INVERTEK DRIVES
www.invertek.co.uk

OPTIDRIVE™

Stock Drives Catalogue

Variable Speed Drives
& Accessories

INVERTEK DRIVES
www.invertek.co.uk

Company Overview

UK Head Office
Welshpool

Invertek Drives

Invertek Drives is dedicated to the design and manufacture of sophisticated electronic variable speed drives, used to control motors in a wide variety of industrial and energy saving applications.

The Organisation

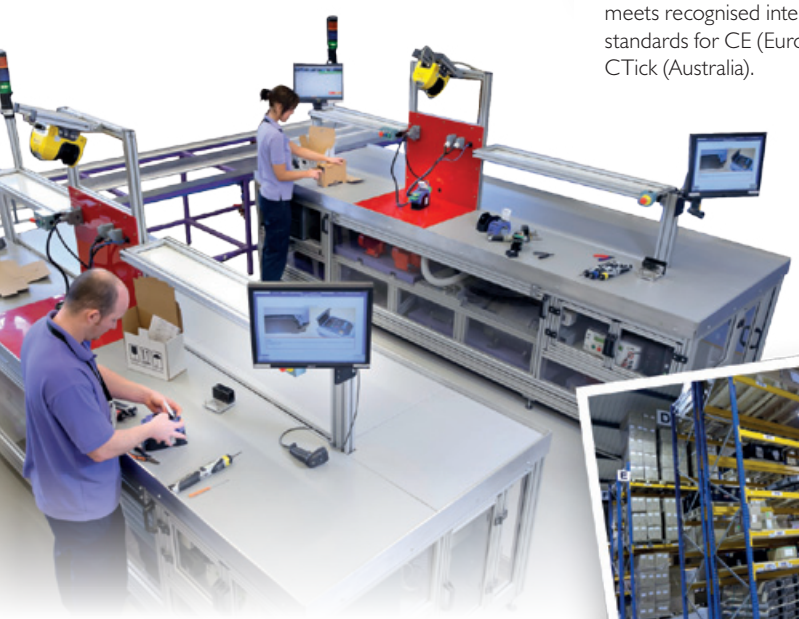
State of the art UK headquarters house specialist facilities for innovation, manufacturing and global marketing.

All operations, including innovation, are accredited to the exacting customer focused ISO 9001:2000 quality standard.

The company's products are sold globally by a network of specialist distributors in over 80 different countries. Invertek Drives' unique and innovative Optidrive range is designed for ease of use and meets recognised international design standards for CE (Europe), UL (USA) and CTick (Australia).

Innovative Products

- Easy to use variable speed drives
- Incredible performance
- Robust & reliable
- Low cost of installation & ownership
- Wide power range
  0.37–250kW, 115V–600V



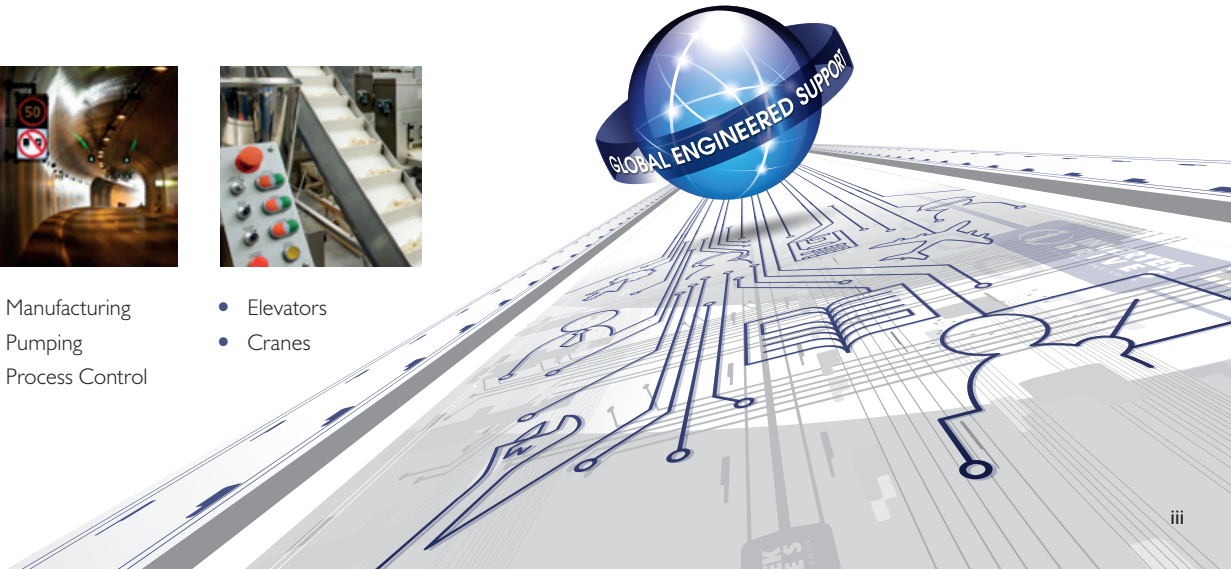
Global sales, service & application support network **in over 80 countries**

Online Support | Pre-sales Support | Customer Service | Technical Support | Knowledge Management | Field Service | Logistics & Distribution | Spare Parts & Repair | Service Contracts | International Support

- Conveyors
- HVAC
- Machine Tools

- Manufacturing
- Pumping
- Process Control

- Elevators
- Cranes



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Global Drive Solutions

AC Variable Speed Drives

Options

OPTIDRIVE™

AC Variable Speed Drives

Pages 2–7

Product Range	**P2**
Previous Optidrive Version	Optidrive Plus
IP20 Supply / Power Range	200–240V, 1ph, 4.3 to 10.5A (0.75 to 2.2kW / 1.0 to 3.0HP) 200–240V, 3ph, 4.3 to 24A (0.75 to 5.5kW / 1.0 to 7.5HP) 380–480V, 3ph, 2.2 to 24A (0.75-11kW / 1.0 to 15HP)
IP40 Supply / Power Range	380–480V, 3ph, 370 to 450A (200 to 250kW / 300 to 350HP)
IP55 Supply / Power Range	200–240V, 3ph, 24 to 248A (5.5 to 75kW / 7.5 to 100HP) 380–480V, 3ph, 24 to 302A (11 to 160kW / 15 to 250HP)
IP66 Supply / Power Range	200–240V, 1ph, 4.3 to 10.5A (0.75 to 2.2kW / 1.0 to 3.0HP) 200–240V, 3ph, 4.3 to 18A (0.75 to 4.0kW / 1.0 to 5HP) 380–480V, 3ph, 2.2 to 18A (0.75 to 7.5kW / 1.0 to 10HP)
Operating Ambient Rating	IP20 : –10 to 50°C IP40 : –10 to 50°C IP55 : –10 to 50°C IP66 : –10 to 50°C
Control Modes	V/F, Energy Optimised, Sensorless & Closed Loop Vector, Open Loop Permanent Magnet
Maximum Output Hz	500
Linear / Variable Torque Control	Linear
Motor Overload Capacity	150% - 60 Secs 200% - 3.75 Secs 250% - 1.8 Secs 300% (max) - 1.25 Secs
Internal EMC Filter Unit Available	All models provided with Internal EMC filter
Internal Brake Transistor	Standard Frame Sizes 2-5 Optional Frame Sizes 6 and above
I/O Connections	3 x Programmable Digital Inputs 2 x User-selectable Digital or Analog Inputs 2 x User-selectable Digital or Analog Outputs 2 x Programmable Relays (1 x change-over, 1 x single pole) Safe Torque Off inputs
Factory Fit Controls (Speed Potentiometer, FWD - 0 - REV, Power Isolator)	Optional on IP66 Models
Pulse Frequency Speed Reference	Yes - Digital Input 3 (20kHz Max)
Power Supplies	24VDC @ 100mA 10VDC @ 10mA (for potentiometer)
Display Type	IP20: 7 Segment LED IP55 & IP66: Optional 7 Segment LED or OLED
Keypad	7-Seg = 5 Buttons (start, stop, navigate, up, down) OLED = 5 Buttons (start, stop, navigate, up, down)
Service/Maintenance Indication	Yes
PI / PID Control	Yes (PID)
Energy Optimiser	Yes
Spin Start	Yes
Safe Torque Off Function	Yes
Pluggable Terminals	Yes
Fire Mode	No
Pump Cascade	No
Mains Power Disconnect	IP55: External Option IP66: Factory Fit Option
Bluetooth	Yes (Requires Optistick)
Parameter Copy Module	Optistick
Communications	Modbus RTU, CAN Open on board Profibus, DeviceNet, Ethernet IP, Modbus TCP, Profinet, Ethercat with plug in interface
PC Software	OptiTools Studio
Simple PLC Functionality	Licensed Software Tool
Remote Keypad	LED : OPT-2-OPORT-IN OLED : OPT-2-OPPAD-IN
Options	OPT-2-CASCD-IN OPT-2-ENCOD-IN OPT-2-EXTIO-IN OPT-2-PROFB-IN OPT-2-ETHNT-IN OPT-2-DEVNT-IN
Conformance	CE, UL, cUL, CTick

