

Optidrive E SERIES



**EASY TO USE
GENERAL
PURPOSE
DRIVES**

Optidrive E SERIES

The E Series provides unrivalled simplicity of installation, connection and commissioning. Benefit from precise motor control and energy savings within minutes.

Optidrive™ E3

IP20

Up to 37kW

Easy to use
Compact & robust

IP66

Up to 22kW

Outdoor rated
Dust-tight
Washdown ready



Optidrive E SERIES Key Features



Internal Category C1
EMC filter



Bluetooth
connectivity



Internal brake
chopper



Dual analogue inputs



Operates up to 50°C



Internal PI control



Option for control of
single phase motors

Sensorless vector control for all motor types

IM | PM | BLDC | SynRM
| PMAREL



Application Macros

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



IE2 to IE6 motors

Precise and reliable control

Modbus RTU CAN



MS/TP

on-board as standard

Simple Commissioning

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



Optidrive™ E4

IP20

Up to 4kW

Increased capability without complexity
Easy to use
Compact & robust



Optidrive™ E4 Increased Capability



Built in safe torque off (STO) - SIL 3



USB- C power up & connectivity



24V keep alive PSU input



At a glance drive status LED's



Expansion port for comms & extended I/O



Positive or negative control logic



QR code for online support portal & drive passport



Advanced power stage using the latest semiconductor Technology for optimal control of high efficiency motors

Optidrive™ E3

IP20 Up to 37kW

Compact, robust and reliable
general purpose drive for
panel mounting

Incredibly Easy to Use

Built in:

- PI control
- EMC filter (C1)
- Brake chopper (Size 2+)

Controls multiple motor types:

- IE2, 3 & 4
- IM, PM, BLDC and SynRM

Application modes for industrial, fan
and pump operation

Bluetooth connectivity

Motor supply connects at base

Power supply connects at top

5 sizes cover global supply ratings

Operates up to 50°C

Modbus RTU CAN

on-board as standard

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.



Rapid commissioning tool

Integrated help card

Dual analogue inputs

5mm rising clamp
terminals with
captive screws

DIN rail & keyhole
mounting options



IP66 Outdoor Up to 22kW

Outdoor rated enclosed drives for direct machine mounting, dust tight and ready for washdown duty

IP66/Nema 4X rated

Withstands degradation by UV, greases, oils and acids.

Dust tight design allows installation directly on equipment.

Sealed ABS enclosure and corrosion resistant heatsink, for high-pressure washdown applications.

Switched models

Simply wire up the drive, enable and turn the inbuilt potentiometer and the motor will start running – allowing immediate energy savings.

Local speed potentiometer

Conformal coating as standard

Switched or non-switched

Run Reverse / Off / Run Forward Switch

Customisable cover

Lockable mains disconnect/isolator

Coated heatsink

1 2 x RJ45 ports eliminate the need for a splitter.

