekdrives.com/optidrive-e3

Sensorless Vector Control for all Motor Types

IM
IE2 & IE3 Induction Motors

PM
AC Permanent Magnet Motors

BLDC
Brushless DC Motors

SynRM
Synchronous Reluctance Motors

Precise and reliable control for IE2, IE3 & IE4 motors
Internal Category C1 EMC Filter

An internal filter in every Optidrive E3 saves cost and time for installation. Cat C1 according to EN61800-3:2004

**Key Features**

- Internal Category C1 EMC filter
- Internal PI control
- Internal brake chopper
- Dual analogue inputs
- Operates up to 50°C
- Bluetooth® connectivity
- Option for control of single phase motors (see Page 8)

**IP66**

Up to 7.5kW

- Dust-tight
- Washdown ready

See Page 5
Optidrive E3 is a compact, robust and reliable general purpose drive for panel mounting, operable up to 50°C. It provides precise motor control and energy savings using the factory settings. Simply power up and the drive can immediately deliver energy savings. With 14 basic parameters allowing simple adjustment for your application, and up to 50 parameters available in total, it offers highly flexible performance. It can handle motor supply connects at base and power supply connects at top.

Key features include:
- **IP20**
- **Up to 22kW**
- **Fast Connection**
- **5mm rising clamp terminals with captive screws**
- **Quick Reference**
- **Integrated help card**
- **OptiStick**
- **Rapid parameter cloning and Bluetooth PC interface**
- **Modbus RTU**
- **CANopen**
- **Dual analogue inputs**
- **4 sizes cover global supply ratings**
- **Incredibly Easy to Use**
- **Built in PI control, EMC filter (C1) & brake chopper**
- **Application macros for industrial, fan and pump operation**
- **Bluetooth connectivity**

**Simply Power Up**
Optidrive E3 provides precise motor control and energy savings using the factory settings. Simply power up and the drive can immediately deliver energy savings. 14 basic parameters allow simple adjustment for your application if required, with up to 50 parameters available in total for a highly flexible performance.
Enclosed drives for direct machine mounting, dust-tight and ready for washdown duty

Optidrive E3 IP66 Switched
Simply wire up the drive, turn the inbuilt potentiometer and the motor will start running – allowing immediate energy savings

Saving energy cannot be easier than this!

Coated Heatsink as Standard
Ideal for hygiene based operations requiring washdown — such as food and beverage

Fanless Heatsink
For reliable, cost effective operation

Switched or Non-Switched

Dust-Tight Design
Install directly on your processing equipment and be sure of protection from dust and contaminants.

Washdown Ready
With a sealed ABS enclosure and corrosion resistant heatsink, the Optidrive E3 IP66 is ideal for high-pressure washdown applications.

Optidrive E3 IP66 Switched
Simply wire up the drive, turn the inbuilt potentiometer and the motor will start running – allowing immediate energy savings

Saving energy cannot be easier than this!

Coated Heatsink as Standard
Ideal for hygiene based operations requiring washdown — such as food and beverage

Fanless Heatsink
For reliable, cost effective operation

Switched or Non-Switched

Conformal coating as standard

Dust-Tight Design
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Washdown Ready
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Optidrive E3 IP66 Switched
Simply wire up the drive, turn the inbuilt potentiometer and the motor will start running – allowing immediate energy savings

Saving energy cannot be easier than this!
Application Macros

Switch modes at the touch of a button to optimise Optidrive E3 for your application

Industrial Mode

Industrial Mode optimises Optidrive E3 for load characteristics of typical industrial applications.

- Conveyors
- Mixers
- Treadmills

Sensorless Vector provides high starting torque and excellent speed regulation

IP20 panel mount units or IP66 for direct machine mounting

Rapid parameter cloning using OPTISTICK

Pump Mode

Pump Mode makes energy efficient pump control easier than ever.

Applications include:
- Dosing Pumps
- Borehole Pumps
- Transfer Pumps
- Swimming Pools
- Spas
- Fountains

- Constant or variable torque
- Internal PI control

Fan Mode

Fan Mode (inc. fire operation) makes air handling a breeze, ideal for simple HVAC systems.