Easy to use, reliable products

with incredible performance

Pages 8–13 Pages 14–17 Pages 18–19 Pages 20–21

HVAC	E2	E2 Single Phase	PCE
Optidrive VTC	Optidrive E & EF	Optidrive E1 & EF1	None
200–240V, 1ph, 4.3 to 10.5A (0.75 to 2.2kW / 1.0 to 3.0HP) 200–240V, 3ph, 4.3 to 24A (0.75 to 5.5kW / 1 to 7.5HP) 380–480V, 3ph, 2.2 to 24A (0.75-11kW / 1.0 to 15HP)	110–115V, 1ph, 2.3 to 5.8A (0.5 to 1.5HP) 200–240V, 1ph, 2.3 to 15A (0.37 to 4kW / 0.5 to 5HP) 200–240V, 3ph, 2.3 to 18A (0.37 to 4kW / 0.5 to 5HP) 380–480V, 3ph, 2.2 to 24A (0.75 to 11kW / 1 to 15HP)	110–115V, 1ph, 7 to 10.5A (0.5 to 0.75HP) 200–240V, 1ph, 4.3 to 10.5A (0.37 to 1.1kW / 0.5 to 1.5HP)	
380–480V, 3ph, 370 to 450A (200 to 250kW / 300 to 350HP)			
200–240V, 3ph, 24 to 248A (5.5 to 75kW / 7.5 to 100HP) 380–480V, 3ph, 24 to 302A (11 to 160kW / 15 to 250HP)	110–115V, 1ph, 2.3 to 5.8A (0.5 to 1.5HP) 200–240V, 1ph, 2.3 to 10.5A (0.37 to 2.2kW / 0.5 to 3HP) 200–240V, 3ph, 2.3 to 18A (0.37 to 4kW / 0.5 to 5HP) 380–480V, 3ph, 2.2 to 18A (0.75 tp 7.5kW / 1 to 10HP)	110–115V, 1ph, 7 to 10.5A (0.5 to 0.75HP) 200–240V, 1ph, 4.3 to 10.5A (0.37 to 1.1kW / 0.5 to 1.5HP)	200–240V, 1ph, 4.5 to 7A (0.75 to 1.5kW / 1 to 2HP) 380–480V, 3ph, 2.2 to 4.1A (0.75 to 1.5kW / 1 to 2HP)
200–240V, 1ph, 4.3 to 10.5A (0.75 to 2.2kW / 1.0 to 3.0HP) 200–240V, 3ph, 4.3 to 18A (0.75 to 4.0kW / 1.0 to 5HP) 380–480V, 3ph, 2.2 to 18A (0.75 to 7.5kW / 1.0 to 10HP)	110–115V, 1ph, 2.3 to 5.8A (0.5 to 1.5HP) 200–240V, 1ph, 2.3 to 15A (0.37 to 4kW / 0.5 to 5HP) 200–240V, 3ph, 2.3 to 18A (0.37 to 4kW / 0.5 to 5HP) 380–480V, 3ph, 2.2 to 18A (0.75 to 7.5kW / 1 to 10HP)	110–115V, 1ph, 7 to 10.5A (0.5 to 0.75HP) 200–240V, 1ph, 4.3 to 10.5A (0.37 to 1.1kW / 0.5 to 1.5HP)	
IP20 : –10 to 50°C IP40 : –10 to 50°C IP55 : –10 to 50°C IP66 : –10 to 50°C	IP20 : 50°C IP66 : 40°C	IP20 : 50°C IP66 : 40°C	IP55 : 40°C
V/F Energy Optimised	V/F Energy Optimised	V/F	V/F, Energy Optimised, Sensorless Vector
120	500	120	500
Linear & Variable	Linear	Linear	Linear
110% - 60 Secs 125% - 7.5 Secs 150% - 3.9 Secs 165% (max) - 2.9S	150% - 60 Secs 175% - 2 Secs	150% - 60 Secs 175% - 2 Secs	150% - 60 Secs 175% - 2 Secs
All models provided with Internal EMC filter	Optional, refer to product page	110V not available with Filter All other models available with or without filter	All models available with or without filter
Not Available	Frame Sizes 2-3	Frame Size 2 Only	No
3 x Programmable Digital Inputs 2 x User-selectable Digital or Analog Inputs 2 x User-selectable Digital or Analog Outputs 2 x Programmable Relays (1 x change-over, 1 x single pole) Safe Torque Off inputs	2 x Programmable Digital Inputs 2 x User-selectable Digital or Analog Inputs 1 x User-selectable Digital or Analog Output 1 x Programmable Relay (single pole)	2 x Programmable Digital Inputs 2 x User-selectable Digital or Analog Inputs 1 x User-selectable Digital or Analog Output 1 x Programmable Relay (single pole)	2 x Programmable Digital Inputs 2 x User-selectable Digital or Analog Inputs 1 x Programmable Relay (single pole)
Optional on IP66 Models	IP66: Optional Factory Fit	IP66: Optional Factory Fit Note : Reverse motor rotation is not possible	Optional Factory Fit
No	No	No	No
24VDC @ 100mA 10VDC @ 10mA (for potentiometer)	24VDC @ 100mA 10VDC @ 10mA (for potentiometer)	24VDC @ 100mA 10VDC @ 10mA (for potentiometer)	24VDC @ 100mA
IP20: 7 Segment LED IP55 & IP66: OLED	7 Segment led	7 Segment LED	None
7-Seg = 5 Buttons (start, stop, navigate, up, down) OLED = 7 Button (start, stop, navigate, up, down, hand, auto)	5 Buttons (start, stop, navigate, up, down)	5 Buttons (start, stop, navigate, up, down)	Optional Remote
Yes	No	No	No
Yes (PID)	Yes (PI)	Yes (PI)	Yes (PID)
Yes	Yes	No	Yes
Yes	Yes, Frames 2-3	No	Yes
Yes	No	No	No
Yes	No	No	Yes
Yes	No	No	No
Yes	No	No	No
IP55: External Option IP66: Factory Fit Option	IP66: Factory Fit Option	IP66: Factory Fit Option	No
Yes (Requires Optistick)	Yes (Requires Optistick)	Yes (Requires Optistick)	No
Optistick	Optistick	Optistick	No
Modbus RT, BACnet MS/TP on board BACnet IP, Modbus TCP, Ethernet IP, Profibus, Profinet, DeviceNet, EtherCat optional plug in interface	Modbus RTU on board Profibus, DEviceNet or Ethernet IP via external gateway	Modbus RTU on board Profibus, DeveiceNet, EtherNet IP via external gateway	No
OptiTools Studio	Optistore V3 OptiTools Studio (OTS)	OptiTools Studio (OTS)	Optistore V3
Licensed Software Tool	No	No	No
LED : OPT-2-OPORT-IN OLED : OPT-2-OPPAD-IN	OPT-2-OPORT-IN, OPT-2-OPPAD-IN	OPT-2-OPORT-IN, OPT-2-OPPAD-IN	OD-OPRTP
OPT-2-CASCD-IN OPT-2-EXTIO-IN OPT-2-BACNT-IN OPT-2-PROFB-IN OPT-2-ETHNT-IN OPT-2-DEVNT-IN	OPT-HVACO-IN ODP-2ROUT-IN OPT-LOGIP-11-IN OPT-LOGIP-23-IN	OPT-HVACO-IN ODP-2ROUT-IN OPT-LOGIP-11-IN OPT-LOGIP-23-IN	None Available
CE, UL, cUL, CTick	CE, UL, cUL, C-Tick, Gost	CE, UL, cUL, C-Tick, Gost	CE, UL, cUL, C-Tick, Gost

1.03

Global service and support network

Leading edge design & technology

OPTIDRIVE™ P2

AC Variable Speed Drive

0.75kW – 250kW / 1HP – 350HP
200 – 480V Single & 3 Phase Input

World Leading Motor Control

Controlling the latest generation of permanent magnet motors and standard induction motors

Optidrive P2 offers the perfect combination of high performance together with ease of use to allow even the most demanding applications to be tackled easily.

- Low ambient operation (–10°C)
- Dedicated Hoist Mode
- CAN and Modbus RTU communication as standard

High Performance

Sensorless Vector Control

Up to 200% torque from zero speed ensures reliable starting and accurate speed control under all load conditions.

PM Motor Control

Future proof. Allows upgrade to the latest generation of high efficiency permanent magnet motors.

I/O & Communications

Optidrive P2 supports a wide range of interfaces to machine control systems.

Low Cost Installation

Built-in EMC Filter

An internal filter in every Optidrive P2 saves cost and time for installation.

Integral Brake Transistor

Saves space, cost and time for installation.

IP55 / NEMA 12

Up to 160kW

IP66 / NEMA 4X

Up to 7.5kW

Powerful PC based commissioning software

OptiTools Studio

OptiTools Studio allows parameter upload, download and storage and access to Optidrive P2 Simple PLC functionality.

See Page 24

OPTISTICK

Product Code: OPT-2-STICK-IN

- Fast parameter copying between drives
- Bluetooth PC interface for OptiTools Studio commissioning software

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

150% overload for 60 seconds
200% overload for 4 seconds

Industrial heavy duty rating for every model

Optional LED or OLED
(IP55 & IP66)

Convenient Help Card

DIN Rail Mount
(IP20)

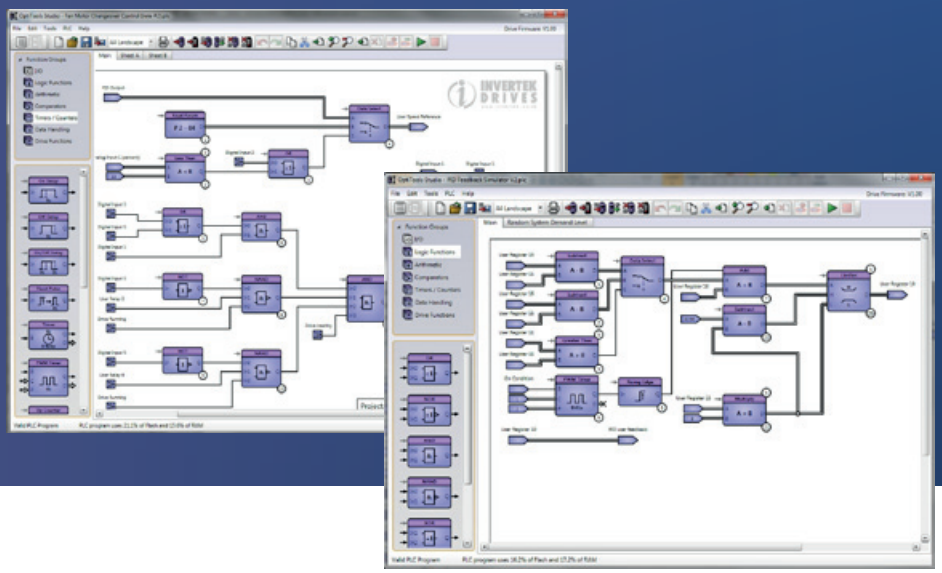
Pluggable Terminals

High Quality Long-life Fans

OPTIDRIVE™ P2

High Performance | Easy to Use

Simple PLC Functionality



A wide range of function types available including:

- Programmable Logic Functions
- Comparators
- Timers
- Mathematical Functions
- Drive specific functions

All blocks can be easily combined to create flexible programs.