2 Easily accessible EMC disconnect

3 Easy to wire due to the large, accessible chamber and removeable gland plate.

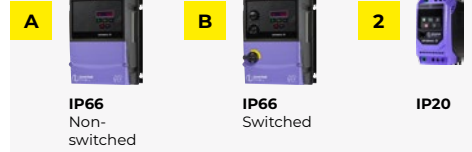


Optidrive™ E3

	kW	HP	Amps	Frame	Product Family	Generation	Frame Size	Voltage Code	Output Current x10	Supply Phases	EMC Filter	Brake Transistor	Enclosed Option
110–115V ±10% 1 Phase Input	0.37	0.5	2.3	1	ODE	- 3 - 1	1	0023 - 1	0	1	#		
	0.75	1	4.3	1	ODE	- 3 - 1	1	0043 - 1	0	1	#		
	1.1	1.5	5.8	2	ODE	- 3 - 2	1	0058 - 1	0	4	#		
200–240V ±10% 1 Phase Input	0.37	0.5	2.3	1	ODE	- 3 - 1	2	0023 - 1	#	1	#		
	0.75	1	4.3	1	ODE	- 3 - 1	2	0043 - 1	#	1	#		
	1.5	2	7	1	ODE	- 3 - 1	2	0070 - 1	#	1	#		
	1.5	2	7	2	ODE	- 3 - 2	2	0070 - 1	#	4	#		
	2.2	3	10.5	2	ODE	- 3 - 2	2	0105 - 1	#	4	#		
	4	5	10.3	3	ODE	- 3 - 3	2	0153 - 1	0	4	#		
200–240V ±10% 3 Phase Input	0.37	0.5	2.3	1	ODE	- 3 - 1	2	0023 - 3	0	1	#		
	0.75	1	4.3	1	ODE	- 3 - 1	2	0043 - 3	0	1	#		
	1.5	2	7	1	ODE	- 3 - 1	2	0070 - 3	0	1	#		
	1.5	2	7	2	ODE	- 3 - 2	2	0070 - 3	#	4	#		
	2.2	3	10.5	2	ODE	- 3 - 2	2	0105 - 3	#	4	#		
	4	5	18	3	ODE	- 3 - 3	2	0180 - 3	#	4	#		
	5.5	7.5	24	3	ODE	- 3 - 3	2	0240 - 3	#	4	#		
	7.5	10	30	4	ODE	- 3 - 4	2	0300 - 3	#	4	#		
	11	15	46	4	ODE	- 3 - 4	2	0460 - 3	#	4	#		
	15	20	61	5	ODE	- 3 - 5	2	0610 - 3	F	4	2		
380–480V ±10% 3 Phase Input	18.5	25	72	5	ODE	- 3 - 5	2	0720 - 3	F	4	2		
	0.75	1	2.2	1	ODE	- 3 - 1	4	0022 - 3	#	1	#		
	1.5	2	4.1	1	ODE	- 3 - 1	4	0041 - 3	#	1	#		
	1.5	2	4.1	2	ODE	- 3 - 2	4	0041 - 3	#	4	#		
	2.2	3	5.8	2	ODE	- 3 - 2	4	0058 - 3	#	4	#		
	4	5	9.5	2	ODE	- 3 - 2	4	0095 - 3	#	4	#		
	5.5	7.5	14	3	ODE	- 3 - 3	4	0140 - 3	#	4	#		
	7.5	10	18	3	ODE	- 3 - 3	4	0180 - 3	#	4	#		
	11	15	24	3	ODE	- 3 - 3	4	0240 - 3	#	4	#		
	15	20	30	4	ODE	- 3 - 4	4	0300 - 3	#	4	#		
	18.5	25	39	4	ODE	- 3 - 4	4	0390 - 3	#	4	#		
	22	30	46	4	ODE	- 3 - 4	4	0460 - 3	#	4	#		
	30	40	61	5	ODE	- 3 - 5	4	0610 - 3	F	4	2		
	37	50	72	5	ODE	- 3 - 5	4	0720 - 3	F	4	2		

Replace # in model code with colour-coded option

Enclosure Types



EMC Filter

- F** Internal EMC filter
- 0** No Internal EMC filter

IP20					
Size	1	2	3	4	5
mm Height	173	221	261	420	486
mm Width	83	110	131	171	222
mm Depth	123	150	175	212	226
kg Weight	1.0	1.7	3.2	9.1	18.1
Fixings	4xM5	4xM5	4xM5	4xM8	4xM8

IP66				
Size	1	2	3	4
mm Height	232	257	310	360
mm Width	161	188	211	240
mm Depth	162	182	235	271
kg Weight	2.3	3.5	6.6	9.5
Fixings	4xM4	4xM4	4xM4	4xM4

3 APPLICATION MACROS



Pump Mode

Pump Mode makes energy efficient pump control easier than ever.

- ☒ Dosing pumps
- ☒ Spas
- ☒ Swimming pools
- ☒ Transfer pumps
- ☒ Borehole pumps
- ☒ Fountains



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.