Applications include:
- Air Handling Units
- Ventilation Fans
- Circulating Fans
- Air Curtains
- Kitchen Extract

- High efficiency variable torque motor control
- Flying start capability
- Mains loss ride through
- PI control

Instant Power Savings

The graph below shows the incredible efficiency of Optidrive E3 for controlling airflow compared to traditional damper control methods.

How much energy could you save?

Estimate potential energy savings, CO₂ emissions and financial savings for your application with the Invertek Drives Energy Savings Calculator app.

www.invertekdrives.com/calculator
## Input Ratings
- **Enclosure Ingress Conditions**
  - Temperature: Storage: −40 to 60°C Operation: −10 to 50°C
  - Altitude: Up to 1000 m; without derating Up to 2000 m maximum: UL approved Up to 4000 m maximum: JIS-M
  - Humidity: 95% Max., non condensing
  - Vibration: Conforms to EN61800-3-1

## Drive Specification

<table>
<thead>
<tr>
<th>Model Code</th>
<th>Product Family</th>
<th>Generation</th>
<th>Voltage Code</th>
<th>Frame Size</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODE-3-1</td>
<td>110–115V ± 10%</td>
<td>1 Phase Input</td>
<td>kW</td>
<td>HP</td>
<td>Amps</td>
</tr>
<tr>
<td>ODE-3-2</td>
<td>200–240V ± 10%</td>
<td>1 Phase Input</td>
<td>kW</td>
<td>HP</td>
<td>Amps</td>
</tr>
<tr>
<td>ODE-3-3</td>
<td>200–240V ± 10%</td>
<td>3 Phase Input</td>
<td>kW</td>
<td>HP</td>
<td>Amps</td>
</tr>
<tr>
<td>ODE-3-4</td>
<td>380–480V ± 10%</td>
<td>3 Phase Input</td>
<td>kW</td>
<td>HP</td>
<td>Amps</td>
</tr>
</tbody>
</table>

### Output Ratings
- **1 Phase Input**
  - 110–115V ± 10%
  - 200–240V ± 10%
- **3 Phase Input**
  - 200–240V ± 10%
  - 380–480V ± 10%

### Protection
- IP20, IP66
- Vibration: Conforms to EN61800-5-1
- Humidity: 95% Max., non condensing

### Efficiency
- Typical: > 98%
- Efficiency: > 98%

### enclosure & Display Types
- IP20 Non-switched
- IP66 Swicthed
- IP20

### EMC Filter
- Internal EMC Filter
- No Internal EMC Filter

## I/O Specification
- **Power Supply**
  - 24 Volt DC, 100mA, Short Circuit Protected
- **Programmable Inputs**
  - 4 Total
  - 2 Digital/ 2 Analog/
- **Digital Inputs**
  - 8 – 30 Volt DC, internal or external supply
  - Resolution: 12 bits
  - Response time: < 4ms
  - Accuracy: ± 2.5% full scale
  - Parameter adjustable scaling and offset
- **Programmable Outputs**
  - 2 Total
  - 1 Analog/ Digital
  - 1 Relay
- **Relay Outputs**
  - Minimum Voltage: 250 VAC, 30 VDC
  - Switching Current Capacity: 6A AC, 5A DC
- **Analog Outputs**
  - 0 to 10 Volt
  - **Fieldbus**
  - CANopen
  - Modbus RTU
  - EtherCAT
  - DeviceNet

## Maintenance & Diagnostics
- **Fault Memory**
  - Last 4 trips stored with time stamp.
- **Data Logging**
  - Logging of data prior to trip for diagnostic purposes
- **Monitoring**
  - Hours Run Meter

## Standards Compliance
- **Low Voltage Directive**
  - Adjustable speed electrical power drive systems.
- **EMC Directive**
  - 2004/108/EC
  - Conforms to EN61800-3-1
- **Machinery Directive**
  - 2006/42/EC
  - Conforms CE, UL, IEC
Pump control in swimming pools & spas

**OPTIDRIVE™ E3**
For Single Phase Motors

**IP20 | IP66**

Up to 1.1kW

Single Phase Motor Control for PSC & Shaded-Pole Motors

**Key Features**

- 110–115V and 200–240V models
- Small mechanical envelope
- Rugged industrial operation
- Fast setup, and simple operation with 14 basic parameters
- Unique motor control strategy optimised for single phase motors
- Motor current and rpm indication
- Built in PI control, EMC filter (C1) & brake chopper
- Application macros for industrial, fan and pump operation
- Bluetooth® connectivity

**Modbus RTU | CANopen**
on-board as standard

150% overload for 60 secs (175% for 2 secs)

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**Dedicated to Single Phase Motor Control**

Designed to be cost effective and easy to use, the Optidrive E3 for Single Phase Motors is for use with PSC (Permanent Split Capacitor) or Shaded-Pole Single Phase induction motors.