Programs can be protected to prevent unauthorised copying.

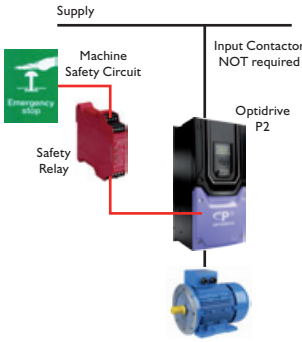
Complete control over the drive including all inputs and outputs.

Safe Torque Off (provided as standard)

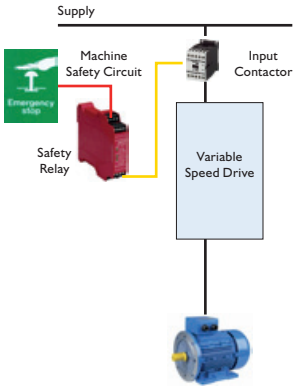
Optidrive P2 features a safe torque off function to allow simple integration into machine critical safety circuits.

- Simple machine design reduces component costs, saves panel space and minimises installation time
- Faster shut down and reset procedures reduce system maintenance time
- Better safety standard compared to mechanical solution
- Better motor connection. Single cable with no interruption.

With



Without



Advanced Motor Control

Invertek has developed advanced mathematical algorithms and uses the very latest hardware technology to ensure Optidrive P2 provides exceptional motor control with a simple interface to help users easily apply the benefits to their applications.

IP20

Panel mount units available up to 11kW

IP55

Wall mount units available up to 160kW

IP66

Wall mount units available up to 7.5kW

Drive System Efficiency

With today's ever increasing energy costs, efficiency has long been a key factor in relation to drive system component selection. In many cases, an efficiency figure can be arrived at by simply multiplying the efficiencies of the various components together to find a combined efficiency figure, however this may not tell the whole story. The efficiency of components such as drives, motors and gearboxes can vary considerably with speed and load, hence simply combining the 'headline' efficiency figures can often be very misleading. In reality, the efficiency curves for the whole system should be overlaid, to provide a true efficiency figure for the system across the desired speed and load range.

Modern AC inverters will typically have an electrical efficiency of around 98%, which represents the different between the electrical output power compared to electrical input power only. A further factor that is often overlooked is the efficiency of the motor control strategy employed by the drive. This can have a significant effect on the overall system efficiency, and is often not considered when energy saving calculations are made.

Optidrive P2 has been designed to work with both standard induction motors, which typically meet the IE2 efficiency standards currently in place in Europe, and the latest generation of high efficiency PM motors designed to meet the future IE4 requirements. This means that an efficient drive can be purchased now, allowing for a future update of the motor without requiring a change to the installed drive.

Furthermore, Optidrive P2 has been designed and developed to work with all PM motors, and control them with Optimum efficiency, providing the most efficient PM motor control available.

The graphs below clearly demonstrate these two factors:

- The overall efficiency of the system varies with speed and load and is not a constant
- Motor control efficiency significantly affects overall system efficiency

The graphs are generated by measuring the electrical power drawn from the mains supply compared to the torque generated at the output shaft. These are based on a system requirement of 2.2kW motor power.

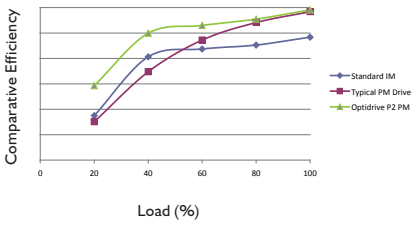
The **blue line** represents what will be considered a "high efficiency" solution using an efficient IM motor, a modern AC drive and efficient gearbox.

The **red line** represents efficiency of a typical PM motor and drive solution. Efficiency is improved at high speeds and loads, however it is actually reduced at very low loads, and output torque cannot be maintained at low speeds.

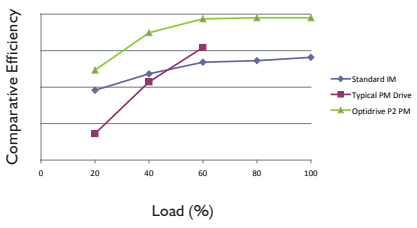
The **green line** represents the Optidrive P2 controlling the same PM motor. Efficiency is improved at all speeds and loads.

In simple terms, Optidrive P2 PM motor control produces the maximum amount of output shaft torque per electrical kW consumed across all speed and torque ranges.

Improvement in Efficiency at 100% Rated Speed Output



Improvement in Efficiency at 10% Rated Speed Output



OPTIDRIVE™ CP2

	kW	HP	Amps	Size	kW Model Code	HP Model Code
200–240V ± 10% 1 Phase Input	0.75	1	4.3	2	ODP-2-2 2 075-1 K F4#-##	ODP-2-2 2 010-1 H F4#-##
	1.5	2	7	2	ODP-2-2 2 150-1 K F4#-##	ODP-2-2 2 020-1 H F4#-##
	2.2	3	10.5	2	ODP-2-2 2 220-1 K F4#-##	ODP-2-2 2 030-1 H F4#-##
200–240V ± 10% 3 Phase Input	0.75	1	4.3	2	ODP-2-2 2 075-3 K F4#-##	ODP-2-2 2 010-3 H F4#-##
	1.5	2	7	2	ODP-2-2 2 150-3 K F4#-##	ODP-2-2 2 020-3 H F4#-##
	2.2	3	10.5	2	ODP-2-2 2 220-3 K F4#-##	ODP-2-2 2 030-3 H F4#-##
	4	5	18	3	ODP-2-3 2 040-3 K F4#-##	ODP-2-3 2 050-3 H F4#-##
	5.5	7.5	24	3	ODP-2-3 2 055-3 K F42-##	ODP-2-3 2 075-3 H F42-##
	5.5	7.5	24	4	ODP-2-4 2 055-3 K F4N-##	ODP-2-4 2 075-3 H F4N-##
	7.5	10	30	4	ODP-2-4 2 075-3 K F4N-##	ODP-2-4 2 100-3 H F4N-##
	11	15	46	4	ODP-2-4 2 110-3 K F4N-##	ODP-2-4 2 150-3 H F4N-##
	15	20	61	5	ODP-2-5 2 150-3 K F4N-##	ODP-2-5 2 020-3 H F4N-##
	18.5	25	72	5	ODP-2-5 2 185-3 K F4N-##	ODP-2-5 2 025-3 H F4N-##
	22	30	90	6	ODP-2-6 2 022-3 K F#N-##	ODP-2-6 2 030-3 H F#N-##
	30	40	110	6	ODP-2-6 2 030-3 K F#N-##	ODP-2-6 2 040-3 H F#N-##
	37	50	150	6	ODP-2-6 2 037-3 K F#N-##	ODP-2-6 2 050-3 H F#N-##
	45	60	180	6	ODP-2-6 2 045-3 K F#N-##	ODP-2-6 2 060-3 H F#N-##
	55	75	202	7	ODP-2-7 2 055-3 K F#N-##	ODP-2-7 2 075-3 H F#N-##
	75	100	248	7	ODP-2-7 2 075-3 K F#N-##	ODP-2-7 2 100-3 H F#N-##
380–480V ± 10% 3 Phase Input	0.75	1	2.2	2	ODP-2-2 4 075-3 K F4#-##	ODP-2-2 4 010-3 H F4#-##
	1.5	2	4.1	2	ODP-2-2 4 150-3 K F4#-##	ODP-2-2 4 020-3 H F4#-##
	2.2	3	5.8	2	ODP-2-2 4 220-3 K F4#-##	ODP-2-2 4 030-3 H F4#-##
	4	5	9.5	2	ODP-2-2 4 400-3 K F4#-##	ODP-2-2 4 050-3 H F4#-##
	5.5	7.5	14	3	ODP-2-3 4 055-3 K F4#-##	ODP-2-3 4 075-3 H F4#-##
	7.5	10	18	3	ODP-2-3 4 075-3 K F4#-##	ODP-2-3 4 100-3 H F4#-##
	11	15	24	3	ODP-2-3 4 110-3 K F42-##	ODP-2-3 4 150-3 H F42-##
	11	15	24	4	ODP-2-4 4 110-3 K F4N-##	ODP-2-4 4 150-3 H F4N-##
	15	20	30	4	ODP-2-4 4 150-3 K F4N-##	ODP-2-4 4 200-3 H F4N-##
	18.5	25	39	4	ODP-2-4 4 185-3 K F4N-##	ODP-2-4 4 250-3 H F4N-##
	22	30	46	4	ODP-2-4 4 220-3 K F4N-##	ODP-2-4 4 300-3 H F4N-##
	30	40	61	5	ODP-2-5 4 300-3 K F4N-##	ODP-2-5 4 040-3 H F4N-##
	37	50	72	5	ODP-2-5 4 370-3 K F4N-##	ODP-2-5 4 050-3 H F4N-##
	45	60	90	6	ODP-2-6 4 045-3 K F#N-##	ODP-2-6 4 060-3 H F#N-##
	55	75	110	6	ODP-2-6 4 055-3 K F#N-##	ODP-2-6 4 075-3 H F#N-##
	75	120	150	6	ODP-2-6 4 075-3 K F#N-##	ODP-2-6 4 120-3 H F#N-##
	90	150	180	6	ODP-2-6 4 090-3 K F#N-##	ODP-2-6 4 150-3 H F#N-##
	110	175	202	7	ODP-2-7 4 110-3 K F#N-##	ODP-2-7 4 175-3 H F#N-##
	132	200	240	7	ODP-2-7 4 132-3 K F#N-##	ODP-2-7 4 200-3 H F#N-##
	160	250	302	7	ODP-2-7 4 160-3 K F#N-##	ODP-2-7 4 250-3 H F#N-##
	200	300	370	8	ODP-2-8 4 200-3 K F#4-##	ODP-2-8 4 300-3 H F#4-##
	250	350	450	8	ODP-2-8 4 250-3 K F#4-##	ODP-2-8 4 350-3 H F#4-##