Input Ratings	Supply voltage	110 – 115V ± 10% 200 – 240V ± 10% 380 – 480V ± 10%
	Supply frequency	48 – 62Hz
	Displacement power factor	> 0.98
	Phase imbalance	3% Maximum allowed
	Inrush current	< rated current
	Power cycles	120 per hour maximum, evenly spaced
Output Ratings	Output power	110V 1 Ph Input: 0.5–1.5HP (230V 3 Ph Output) 230V 1 Ph Input: 0.37–4kW (0.5–5HP) 230V 3 Ph Input: 0.37–18.5kW (0.5–25HP) 400V 3 Ph Input: 0.75–37kW 460V 3 Ph Input: 1–50HP
	Overload capacity	150% for 60 Seconds 175% for 2.5 seconds
	Output frequency	0 – 500Hz
	Acceleration time	0.01 – 600 seconds
	Deceleration time	0.01 – 600 seconds
	Typical efficiency	> 98%
	Temperature	Storage: –40 to 60°C Operating: –20 to 50°C
	Altitude	Up to 1000m ASL without derating Up to 2000m maximum UL approved Up to 4000m maximum (non UL)
Ambient Conditions	Humidity	95% Max, non condensing
	Vibration	Conforms to EN61800-5-1
	Control method	Sensorless Vector Speed Control PM Vector Control BLDC Control Synchronous Reluctance
	PWM frequency	2-16 kHz
Control Specification	Stopping mode	Ramp stop: User Adjustable 0.1–600 secs. Coast stop
	Braking	Motor Flux Braking Built-in braking transistor (not frame size 1)
	Skip frequency	Single point, user adjustable
	Setpoint control	Analog Signal 0 to 10V - 10 to 0V 0 to 20mA - 20 to 0mA 4 to 20mA - 20 to 4mA
		Digital Motorised Potentiometer (Keypad) Modbus RTU CANopen EtherNet/IP
Enclosure	Ingress protection IP	IP20, IP66

Control Specification	Control method	Sensorless Vector Speed Control PM Vector Control BLDC Control Synchronous Reluctance
Fieldbus	Built-in	CANopen 125–1000 kbps CANopen EtherNet/IP Modbus RTU 9.6–115.2 kbps selectable
I/O Specification	Power supply	24 Volt DC, 100mA, Short Circuit Protected 10 Volt DC, 10mA for Potentiometer
	Programmable inputs	2 Digital, 2 Analog / Digital select 175% for 2.5 seconds
	Digital inputs	8 – 30 Volt DC, internal or external supply Response time < 4ms
	Analog inputs	Resolution: 12 bits Response time: < 4ms Accuracy: ± 2% full scale Parameter adjustable scaling and offset
	Programmable outputs	1 Analog / Digital, 1 Relay
	Relay outputs	Maximum Voltage: 250 VAC, 30 VDC Switching Current Capacity: 6A AC, 5A DC
	Analog outputs	0 to 10 Volt
Application Features	PI control	Internal PI Controller Standby / Sleep Function
	Fire mode	Bidirectional. Selectable Speed Setpoint (Fixed / PI / Analog / Fieldbus)
Maintenance & Diagnostics	Fault memory	Last 4 Trips stored with time stamp
	Data logging	Logging of data prior to trip for diagnostic purposes: Output Current Drive Temperature DC Bus Voltage
	Monitoring	Hours Run Meter
Standards Compliance	Low voltage directive	Adjustable speed electrical power drive systems. EMC requirements
	EMC directive	2014/30/EU. Cat C1 EN61800-3:2004/175% for 2.5 seconds
	Machinery directive	2006/42/EC
	Conformance	CE, UL, RCM
	Environmental class	Conformal Coated PCBs. Suitable for use in the following environments: IP20: 3C2, 3S2 IP66: 3C3, 3S3
Programming	Keypad	Built-in keypad Optional remote mountable keypad
	Display	7 Segment LED
	PC	OptiTools Studio

Fan Mode

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

- ☒ Air handling units
- ☒ Ventilation fans
- ☒ Circulating fans
- ☒ Kitchen extract
- ☒ Air curtains

Flying start capability, PI control,
Mains loss ride through

“Switch modes at the touch of a button!”

Optimise Optidrive E3 for your application

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.



Optidrive™ E3

Single phase motors

IP20

IP66

Up to 1.1kW

Single phase motor control for
PSC & shaded-pole motors

Modbus RTU
CAN

on-board as standard

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.

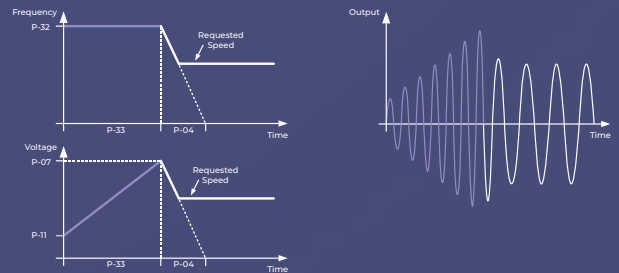
Removes the need for 3 phase supply wiring

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.