Optidrive E3 for Single Phase Motors uses a revolutionary motor control strategy to achieve reliable intelligent starting of single phase motors.

- Removes the need for 3 phase supply wiring
- Provides the same performance features as the 3 phase Optidrive E3
- The ideal energy saving solution where high starting torque is not required — typically including fans, blowers, centrifugal pumps, fume extractors and air flow controllers

**Special Boost Phase**

To ensure reliable starting of single phase motors, the drive initially ramps the motor voltage up to rated voltage whilst maintaining a fixed starting frequency, before reducing the frequency and voltage to the desired operating point.

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150% overload for 60 secs (175% for 2 secs)
Options & Accessories

OPTISTICK

Optistick
Rapid Commissioning Tool
- Allows copying, backup and restore of drive parameters
- Provides Bluetooth wireless interface to a PC running OptiTools Studio

Remote Keypads

Optipad
Remote Keypad & OLED Display

Optiport 2
Remote Keypad & LED Display

RJ45 Accessories

Ideal for simple and fast connection of Modbus RTU/CAN networks

OPT-2-STICK-IN
OptiTools Studio

External EMC Filters, Input Chokes & Output Filters are available

See www.invertekdrives.com for details

EtherNet Module

EtherNet Module
ODVA compliant EtherNet/IP Modbus Translator Device
Compatible with all drive platforms: P2, E3 & Eco
Integrated network switch: simplifying network architecture
Compatible with RSLogix and CoDeSys PLCs

Drive commissioning and parameter backup
- Real-time parameter editing
- Drive network communication
- Parameter upload, download and storage
- Simple PLC function programming
- Real-time scope function and data logging
- Real-time data monitoring

Compatible with:
Windows XP, Windows Vista & Windows 7,
Windows 8, Windows 8.1 & Windows 10
Proven Worldwide in Low Power Applications

- Pallet handling in UK
- Olive oil decanting in Greece
- Seed processing in Netherlands
- Pizza making in Belgium
- Chamfering machines in Italy
- Machine tool OEM in UK
- Chemical fume removal in Singapore
- Sawmill optimisation in UK
- Precision polishing in Switzerland

See [www.invertekdrives.com/solutions](http://www.invertekdrives.com/solutions) for full case studies
Optidrive E3

✅ 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.

✅ Optidrive E3 IP66
Environmentally protected, IP66 rated models can be mounted directly on your processing equipment.

✅ Washdown Ready
With a sealed ABS enclosure and corrosion resistant heatsink, Optidrive E3 IP66 models are ideal for high-pressure washdown applications.

✅ On-drive Control
IP66 models feature optional, convenient controls for speed control, REV/OFF/FWD and Power ON/OFF, complete with safety lock.

✅ Single Phase Motor Control
Optidrive E3 for Single Phase Motors provides accurate speed control of single phase PSC or shaded pole motors. Special boost phase ensures reliable starting, initially ramping the motor voltage up to rated voltage whilst maintaining a fixed starting frequency, before reducing the frequency and voltage to the desired operating point.

About Invertek Drives

✅ Sales, service & application support in over 80 countries
✅ World-class production, innovation & training facilities at UK headquarters
✅ Global assembly cells controlled by cloud-based manufacturing database
✅ ISO 14001 environmental & ISO 9001 quality management systems

www.invertekdrives.com/optidrive-e3

INVERTEK DRIVES LIMITED UK Headquarters
Offa’s Dyke Business Park
Welshpool, Powys, UK
SY21 8JF

Tel: +44 (0)1938 556868
Fax: +44 (0)1938 556869
Email: sales@invertekdrives.com

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