Factory Build Options

EMC Filter	Brake Transistor	Enclosure	Display	PCB Coating
F Internal EMC Filter	4 No Brake Transistor	2 IP20	S 7 Segment LED Display	N Standard Coating
		4 IP40	T OLED Display	C Full Conformal Coating
		5 IP55		
		X IP66 Non-switched		
		Y IP66 Switched		

kW Models: Factory Settings
Motor Rated Frequency: 50Hz
Motor Rated Voltage: 400V

HP Models: Factory Settings
Motor Rated Frequency: 60Hz
Motor Rated Voltage: 460V

Replace # in model code with colour-coded option
IP20 units are available with 7 Segment LED Display only

NOT TO SCALE

Size	2	2	3	3	4	5	6	7	8
Enclosure	IP20	IP66	IP20	IP66	IP55	IP55	IP55	IP55	IP40
Height (mm)	221	257	261	310	440	540	865	1280	2000
Width (mm)	112	188	131	211	171	235	330	330	500
Depth (mm)	185	239	205	251	240	270	330	360	516
Weight (kg)	1.8	4.8	3.5	7.3	11.5	22.5	50	80	270

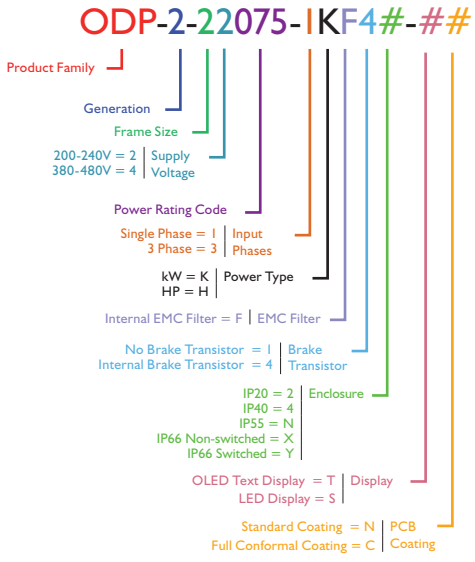
Drive Specification

Input Ratings	Supply Voltage	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	230V 1 Phase Input: 0.75–2.2kW (1–3HP) 230V 3 Phase Input: 0.75–75kW (1–100HP) 400V 3 Phase Input: 0.75–250kW 460V 3 Phase Input: 1–350HP
	Overload Capacity	150% for 60 seconds
	Output Frequency	0 – 500Hz, 0.1Hz resolution
	Typical Efficiency	98%
Ambient Conditions	Temperature	Storage : –40 to 60°C Operating : –10 to 50°C
	Altitude	Up to 1000m ASL without derating Up to 2000m maximum UL Approved Up to 4000m maximum (non UL) Above 1000m : Derate by 1% per 100m
	Humidity	95% Max, non-condensing
Enclosure	Ingress Protection	IP20 (Size 2, 3) IP40 (Size 8) IP55 (Size 4, 5, 6, 7) IP66 (Size 2, 3)
Programming	Keypad	Built-in Keypad as standard Optional remote mountable keypad
	Display	Optional OLED or LED display (OLED Display Multi Language)
	PC	OptiTools Studio

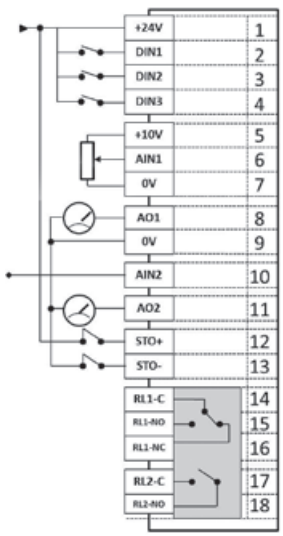
Control Specification	Control Method		V/F Voltage Vector Energy Optimised V/F Sensorless Vector Speed Control Sensorless Vector Torque Control Closed Loop (Encoder) Speed Control Closed Loop (Encoder) Torque Control Open Loop PM Vector Control
	PWM Frequency		4–32kHz Effective
	Stopping Mode		Ramp to Stop : User Adjustable 0.1–600 seconds Coast to Stop
	Braking		Motor Flux Braking Built-in Braking Transistor (Optional for frame sizes 6 & 7)
	Skip Frequency		Single point, user adjustable
	Setpoint Control	Analog Signal	0 to 10 Volts 10 to 0 Volts –10 to 10 Volts 0 to 20mA 20 to 0mA 4 to 20mA 20 to 4 mA
		Digital	Motorised Potentiometer (Keypad) Modbus RTU CANopen
		Optional	Profibus DP, DeviceNet, EthernetIP, Modbus TCP, EtherCat, Profinet

I/O Specification	Power Supply	24 Volt DC, 100mA, Short Circuit Protected 10 Volt DC, 5mA for Potentiometer
	Programmable Inputs	5 Total as standard (Optional additional 3) 3 Digital (Optional additional 3) 2 Analog / Digital Selectable
	Digital Inputs	10 – 30 Volt DC, internal or external supply, PNP Response time : < 4ms
	Analog Inputs	Resolution : 12 bits Response time : < 4ms Accuracy : < +/-2% of Full ScaleParameter adjustable scaling and offset
	Programmable Outputs	4 Total (Optional additional 3) 2 Analog / Digital 2 Relays (Optional additional 3)
	Relay Outputs	Maximum Voltage : 250 VAC, 30 VDC Switching Current Capacity : 6A AC,
	Analog Outputs	0 to 10 Volt 0 to 20mA 4 to 20mA
Control Features	Hoist Operation	Dedicated Hoist Operation Mode
	PID Control	Internal PID control with feedback display
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
	Maintenance Indicator	Maintenance Indicator with user adjustable maintenance interval Onboard service life monitoring
	Monitoring	Hours Run Meter Resettable & Non Resettable kWh meters
Standards Compliance	EN 61800-3:2004	Adjustable speed electrical power drive systems. EMC requirements.
	Low Voltage Directive	2004/108/EC 230 Volt 1 Phase Models Category C1 according to EN61800-3:2004 400 Volt 3 Phase Models Category C2 according to EN61800-3:2004
	Machinery Directive	98/37/EC
	Conformance	UL, cUL, C-Tick, ROHS, Gost R

Model Code Guide



Connection Diagram



Function	Default Setting
12 Volt DC Output, 100mA max / 24 Volt DC Input	
Digital Input 1	Drive Enable
Digital Input 2	Forward / Reverse Select
Digital Input 3	Preset Speed 1 Select
+10 Volt Power Supply 5mA	
Analog Input 1	Speed Reference 0–10 Volt
0 Volt	
Analog Output 1	Motor Speed
0 Volt	
Analog Input 2	
Analog Output 2	Motor Current
Safe Torque Off Input	
Safe Torque Off Input	
Output Relay 1	Drive Healthy / Fault
Output Relay 2	Drive Running

OPTIDRIVE™ HVAC

AC Variable Speed Drive

0.75kW – 250kW / 1HP – 350HP
200 – 480V Single & 3 Phase Input

Energy Efficient Fan & Pump Control

from a reliable, compact range of drives dedicated to pumping and HVAC systems

Key Features

- Dedicated HVAC drive for centrifugal fan and pump applications
- Built-in EMC Filter as standard
- IP55 Enclosed
- Multi Language Plain Text OLED display
- Energy optimisation maximises operating efficiency
- BACnet and Modbus RTU provided as standard
- Built-in Hours Run and kWh meters
- Bi-directional Fire Mode overrides the drive control providing ventilation in emergencies
- Built-in PID controller allows setpoint pressure or temperature to be accurately maintained
- Advanced software application functions reduce commissioning time and provide optimum performance
- Up to 32kHz output switching frequency for quiet motor operation
- Built-in Sleep and Wake functions ensure operation only when required

IP55 / NEMA 12

Up to 160kW

IP66 / NEMA 4X

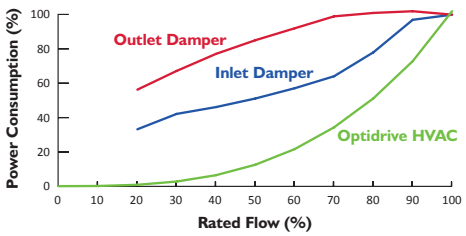
Up to 7.5kW

Energy Savings Calculator

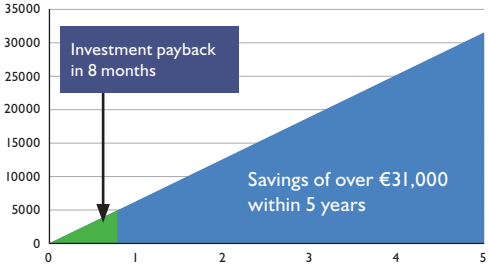
Visit www.invertek.co.uk to estimate your potential energy savings, CO_2 emissions and financial savings using our free software.