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



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
- Simple airflow control
- Pump control in swimming pools & spas



Optidrive™ E3 Single phase motors

	kW	HP	Amps	Size	Product Family	Generation	Frame Size	Voltage Code	Capacity	Supply Phases	EMC Filter	Brake Transistor	Enclosed Option	Single Phase Output
110–115V ±10% 1 Phase Input	0.37	0.5	7	1	ODE	- 3	- 1	1	0070	- 1	#	1	#	- 01
	0.55	0.75	10.5	2	ODE	- 3	- 2	1	0105	- 1	#	4	#	- 01
200–240V ±10% 1 Phase Input	0.37	0.5	4.3	1	ODE	- 3	- 1	2	0043	- 1	#	1	#	- 01
	0.75	1	7	1	ODE	- 3	- 1	2	0070	- 1	#	1	#	- 01
	1.1	1.5	10.5	2	ODE	- 3	- 2	2	0105	- 1	#	4	#	- 01

Replace # in model code with colour-coded option

Enclosure Types

A		IP66 Non-switched
B		IP66 Switched
2		IP20

EMC Filter

F	Internal EMC filter
0	No Internal EMC filter

IP66			
Size		1	2
mm Height		232	257
mm Width		161	188
mm Depth		162	182
kg Weight		2.3	3.5
Fixings		4xM4	4xM4

IP20			
Size		1	2
mm Height		173	221
mm Width		83	110
mm Depth		123	150
kg Weight		1.0	1.7
Fixings		4xM5	4xM5

Input Ratings	Supply voltage	110 – 115V ± 10% 200 – 240V ± 10%	
	Supply frequency	48 – 62Hz	
	Displacement power factor	> 0.98	
	Phase imbalance	3% Maximum allowed	
	Inrush current	< rated current	
	Power cycles	120 per hour maximum, evenly spaced	
Output Ratings	Output power	110V 1 Ph Input: 0.5–0.75HP 230V 1 Ph Input: 0.37–1.1kW (0.5–1.5HP)	
	Overload capacity	150% for 60 Seconds 175% for 2.5 seconds	
	Output frequency	0 – 500Hz , 0.1Hz resolution	
	Acceleration time	0.01– 600 seconds	
	Deceleration time	0.01– 600 seconds	
	Typical efficiency	> 98%	
Ambient Conditions	Temperature	Storage: -40 to 60°C Operating: -20 to 50°C	
	Altitude	Up to 1000m ASL without derating Up to 2000m maximum UL approved Up to 4000m maximum (non UL)	
	Humidity	95% Max, non condensing	
	Vibration	Conforms to EN61800-5-1	
Control Specification	Control method	V/F Voltage Energy Optimised V/F	
	PWM frequency	2-16 kHz	
	Stopping mode	Ramp stop: User Adjustable 0.1–600 secs. Coast stop	
	Braking	Motor Flux Braking Built-in braking transistor (frame size 2)	
	Skip frequency	Single point, user adjustable	
	Setpoint control	Analog Signal	0 to 10V - 10 to 0V 0 to 20mA - 20 to 0mA 4 to 20mA - 20 to 4mA
	Digital	Motorised Potentiometer (Keypad) Modbus RTU CANopen EtherNet/IP	
Enclosure	Ingress protection IP	IP20, IP66	

Fieldbus	Built-in	CANopen	125–1000 kbps
		Modbus RTU	9.6–115.2 kbps selectable
I/O Specification	Power supply	24 Volt DC, 100mA, Short Circuit Protected 10 Volt DC, 10mA for Potentiometer	
	Programmable inputs	2 Digital, 2 Analog / Digital select 175% for 2.5 seconds	
	Digital inputs	8–30 Volt DC, internal or external supply Response time < 4ms	
	Analog inputs	Resolution: 12 bits Response time: < 4ms Accuracy: ±2% full scale Parameter adjustable scaling and offset	
	Programmable outputs	1 Analog / Digital, 1 Relay	
	Relay outputs	Maximum Voltage: 250 VAC, 30 VDC Switching Current Capacity: 6A AC, 5A DC	
Application Features	Analog outputs	0 to 10 Volt	
Maintenance & Diagnostics	PI control	Internal PI Controller Standby / Sleep Function	
	Fire mode	Bidirectional. Selectable Speed Setpoint (Fixed / PI / Analog / Fieldbus)	
Standards Compliance	Fault memory	Last 4 Trips stored with time stamp	
	Data logging	Logging of data prior to trip for diagnostic purposes: Output Current Drive Temperature DC Bus Voltage	
	Monitoring	Hours Run Meter	
Programming	Low voltage directive	Adjustable speed electrical power drive systems. EMC requirements	
	EMC directive	2014/30/EU 230V 1Ph. Filtered Units: Cat C1 according to EN61800-3:2004	
	Machinery directive	2006/42/EC	
	Conformance	CE, UL, RCM	
	Environmental class	Conformal Coated PCBs. Suitable for use in the following environments: IP20: 3C2, 3S2 IP66: 3C3, 3S3	
	Keypad	Built-in keypad Optional remote mountable keypad	
Programming	Display	7 Segment LED	
	PC	OptiTools Studio	