Optidrive HVAC Power Savings

With variable speed control, Optidrive HVAC provides instant savings.



Example savings based on a 45kW load



Using Optidrive HVAC to reduce the fan speed during periods when maximum flow is not required provides the maximum possible energy savings. A 20% reduction in speed can reduce the energy consumption by up to 50%. The calculation above represents the typical payback period that can be achieved by installing Optidrive HVAC to reduce fan speed and energy consumption.

Fire Override Mode

Fire override mode ignores signals and alarms, keeping the Optidrive HVAC operating for as long as possible.

This feature is crucial for ensuring smoke extraction from buildings in the event of a fire.

Selectable Normally Open or Normally Closed logic means that the Optidrive HVAC can be easily configured to the signal produced by your fire management system.

With an independently set speed for fire mode operation, selectable as either forward or reverse direction, the Optidrive HVAC has the flexibility to match the needs of your fire control system.

Stairwell Pressurisation

In the event of a fire, stairwells are often essential escape routes.

Optidrive HVAC can be used to control air flow and pressure to help keep stairwells clear of smoke to allow safe evacuation and give firefighters safe access to buildings.

Improved Fan Efficiency

Energy Optimisation and Monitoring

The advanced optimisation function intelligently matches energy usage to the driven load to ensure your fan operates at maximum efficiency. The in-built energy consumption meters allow energy consumption to be clearly displayed and savings to be calculated.

Intelligent Standby

To reduce energy used by slow-running fans, Optidrive HVAC has an intelligent standby/sleep function to shut off output from the drive until demand for air flow increases.

Broken Belt Detection

Optidrive HVAC intelligently monitors current/speed to provide immediate warning of broken belts between motors and ventilation fans.

Resonance Avoidance

Optidrive HVAC can be easily configured to avoid frequencies that cause resonance in ventilation systems, preventing unnecessary noise and mechanical damage to motors and fans.

PID Control

The Optidrive HVAC has a PID controller built in that is fully integrated with both HVAC and energy efficient features and is packaged in a user friendly way to ensure ease of use and fast commissioning.

Energy Efficient Pump Control

OPTIFLOW™

Co-ordinated pump station control, built into each Optidrive HVAC as standard, allows independent control of multiple pump applications.

- All pumps operate as variable speed for maximum energy saving.
- Equal run time sharing across every pump.
- Automatic system reconfiguration in the event of a pump fault (including the master pump).
- Continued system operation when drives are individually powered off (including the master drive).
- Communication and +24V control voltage shared between drives via a standard RJ45 patch lead.
- Independent maintenance indicators for each pump.
- Any pump can be switched to Hand operation a the touch of a button, and will automatically rejoin the network when switched back to Auto.
- For waste water applications each pump can be set for blockage/ragging detection and activate an automatic de-ragging/pump cleaning cycle.
- Optional mains isolator with lock-off for safe pump maintenance.
- Optiflow function configured through simple parameter set-up and intelligent drive self configuration.

Pump Efficiency

In-built Sleep Mode with Auto-boost

Sleep mode saves energy by detecting when a pump is running inefficiently and producing little useful work. Optidrive HVAC can be programmed to enter into a sleep/disabled mode until the demand increases. To help prevent sleep mode oscillation, Optidrive HVAC can automatically initiate a boost cycle to increase pressure on starting or stopping.

Drive Controlled Bypass

Intelligent features within the Optidrive HVAC allow a bypass circuit to be implemented. Activation of Bypass mode can be determined intelligently by the Optidrive HVAC drive based on a command from the building management system. The drive can be set to automatically select bypass mode when entering into a trip condition ensuring minimal disruption to service.

Avoid Pump Downtime

Blockage Detect/Clear

Optidrive HVAC can detect potential pump blockages in real time and trigger a programmed cleaning cycle to automatically clear them, preventing downtime.

Pump Clean/Stir Cycle

Triggered by a settable period of inactivity, a configurable cleaning cycle can be run to clear sediment, ensuring the pump is ready to run when needed.

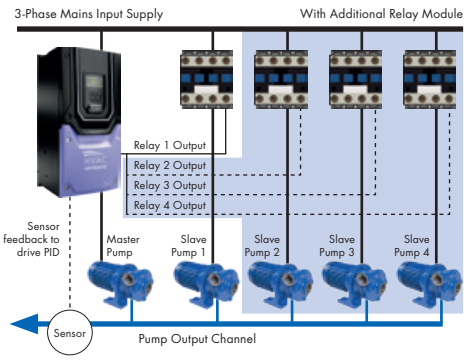
Dry Run Protection

Optidrive HVAC can evaluate a pump's speed/power and shut it off or warn when the pump starts to run dry, protecting it from heat/friction damage.

Motor Preheat Function

Optidrive HVAC features a motor preheat function to help ensure moisture is not permitted to collect on the motor in periods of inactivity and prior to motor start up. In addition, the motor preheat function can be used to keep condensation from developing on the motor as the motor cools down immediately following a stop. The feature is fully configurable, meaning the pump can be always available the instant it is required.

Cascade Control Pump Staging



Variable speed duty pump with up to 4 assist pumps

Optidrive HVAC can provide automatic operating time monitoring and balancing for assist pumps to share duty cycle. Run time clocks for all fixed speed assist pumps are maintained and visible within the Optidrive HVAC for integration into the pump system maintenance schedules.

OPTIDRIVE™ HVAC

	kW	HP	Amps	Size	kW Model Code	HP Model Code
200–240V ± 10% 1 Phase Input	0.75	1	4.3	2	ODV-2-2 2 075-1 K F I #-##	ODV-2-2 2 010-1 H F I #-##
	1.5	2	7	2	ODV-2-2 2 150-1 K F I #-##	ODV-2-2 2 020-1 H F I #-##
	2.2	3	10.5	2	ODV-2-2 2 220-1 K F I #-##	ODV-2-2 2 030-1 H F I #-##
200–240V ± 10% 3 Phase Input	0.75	1	4.3	2	ODV-2-2 2 075-3 K F I #-##	ODV-2-2 2 010-3 H F I #-##
	1.5	2	7	2	ODV-2-2 2 150-3 K F I #-##	ODV-2-2 2 020-3 H F I #-##
	2.2	3	10.5	2	ODV-2-2 2 220-3 K F I #-##	ODV-2-2 2 030-3 H F I #-##
	4	5	18	3	ODV-2-3 2 040-3 K F I #-##	ODV-2-3 2 050-3 H F I #-##
	5.5	7.5	24	3	ODV-2-3 2 055-3 K F I 2-##	ODV-2-3 2 075-3 H F I 2-##
	5.5	7.5	24	4	ODV-2-4 2 055-3 K F I N-T#	ODV-2-4 2 075-3 H F I N-T#
	7.5	10	30	4	ODV-2-4 2 075-3 K F I N-T#	ODV-2-4 2 100-3 H F I N-T#
	11	15	46	4	ODV-2-4 2 110-3 K F I N-T#	ODV-2-4 2 150-3 H F I N-T#
	15	20	61	5	ODV-2-5 2 150-3 K F I N-T#	ODV-2-5 2 020-3 H F I N-T#
	18.5	25	72	5	ODV-2-5 2 185-3 K F I N-T#	ODV-2-5 2 025-3 H F I N-T#
	22	30	90	6	ODV-2-6 2 022-3 K F I N-T#	ODV-2-6 2 030-3 H F I N-T#
	30	40	110	6	ODV-2-6 2 030-3 K F I N-T#	ODV-2-6 2 040-3 H F I N-T#
	37	50	150	6	ODV-2-6 2 037-3 K F I N-T#	ODV-2-6 2 050-3 H F I N-T#
	45	60	180	6	ODV-2-6 2 045-3 K F I N-T#	ODV-2-6 2 060-3 H F I N-T#
	55	75	202	7	ODV-2-7 2 055-3 K F I N-T#	ODV-2-7 2 075-3 H F I N-T#
	75	100	248	7	ODV-2-7 2 075-3 K F I N-T#	ODV-2-7 2 100-3 H F I N-T#
380–480V ± 10% 3 Phase Input	0.75	1	2.2	2	ODV-2-2 4 075-3 K F I #-##	ODV-2-2 4 010-3 H F I #-##
	1.5	2	4.1	2	ODV-2-2 4 150-3 K F I #-##	ODV-2-2 4 020-3 H F I #-##
	2.2	3	5.8	2	ODV-2-2 4 220-3 K F I #-##	ODV-2-2 4 030-3 H F I #-##
	4	5	9.5	2	ODV-2-2 4 400-3 K F I #-##	ODV-2-2 4 050-3 H F I #-##
	5.5	7.5	14	3	ODV-2-3 4 055-3 K F I #-##	ODV-2-3 4 075-3 H F I #-##
	7.5	10	18	3	ODV-2-3 4 075-3 K F I #-##	ODV-2-3 4 100-3 H F I #-##
	11	15	24	3	ODV-2-3 4 110-3 K F I 2-##	ODV-2-3 4 150-3 H F I 2-##
	11	15	24	4	ODV-2-4 4 110 3 K F I N-T#	ODV-2-4 4 150-3 H F I N-T#
	15	20	30	4	ODV-2-4 4 150-3 K F I N-T#	ODV-2-4 4 200-3 H F I N-T#
	18.5	25	39	4	ODV-2-4 4 185-3 K F I N-T#	ODV-2-4 4 250-3 H F I N-T#
	22	30	46	4	ODV-2-4 4 220-3 K F I N-T#	ODV-2-4 4 300-3 H F I N-T#
	30	40	61	5	ODV-2-5 4 300-3 K F I N-T#	ODV-2-5 4 040-3 H F I N-T#
	37	50	72	5	ODV-2-5 4 370-3 K F I N-T#	ODV-2-5 4 050-3 H F I N-T#
	45	60	90	5	ODV-2-5 4 450-3 K F I N-T#	ODV-2-5 4 060-3 H F I N-T#
	55	75	110	6	ODV-2-6 4 055-3 K F I N-T#	ODV-2-6 4 075-3 H F I N-T#
	75	120	150	6	ODV-2-6 4 075-3 K F I N-T#	ODV-2-6 4 120-3 H F I N-T#
	90	150	180	6	ODV-2-6 4 090-3 K F I N-T#	ODV-2-6 4 150-3 H F I N-T#
	110	175	202	6	ODV-2-6 4 110-3 K F I N-T#	ODV-2-6 4 175-3 H F I N-T#
	132	200	240	7	ODV-2-7 4 132-3 K F I N-T#	ODV-2-7 4 200-3 H F I N-T#
	160	250	302	7	ODV-2-7 4 160-3 K F I N-T#	ODV-2-7 4 250-3 H F I N-T#
	200	300	370	8	ODV-2-8 4 200-3 K F I 4-T#	ODV-2-8 4 300-3 H F I 4-T#
	250	350	450	8	ODV-2-8 4 250-3 K F I 4-T#	ODV-2-8 4 350-3 H F I 4-T#