Optidrive™ E4

IP20

Up to 37kW

A new class of general purpose variable frequency drive. Retaining the proven and easy to use features of Optidrive E3 with increased capability.

Increased capability without complexity

Built in:

- PI control (Eng units)
- EMC filter (C1)
- Brake chopper (Size 2+)

Application modes:

- Industrial
- Fan
- Pump

Positive or negative logic

Heavy duty rating

Conformance to latest standards

50°C operation at full load

Compliant with latest cyber security requirements

Same frame size & rating breaks as Optidrive E3

Same frame size & foot mounts as Optidrive E3

Optitools PRO

monitoring, programming
& commissioning

Modbus RTU

CAN

BACnet
MS/TP

on-board as standard





Easy to use
It's in our DNA

- Clear View mounting point alignment
- One handed DIN rail mount & removal system
- Optistick Pro "for fast data transfer"
- E4 Assist online support portal
- Status LED
- Easy connectivity & file sharing:
Power up the device with a mobile
over USB-C using the Optistick PRO
- Angled 4mm terminal screw heads for easy access
- Changeover relay
- Built-in certified safe torque off (SiI3)
- 24V comms keep alive
- Easy view serial number and power rating
- Easy EMC disconnect
- Expansion port - comms & extended I/O

Modbus TCP **EtherNet/IP**

EtherCAT
Technology Group

PROFINET



Optidrive™ E4

	kW	HP	Amps	Frame	Product Family	Generation	Frame Size	Voltage Code	Output Current x10	Supply Phases	EMC Filter	Brake Transistor	Enclosed Option
110-115V+10%-15% 1 Phase Input Voltage Doubler	0.37	0.5	2.3	1	ODE	- 4 - 1	1	0023	- 1	0	1	2	
	0.75	1	4.3	1	ODE	- 4 - 1	1	0043	- 1	0	1	2	
	1.1	1.5	5.8	2	ODE	- 4 - 2	1	0058	- 1	0	4	2	
200-240V +10%-15% 1 Phase Input	0.37	0.5	2.3	1	ODE	- 4 - 1	2	0023	- 1	#	1	2	
	0.75	1	4.3	1	ODE	- 4 - 1	2	0043	- 1	#	1	2	
	1.5	2	7	1	ODE	- 4 - 1	2	0070	- 1	#	1	2	
	1.5	2	7	2	ODE	- 4 - 2	2	0070	- 1	#	4	2	
	2.2	3	10.5	2	ODE	- 4 - 2	2	0105	- 1	#	4	2	
	3	4	12.5	3	ODE	- 4 - 3	2	0125	- 1	#	4	2	
110-115V±10% 1 Phase or 200-240V+10%- 15% 1 Phase	0.37	0.5	2.3	1	ODE	- 4 - 1	D	0023	- 1	F*	1	2	
	0.75	1	4.3	1	ODE	- 4 - 1	D	0043	- 1	F*	1	2	
	1.1	1.5	5.8	2	ODE	- 4 - 2	D	0058	- 1	F*	4	2	
200-240V +10%-15% 3 Phase Input	0.37	0.5	2.3	1	ODE	- 4 - 1	2	0023	- 3	#	1	2	
	0.75	1	4.3	1	ODE	- 4 - 1	2	0043	- 3	#	1	2	
	1.5	2	7	1	ODE	- 4 - 1	2	0070	- 3	#	1	2	
	1.5	2	7	2	ODE	- 4 - 2	2	0070	- 3	#	4	2	
	2.2	3	10.5	2	ODE	- 4 - 2	2	0105	- 3	#	4	2	
	3	4	12.5	3	ODE	- 4 - 3	2	0125	- 3	#	4	2	
	4	5	18	3	ODE	- 4 - 3	2	0180	- 3	#	4	2	
	5.5	7.5	24	3	ODE	- 4 - 3	2	0240	- 3	#	4	2	
	7.5	10	30	4	ODE	- 4 - 4	2	0300	- 3	#	4	2	
	11	15	45	4	ODE	- 4 - 4	2	0460	- 3	#	4	2	
	15	20	61	5	ODE	- 4 - 5	2	0610	- 3	#	4	2	
	18.5	25	72	5	ODE	- 4 - 5	2	0720	- 3	#	4	2	
200-240V +10%-15% 1/3 Phase Input	0.37	0.5	2.3	1	ODE	- 4 - 1	2	0023	- Y	0	1	2	
	0.75	1	4.3	1	ODE	- 4 - 1	2	0043	- Y	0	1	2	
	1.5	2	7	1	ODE	- 4 - 1	2	0070	- Y	0	1	2	