Factory Build Options

Product Range	Generation	Frame Size	Supply Voltage	Power Rating	Input Phases	Power Type	Factory Build Options
ODV	2	2	2	075	1	K	F I #-##
ODV	2	2	2	150	1	K	F I #-##
ODV	2	2	2	220	1	K	F I #-##
ODV	2	2	2	075	3	K	F I #-##
ODV	2	2	2	150	3	K	F I #-##
ODV	2	2	2	220	3	K	F I #-##
ODV	2	3	2	040	3	K	F I #-##
ODV	2	3	2	055	3	K	F I 2-##
ODV	2	4	2	055	3	K	F I N-T#
ODV	2	4	2	075	3	K	F I N-T#
ODV	2	4	2	110	3	K	F I N-T#
ODV	2	5	2	150	3	K	F I N-T#
ODV	2	5	2	185	3	K	F I N-T#
ODV	2	6	2	022	3	K	F I N-T#
ODV	2	6	2	030	3	K	F I N-T#
ODV	2	6	2	037	3	K	F I N-T#
ODV	2	6	2	045	3	K	F I N-T#
ODV	2	7	2	055	3	K	F I N-T#
ODV	2	7	2	075	3	K	F I N-T#
ODV	2	2	4	075	3	K	F I #-##
ODV	2	2	4	150	3	K	F I #-##
ODV	2	2	4	220	3	K	F I #-##
ODV	2	2	4	400	3	K	F I #-##
ODV	2	3	4	055	3	K	F I #-##
ODV	2	3	4	075	3	K	F I #-##
ODV	2	3	4	110	3	K	F I 2-##
ODV	2	4	4	110	3	K	F I N-T#
ODV	2	4	4	150	3	K	F I N-T#
ODV	2	4	4	185	3	K	F I N-T#
ODV	2	4	4	220	3	K	F I N-T#
ODV	2	5	4	300	3	K	F I N-T#
ODV	2	5	4	370	3	K	F I N-T#
ODV	2	5	4	450	3	K	F I N-T#
ODV	2	6	4	055	3	K	F I N-T#
ODV	2	6	4	075	3	K	F I N-T#
ODV	2	6	4	090	3	K	F I N-T#
ODV	2	6	4	110	3	K	F I N-T#
ODV	2	7	4	132	3	K	F I N-T#
ODV	2	7	4	160	3	K	F I N-T#
ODV	2	8	4	200	3	K	F I 4-T#
ODV	2	8	4	250	3	K	F I 4-T#

Product Range	Generation	Frame Size	Supply Voltage	Power Rating	Input Phases	Power Type	Factory Build Options
ODV	2	2	2	010	1	H	F I #-##
ODV	2	2	2	020	1	H	F I #-##
ODV	2	2	2	030	1	H	F I #-##
ODV	2	2	2	010	3	H	F I #-##
ODV	2	2	2	020	3	H	F I #-##
ODV	2	2	2	030	3	H	F I #-##
ODV	2	3	2	050	3	H	F I #-##
ODV	2	3	2	075	3	H	F I 2-##
ODV	2	4	2	075	3	H	F I N-T#
ODV	2	4	2	100	3	H	F I N-T#
ODV	2	4	2	150	3	H	F I N-T#
ODV	2	5	2	020	3	H	F I N-T#
ODV	2	5	2	025	3	H	F I N-T#
ODV	2	6	2	030	3	H	F I N-T#
ODV	2	6	2	040	3	H	F I N-T#
ODV	2	6	2	050	3	H	F I N-T#
ODV	2	6	2	060	3	H	F I N-T#
ODV	2	7	2	075	3	H	F I N-T#
ODV	2	7	2	100	3	H	F I N-T#
ODV	2	2	4	010	3	H	F I #-##
ODV	2	2	4	020	3	H	F I #-##
ODV	2	2	4	030	3	H	F I #-##
ODV	2	2	4	050	3	H	F I #-##
ODV	2	3	4	075	3	H	F I #-##
ODV	2	3	4	100	3	H	F I #-##
ODV	2	3	4	150	3	H	F I 2-##
ODV	2	4	4	150	3	H	F I N-T#
ODV	2	4	4	200	3	H	F I N-T#
ODV	2	4	4	250	3	H	F I N-T#
ODV	2	4	4	300	3	H	F I N-T#
ODV	2	5	4	040	3	H	F I N-T#
ODV	2	5	4	050	3	H	F I N-T#
ODV	2	5	4	060	3	H	F I N-T#
ODV	2	6	4	075	3	H	F I N-T#
ODV	2	6	4	120	3	H	F I N-T#
ODV	2	6	4	150	3	H	F I N-T#
ODV	2	6	4	175	3	H	F I N-T#
ODV	2	7	4	200	3	H	F I N-T#
ODV	2	7	4	250	3	H	F I N-T#
ODV	2	8	4	300	3	H	F I 4-T#
ODV	2	8	4	350	3	H	F I 4-T#

EMC Filter	Brake Transistor	Enclosure	Display	PCB Coating
F Internal EMC Filter	I No Brake Transistor	2 IP20	S 7 Segment LED Display	N Standard Coating
		4 IP40	T OLED Display	C Full Conformal Coating
		X IP55		
		D IP66 with Isolator		

kW Models: Factory Settings
Motor Rated Frequency: 50Hz
Motor Rated Voltage: 400V

HP Models: Factory Settings
Motor Rated Frequency: 60Hz
Motor Rated Voltage: 460V

Replace # in model code with colour-coded option
IP20 units are available with 7 Segment LED Display only
All other models are available with OLED Text Display only

NOT TO SCALE

Size	2	2	3	3	4	5	6	7	8
Enclosure	IP20	IP66	IP20	IP66	IP55	IP55	IP55	IP55	IP40
Height (mm)	221	257	261	310	440	540	865	1280	2000
Width (mm)	112	188	131	211	171	235	330	330	500
Depth (mm)	185	239	205	251	240	270	330	360	516
Weight (kg)	1.8	4.8	3.5	7.3	11.5	22.5	50	80	270

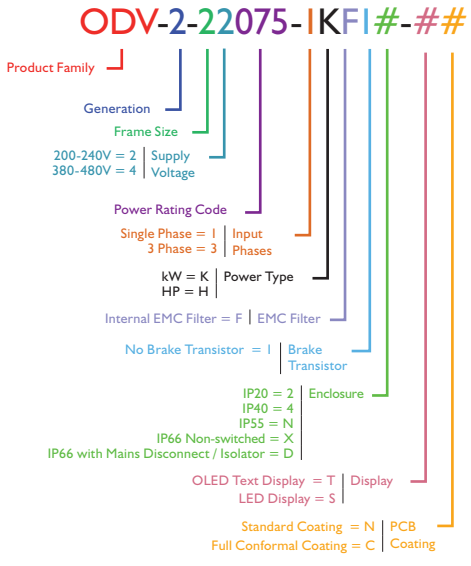
Drive Specification

Input Ratings	Supply Voltage	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	230V 1 Phase Input: 0.75–2.2kW (1–3HP) 230V 3 Phase Input: 0.75–75kW (1–100HP) 400V 3 Phase Input: 0.75–250kW 460V 3 Phase Input: 1–350HP
	Overload Capacity	110% for 60 seconds
	Output Frequency	0 – 120Hz, 0.1Hz resolution
	Typical Efficiency	98%
Ambient Conditions	Temperature	Storage : –40 to 60°C Operating : –10 to 40°C
	Altitude	Up to 1000m ASL without derating Up to 2000m maximum UL approved Up to 4000m maximum (non UL) Above 1000m : Derate by 1% per 100m
	Humidity	95% Max, non-condensing
Enclosure	Ingress Protection	IP20 (Frame sizes 2 & 3) IP66 (Frame sizes 2 & 3; up to 7.5kW) IP55 (Frame sizes 4 – 7) IP40 (Frame size 8)
Programming	Keypad	Built-in keypad as standard Optional remote mountable keypad
	Display	Built-in multi language OLED display (except IP20) LED display (IP20 only)
	PC	OptiTools Studio

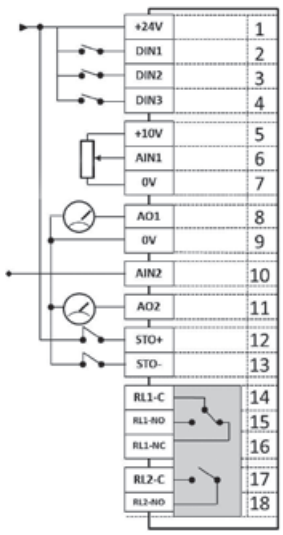
Control Specification	Control Method	Variable Torque V/F Variable Torque Energy Optimised V/F Linear V/F selectable	
	PWM Frequency	4–32kHz Effective	
	Stopping Mode	Ramp to Stop : User Adjustable 1–600 seconds Coast to Stop	
	Braking	Motor Flux Braking	
	Skip Frequency	Single point, user adjustable	
	Setpoint Control	Analog Signal	0 to 10 Volts 10 to 0 Volts –10 to +10 Volts 0 to 20mA 20 to 0mA 4 to 20mA 20 to 4 mA
		Digital	Motorised Potentiometer (Keypad) Modbus RTU BACnet
		Optional	BACnet/IP, Profibus DP, DeviceNet, EtherNet/IP
I/O Specification	Power Supply	24 Volt DC, 100mA, Short Circuit Protected 10 Volt DC, 5mA for Potentiometer	
	Programmable Inputs	5 Total as standard (Optional additional 3) 3 Digital (Optional additional 3) 2 Analog / Digital Selectable	
	Digital Inputs	10 – 30 Volt DC, internal or external supply, PNP Response time : < 4ms	
	Analog Inputs	Resolution : 12 bits Response time : < 4ms Accuracy : < 1% full scale Parameter adjustable scaling and offset	
	Programmable Outputs	4 Total (Optional additional 3) 2 Analog / Digital 2 Relays (Optional additional 3)	
	Relay Outputs	Maximum Voltage : 250 VAC, 30 VDC Switching Current Capacity : 6A AC, 5A DC	
	Analog Outputs	0 to 10 Volt 0 to 20mA 4 to 20mA	

Control Features	Fire Mode	Selectable direction Selectable speed reference
	Broken Belt Detection	Under load monitoring with autotune configuration
	PID Control	Internal PID control with feedback display
Pump Control Features	Pump Blockage Detection	Pump load monitoring with autotune function, user configurable
	Pump Cleaning	Adjustable Pump Cleaning Cycle operation
	Multi-pump Control	Control of fixed speed assist pumps via optional cascade control module Control of Duty, Assist and Standby variable speed pumps via internal Master – Slave network
	Pump Stir	Automatic pump stir function
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
	Maintenance Indicator	Maintenance Indicator with user adjustable maintenance interval Onboard service life monitoring
	Monitoring	Hours Run Meter Resettable & Non Resettable kWh meters
Standards Compliance	Low Voltage Directive	2006/95/EC
	EMC Directive	2004/108/EC 230 Volt 1 Phase Models Category C1 according to EN61800-3:2004 400 Volt 3 Phase Models Category C2 according to EN61800-3:2004
	Machinery Directive	98/37/EC
	Conformance	UL, cUL, C-Tick, ROHS, Gost R

Model Code Guide



Connection Diagram



Function	Default Setting
12 Volt DC Output, 100mA max / 24 Volt DC Input	
Digital Input 1	Drive Enable
Digital Input 2	Analog / Preset Speed 1 Select
Digital Input 3	Local / Remote Reference Select
+10 Volt Power Supply 5mA	
Analog Input 1	Local Speed Reference
0 Volt	
Analog Output 1	Motor Speed
0 Volt	
Analog Input 2	Remote Speed Reference
Analog Output 2	Motor Current
Safe Torque Off Input	
Safe Torque Off Input	
Output Relay 1	Drive Healthy / Fault
Output Relay 2	Drive Running

OPTIDRIVE™ E2

AC Variable Speed Drive

0.37kW – 11kW / 0.5HP – 15HP
110 – 480V Single & 3 Phase Input

General Purpose

Dedicated to low power applications, Optidrive E2 combines innovative technology, reliability, robustness and ease of use in a range of compact IP20 & IP66 enclosures

Key Features

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

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

Integral RFI Filter
Options for built-in and external filters for full EMC compliance.

Modbus RTU
Easy integration with your control & monitoring systems.

Compact Enclosures
Small mechanical envelopes to help minimise your space requirements.

Brake Chopper (Sizes 2 & 3)
Dynamic & compact options with heatsink mounted resistor.

High Overload Capability
150% overload for 60 seconds.
175% overload for 2 seconds.

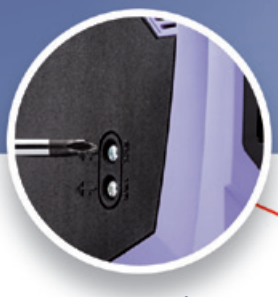
Industrial Ambient Ratings
IP20 Enclosure: 50°C
IP66 Enclosure: 40°C

Processing Plants Chemical Conveyer Systems
Bottling HVAC Woodworking
Pumping Baggage Handling Agricultural Mining

IP20
Available up to 11kW

IP66
Available up to 7.5kW

Convenient Help Card



EMC & Varistor Disconnect

Optistick Programming

DIN Rail Mount

Optional Braking Resistor

	kW	HP	Amps	Size	kW Model Code	HP Model Code	EMC Filter	Brake Transistor	Enclosure
110–115V ± 10% (230V 3 Phase Output) 1 Phase Input	–	0.5	2.3	1	N/A	ODE-2-11005-1H01#			
	–	1	4.3	1	N/A	ODE-2-11010-1H01#			
	–	1.5	5.8	2	N/A	ODE-2-21015-1H04#			
200–240V ± 10% 1 Phase Input	0.37	0.5	2.3	1	ODE-2-12037-1K#1#	ODE-2-12005-1H#1#	B		
	0.75	1	4.3	1	ODE-2-12075-1K#1#	ODE-2-12010-1H#1#	B		
	1.5	2	7	1	ODE-2-12075-1K#1#	ODE-2-12011-1H#1#	B		
	1.5	2	7	2	ODE-2-22150-1K#4#	ODE-2-22020-1H#4#	B		
	2.2	3	10.5	2	ODE-2-22220-1K#4#	ODE-2-22030-1H#4#	B		
	4	5	15	3	ODE-2-32040-1K#4#	ODE-2-32050-1H#4#	B		
200–240V ± 10% 3 Phase Input	0.37	0.5	2.3	1	ODE-2-12037-3K01#	ODE-2-12005-3H01#	B		
	0.75	1	4.3	1	ODE-2-12075-3K01#	ODE-2-12010-3H01#	B		
	1.5	2	7	1	ODE-2-12150-3K01#	ODE-2-12020-3H01#	B		
	1.5	2	7	2	ODE-2-22150-3K#4#	ODE-2-22020-3H#4#	B		
	2.2	3	10.5	2	ODE-2-22220-3K#4#	ODE-2-22030-3H#4#	B		
	4	5	18	3	ODE-2-32040-3K#4#	ODE-2-32050-3H#4#	B		
380–480V ± 10% 3 Phase Input	0.75	1	2.2	1	ODE-2-14075-3K#1#	ODE-2-14010-3H#1#	A		
	1.5	2	4.1	1	ODE-2-14150-3K#1#	ODE-2-14020-3H#1#	A		
	1.5	2	4.1	2	ODE-2-24150-3K#4#	ODE-2-24020-3H#4#	A		
	2.2	3	5.8	2	ODE-2-24220-3K#4#	ODE-2-24030-3H#4#	A		
	4	5	9.5	2	ODE-2-24400-3K#4#	ODE-2-24050-3H#4#	A		
	5.5	7.5	14	3	ODE-2-34055-3K#4#	ODE-2-34075-3H#4#	A		
	7.5	10	18	3	ODE-2-34075-3K#4#	ODE-2-34100-3H#4#	A		
	11	15	24	3	ODE-2-34110-3K#42	ODE-2-34150-3H#42	A		

Factory Build Options

EMC Filter: 0 = No EMC Filter; Brake Transistor: 1 = No Internal Brake Transistor, 4 = Internal Brake Transistor; Enclosure: 2 = IP20, X = IP66 Non-switched, Y = IP66 Switched

kW Models: Factory Settings
Motor Rated Frequency: 50Hz
Motor Rated Voltage: 400V

HP Models: Factory Settings
Motor Rated Frequency: 60Hz
Motor Rated Voltage: 460V

Replace # in model code with colour-coded option

Switched and Non-switched IP66 models available.

Optidrive E2 IP66

Environmentally protected, the Optidrive E2 IP66 can be mounted directly on your processing equipment.

IP66 / NEMA 4X

Dust-tight Design

Install in-situ and be sure of protection from dust and contaminants.

Washdown Ready

With a sealed ABS enclosure and corrosion resistant heatsink, the Optidrive E2 IP66 is ideal for high-pressure washdown applications.