	1.5	2	7	2	ODE	- 4 - 2	2	0070	- Y	0	4	2	
	2.2	3	10.5	2	ODE	- 4 - 2	2	0105	- Y	0	4	2	
380-480V +10%-15% 3 Phase Input	0.37	0.5	1.2	1	ODE	- 4 - 1	4	0012	- 3	#	1	2	
	0.75	1	2.2	1	ODE	- 4 - 1	4	0022	- 3	#	1	2	
	1.5	2	4.1	1	ODE	- 4 - 1	4	0041	- 3	#	1	2	
	1.5	2	4.1	2	ODE	- 4 - 2	4	0041	- 3	#	4	2	
	2.2	3	5.8	2	ODE	- 4 - 2	4	0058	- 3	#	4	2	
	3	4	7.7	2	ODE	- 4 - 2	4	0075	- 3	#	4	2	
	4	5	9.5	2	ODE	- 4 - 2	4	0095	- 3	#	4	2	
	5.5	7.5	14	3	ODE	- 4 - 3	4	0140	- 3	#	4	2	
	7.5	10	18	3	ODE	- 4 - 3	4	0180	- 3	#	4	2	
	11	15	24	3	ODE	- 4 - 3	4	0240	- 3	#	4	2	
	15	20	30	4	ODE	- 4 - 4	4	0300	- 3	#	4	2	
	18.5	25	39	4	ODE	- 4 - 4	4	0390	- 3	#	4	2	
	22	30	46	4	ODE	- 4 - 4	4	0460	- 3	#	4	2	
	30	40	61	5	ODE	- 4 - 5	4	0610	- 3	#	4	2	
	37	50	72	5	ODE	- 4 - 5	4	0720	- 3	#	4	2	

Replace # in model code with colour-coded option

Enclosure Types



EMC Filter

- F** Internal EMC filter
- 0** No Internal EMC filter

*110-115V has no internal EMC filter

IP20		1		2	COMING SOON		
Size		1		2	TBC		
mm	Height	176	222		TBC	TBC	TBC
mm	Width	82	108		TBC	TBC	TBC
mm	Depth	136	168		TBC	TBC	TBC
kg	Weight	1.0	1.7		TBC	TBC	TBC
Fixings		4xM5	4xM5		TBC	TBC	TBC

How much energy could you save?



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

Input Ratings	Supply voltage	110-115V -15%/+10%, 200-240V -15%/+10%, 380-480V -15%/+10%
	Supply frequency	48 – 62Hz
	Phase imbalance	3% Maximum allowed
	Power cycles	120 per hour maximum, evenly spaced
	Inrush current	< rated current
Output Ratings	Overload capacity	Heavy Duty 150% for 60 seconds, 175% for 2.5 seconds
	Output frequency	0-500Hz, 0.1Hz (high frequency firmware on request)
	Acceleration time	0.01 – 600 seconds
	Deceleration time	0.01 – 600 seconds
	Typical efficiency	> 98%
Ambient Conditions	Temperature	Storage: -40 to 60°C, Operating: -20 to 50°C (60°C derating)
	Altitude	Up to 1000m ASL without derating, Up to 2000m maximum UL approved, Up to 4000m maximum (non UL)
	Humidity	95% Max, non condensing
	Vibration	Conforms to EN61800-5-1
Programming	Keypad	Built-in 7 segment LED (IP20), Optional TFT remote keypad
	PC	Optitools Pro over RJ45 port or USB-C
	Mobile device	Optitools Pro over USB-C
	Copy stick	Over RJ45 Port
IO Specification	User power supply	24Vdc, 150mA short circuit & current limit protected 10Vdc, 10mA short circuit protected for potentiometer
	Programme inputs	4 total, 2 Digital, 2 Analog/Digital
	Digital input spec	8-30Vdc, from on-board or external voltage source <4ms response time, NPN/PNP Logic
	Analog input spec	Resolution: 12 bits. Accuracy: ±2% full scale. Response: < 4ms Parameter adjustable scaling & offset
	Programmable outputs	1 Analog (0-10V, 0-20mA, 4-20mA)/Digital (24Vdc) 1 Changeover Relay
	Relay output spec	Max: 250Vac, 30Vdc, Switching Capacity: 6A AC, 5A DC
Fieldbus	Built-in	Modbus RTU Odd, Even, no Parity, 1/2 stop bits CanOpen BACnet MS/TP
	Option	Modbus-TCP Ethernet-IP Profinet

Control Specification	Control method	Vector Speed Control, PM Vector Control (Auto back emf measurement), Sensorless Vector Speed Control, V/Hz Speed Control Synchronous Reluctance, BLDC Control, LSPM, PMAREL Torque Control
	Frequency range	0-500Hz (2000Hz on request for IM)
	PWM frequency	2-16 kHz
	Stopping modes	Ramp to stop, Coast to Stop
	Braking	AC Flux Braking, DC Injection Braking (Time, current & speed adjustable at start & stop), Dynamic Braking (Size 2 & larger)
	Skip frequency	Single Point, User adjustable
	Setpoint control	Analog: 0 to 10 Volts, 10 to 0 Volts, 0 to 20mA, 20 to 0mA, 4 to 20mA, 20 to 4mA. Digital: Motorised Potentiometer (Keypad), Modbus RTU, CANopen Option: EtherNet/IP, Modbus-TCP, Profinet, Ethercat frequency input up to 100kHz
Enclosure	Ingress protection IP	IP20, NEMA 1 with additional option kit
Application Features	PI control	Internal PI Controller, Standby/Sleep Function
	Fire mode	Bidirectional, Select speed setpoint (Fixed/PI/Analog/Fieldbus)
	Common DC bus	DC terminal access (Sz2 and larger) Phase loss disable
	HVAC features	Spin Start Variable Torque Belt Failure detection
	Pump features	Low load detection (Dry Pump)
Maintenance & Diagnostics	Fault memory	Last 4 trips & time stored. Logging Data prior for diagnostics: Output Current Drive Temperature DC Bus Voltage etc
	Monitoring	Hours Run Meter Real units (PSI, Bar, etc...)
	Input phase loss	Ripple and per phase measurement
	Output phase loss	All 3 phases checked at each Enable (can be disabled)
	Brake protection	Brake resistor thermal overload
Standards Compliance	Low Voltage Directive (LVD) 2014/35/EU	EN 61800-5-1: 2007 + A1:2017 + A11:2021
	EMC directive 2014/30/EU	EN 61800-3: 2004 + A1:2012: 110V drives C3 5mtrs, 200V drives C1 5mtrs, 400V drives C2 5mtrs
	Machinery directive 2006/42/EC	EN 61800-5-2: 2017, EN ISO 13849-1:2023
	Conformance	CE, UL, RCM, UL, UL 61800-5-1
	Environmental class	Conformal Coated PCBs. 2009/125/EC (Eco-design) & Regulation (EU) 2019/1781. 2011/65/EU (RoHS) modified by delegated directive 2015/863 : EN 63000:2018



Pump Mode

Pump Mode makes energy efficient pump control easier than ever.

- ☒ Dosing pumps
- ☒ Spas
- ☒ Swimming pools
- ☒ Transfer pumps
- ☒ Borehole pumps
- ☒ Fountains



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.



Fan Mode

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

- ☒ Air handling units
- ☒ Ventilation fans
- ☒ Circulating fans
- ☒ Kitchen extract
- ☒ Air curtains

Flying start capability, PI control, Mains loss ride through

“Switch modes at the touch of a button!”

Optimise Optidrive E3 for your application

WHICH DRIVE IS BEST FOR YOUR APPLICATION?

		Optidrive™ E3	Optidrive™ E4
Motor Types	IM	•	•
	PM	•	•
	BLDC	•	•
	SynRM	•	•
	LSPM	•	•
	PMAREL		•
Voltage & Power Ratings	110V 1ph input 110V 1 ph output	0.37-0.55kW	0.37-0.55kW
	110V 1ph input 230V 3 ph output	0.37-1.1kW	0.37-1.1kW
	230V 1ph input 230V 1 ph output	0.37-1.1kW	0.37-1.1kW
	230V 1ph input 230V 3 ph output	0.37-4kW	0.37-2.2kW
	230V 3ph input 230V 3 ph output	0.37-18.5kW	0.37-2.2kW
	110-115V 1 ph input / 200-240V 1 ph input		0.37-1.1kW
	200-240V 1 or 3 ph input		0.37-2.2kW
	400V 3ph input 400V 3 ph output	0.75-22kW	4kW
Overload Capacity	Overload capacity	150% 60 sec's	150% 60 sec's
Ambient Conditions	Temperature	-20 to +50degC	
	Humidity	95% Max non-condensing	
Enclosure	IP20	•	•
	IP66	•	
	Nema 1Kit		•
Programming	Keypad	Built-in/Optional remote keypad	Built-in/Optional remote keypad
	Display	LED	LED
Comissioning Connectivity	RJ45	•	•
	USB-C support		•
	Remote keypad	•	•
Control Specification	PWM frequency	2-16 kHz	2-16 kHz (0.1 kHz adjustable)
	Torque control		•
Built-in Fieldbus Connectivity	CANopen	•	•
	Modbus RTU	•	•
		Fixed parity	Odd/Even parity selection
	BACnet MS/TP		•
Plug-in Module Fieldbus Connectivity	Ethernet-IP		•
	Modbus-TCP		•
	PROFINET		•
	Ethercat		•
On-Board Flight recorder	On-Board flight recorder		•

		Optidrive™ E3	Optidrive™ E4
I/O Specification	NPN/PNP logic selection		•
	Freely programmable inputs		•
	Dedicated digital inputs	2	2
	Digital/Analog inputs	2	2
	Digital/Analog outputs	1	1
	Relay outputs	1	1 Changeover
	24V keep alive		•
	24V user output capacity	100mA	150mA
	STO		•
Braking	AC flux braking	•	•
	DC injection braking	•	•
	Independent start/stop for dc injection		•
	Dynamic braking	Size 2 and larger	Size 2 and larger
	Software based braking resistor protection		•
	Mechanical brake control	Basic	Advanced (Torque prove)
Motor Connected check Capacity	Motor connected check		•
Input Phase loss detection Prior to running	Input phase loss detection prior to running		•
Application Features	PI (D) Control	•	•
	Fire mode	•	•
	Master/Slave	•	•
	Sequencer		•
	s-curve adjustment		•
	Power limit		•
	Belt brake protection		•
	Low load/Flow detection		•
	Pump stir		•
	DC bus sharing	Sz2+only	•
	Real units (e.g Bar) for PI setup vs %		•
	Standby/Sleep mode	•	Adjustable standby frequency
	Spin start	•	All motor types
	Auto-back EMF measurement		•
	Skip frequency	•	•
	Side by side mounting		•
	Microprocessor	Basic	Advanced (Faster processing power for higher efficiency Motors)

OPTIONS & ACCESSORIES

Optimise performance, convenience and connectivity in your applications.

Optidrive™ E4



Optistick PRO

Advanced commissioning tool



Optitools PRO

Drive Monitoring, programming & commissioning

Optitools PRO app:



Plug-in interface Modules

PROFINET
Modbus TCP

EtherCAT
Technology Group
EtherNet/IP

COMPATIBLE WITH Optidrive™ E3 & Optidrive™ E4

RJ45 Accessories

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

Remote keypads

Optipad:
Remote keypad & TFT display
Optiport 2:
Remote keypad & LED display

External EMC Filters, Input Chokes & Output Filters

See invertekdrives.com for details

USB PC Connection Kit

Dedicated PC connection kit, allowing direct connection from the USB port to the drive RJ45 connection

Optidrive™ E3



Optistick Smart

OPT-3-STICK-IN



EtherNet Module

OPT-2-ETHEG-IN



Optitools Studio

Commissioning/parameter backup

OUR DRIVE FOR A COOLER PLANET

*DEDICATING OUR ENERGIES TO
REDUCING CARBON EMISSIONS*



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