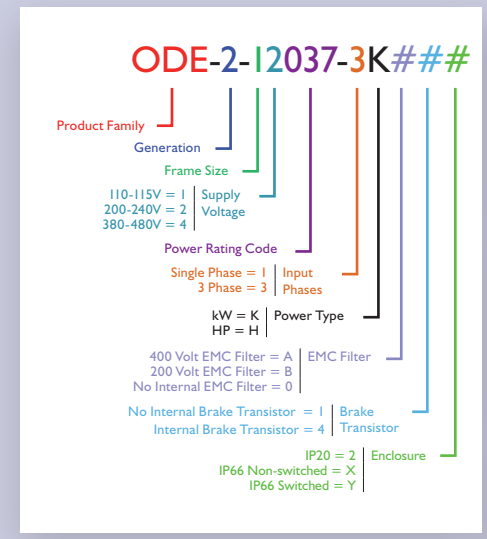
On-drive Control

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

IP66 Recommended for:

- Paper
- Petroleum
- Food Processing
- Aggregate / Cement
- Mining
- Textile
- Horticultural
- Chemical
- Agricultural

Model Code Guide



Drive Specification

Input Ratings	Supply Voltage	110 – 115V ± 10% 200 – 240V ± 10% 380 – 480V ± 10%
	Supply Frequency	48 – 62Hz
	Phase Imbalance	3% Maximum allowed
	Inrush Current	< rated current
	Power Cycles	120 per hour maximum, evenly spaced
Output Ratings	Output Power	110V 1 Phase Input: 0.5–1.5HP (230V 3 Phase Output) 230V 1 Phase Input: 0.75–4kW (1–5HP) 230V 3 Phase Input: 0.75–4kW (1–5HP) 400V 3 Phase Input: 0.75–11kW 460V 3 Phase Input : 1–15HP
	Overload Capacity	150% for 60 seconds, 175% for 2 seconds
	Output Frequency	0 – 500Hz, 0.1Hz resolution
Ambient Conditions	Temperature	Storage : –40 to 60°C Operating : –10 - 50°C (IP20) –10 - 40°C (IP66)
	Altitude	Up to 1000m ASL without derating Up to 2000m maximum UL Approved Up to 4000m maximum (non UL) Above 1000m : Derate by 1% per 100m
	Humidity	95% Max, non-condensing
Enclosure	Ingress Protection	IP20 IP66 (Excluding 11kW)
Programming	Keypad	Built-in Keypad as standard Optional remote mountable keypad
	Display	Built-in LED display
	Programming	OptiTools Studio / OPTISTICK
Control Specification	Control Method	V/F Voltage Vector Energy Optimised V/F
	PWM Frequency	4 – 32kHz Effective
	Stopping Mode	Ramp to Stop : User Adjustable 0.01 – 600 seconds Coast to Stop
	Braking	Motor Flux Braking Built-in Braking Transistor (Frames 2 & 3)
	Skip Frequency	Single point, user adjustable
	Setpoint Control – Analog Signal	0 to 10 Volts 0 to 20mA 20 to 0mA 4 to 20mA 20 to 4 mA
	Setpoint Control – Digital	Motorised Potentiometer (Keypad) Modbus RTU
	Setpoint Control – Optional Gateway	Profibus DP, DeviceNet, EthernetIP

I/O Specification	Power Supply	24 Volt DC, 100mA, Short Circuit Protected 10 Volt DC, 5mA for Potentiometer
	Programmable Inputs	4 Total as standard 2 Digital 2 Analog / Digital Selectable
	Digital Inputs	10 – 30 Volt DC, internal or external supply, Response time : < 4ms
	Analog Inputs	Resolution : 12 bits Response time : < 4ms Accuracy : < + / - 2% of full scale Parameter adjustable scaling and offset
	Programmable Outputs	2 Total 1 Analog / Digital 1 Relay
	Relay Outputs	Maximum Voltage : 250 VAC, 30 VDC Switching Current Capacity : 6A AC,
	Analog Outputs	0 to 10 Volt
Control Features	PI Control	Internal PI control with feedback display
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	2006/95/EC
	Machinery Directive	98/37/EC
	EMC Directive	2004/108/EC 230V 1 Ph Filtered Units category C1 according to EN61800-3:2004 400 Volt 3 Phase filtered units category C2 according to EN61800-3:2004
	Conformance	UL, cUL, C-Tick, Gost

NOT TO SCALE

Size	1	2	3	1	2	3
Enclosure	IP20	IP20	IP20	IP66	IP66	IP66
Height (mm)	173	221	261	232	257	310
Width (mm)	82	104	131	161	188	210.5
Depth (mm)	123	150	175	175	187	243
Weight (kg)	1.1	2.6	4	2.8	4.6	7.4
Fixings	4 x M4	4 x M4	4 x M4	4 x M4	4 x M4	4 x M4

OPTIDRIVE™ E2 Single Phase

AC Variable Speed Drive

0.37kW – 1.1kW / 0.5HP – 1.5HP
110 – 240V

Single Phase Motor Control

The Optidrive E2 Single Phase is the world's first fully digital, fully packaged variable speed drive for controlling low power single phase motors

Designed to be cost effective and easy to use, the Optidrive E2 Single Phase is for use with PSC (Permanent Split Capacitor) or Shaded-Pole Single Phase induction motors.

Optidrive E2 Single Phase uses a revolutionary motor control strategy to achieve reliable intelligent starting of single phase motors.

Optidrive E2 Single Phase has only 14 standard parameters to adjust in its basic form. The Optidrive's legendary ease of use ensures quick and easy drive commissioning. For the more advanced user the extended parameter set gives access to powerful additional functionality.

Typical Applications

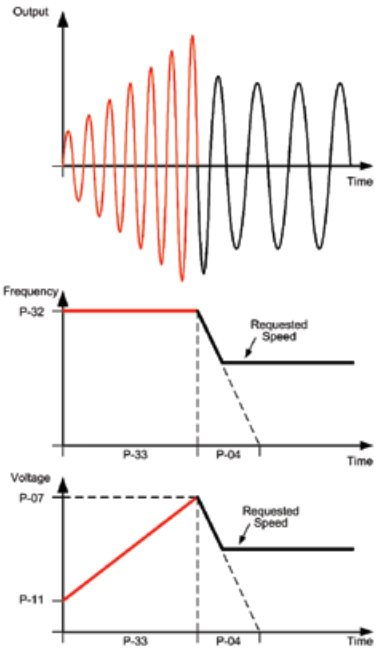
Optidrive E2 Single Phase Output can be used to provide Energy Efficient, Accurate speed control of single phase motors in a variety of applications, especially fans and pumps which typically do not require high starting torque. The control method used provides significant energy savings compared to alternative methods.

Key Features

- 110 – 115V and 200 – 240V models available
- Single phase input/single phase output
- Small mechanical envelope
- Rugged industrial operation:
  IP20: 50°C ambient rating
  IP66: 40°C ambient rating
- Simple mechanical & electrical installation
- Fast setup, and simple operation. Factory default settings okay for most applications, only 14 basic parameters
- Unique motor control strategy optimised for Single Phase Motors
- Motor current and rpm indication
- Debugging using troubleshooting & P-00
- 150% overload for 60 secs (175% for 2 secs)
- Keypad control
- Integral RFI filter option
- Integral brake chopper (S2 only)
- Modbus RTU serial communications

Special Boost Phase

To ensure reliable starting, the Optidrive E2 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.



OPTIDRIVE™ E2

Single Phase

	kW	HP	Amps	Size	kW Model Code	HP Model Code
110–115V ± 10% 1 Phase Input	–	0.5	7	1	N/A	ODE-2-11005-1H#1#-01
	–	0.75	10.5	2	N/A	ODE-2-21007-1H#4#-01
200–240V ± 10% 1 Phase Input	0.37	0.5	4.3	1	ODE-2-12037-1K#1#-01	ODE-2-12005-1H#1#-01
	0.75	1	7	1	ODE-2-12075-1K#1#-01	ODE-2-12010-1H#1#-01
	1.1	1.5	10.5	2	ODE-2-22110-1K#4#-01	ODE-2-22015-1H#4#-01

kW Models: Factory Settings
Motor Rated Frequency: 50Hz
Motor Rated Voltage: 400V

HP Models: Factory Settings
Motor Rated Frequency: 60Hz
Motor Rated Voltage: 460V

Factory Build Options

EMC Filter: Low Voltage Filter, No EMC Filter
Brake Transistor: No Internal Brake Transistor, Internal Brake Transistor
Enclosure: IP20, IP66 Non Switched, IP66 Switched

0	1	2 X Y
0	4	2 X Y
B 0	1	2 X Y
B 0	1	2 X Y
B 0	4	2 X Y

Replace # in model code with colour-coded option

Drive Specification

Input Ratings	Supply Voltage	110 – 115V ± 10% 200 – 240V ± 10%
	Supply Frequency	48 – 62Hz
	Phase Imbalance	3% Maximum allowed
	Inrush Current	< rated current
	Power Cycles	120 per hour maximum, evenly spaced
Output Ratings	Output Power	110V 1 Phase Input: 0.5–0.75HP 230V 1 Phase Input: 0.75–1.1kW (1–1.5HP)
	Overload Capacity	150% for 60 seconds, 175% for 2 seconds
	Output Frequency	0 – 120Hz, 0.1Hz resolution
Ambient Conditions	Temperature	Storage : –40 to 60°C Operating : – 10 - 50°C (IP20) –10 - 40°C (IP66)
	Altitude	Up to 1000m ASL without derating Up to 2000m maximum UL Approved Up to 4000m maximum (non UL) Above 1000m : Derate by 1% per 100m
	Humidity	95% Max, non-condensing
Enclosure	Ingress Protection	IP20 IP66
Programming	Keypad	Built-in Keypad as standard Optional remote mountable keypad
	Display	Built-in LED display
	Programming	OptiTools Studio / OPTISTICK
Control Specification	Control Method	Single Phase V/F with Starting Boost
	PWM Frequency	4 – 32kHz Effective
	Stopping Mode	Ramp to Stop : User Adjustable 0.1 – 600 seconds Coast to Stop
	Braking	Motor Flux Braking Built-in Braking Transistor (Size 2 only)
	Skip Frequency	Single point, user adjustable
	Setpoint Control	Analog Signal: 0 to 10 Volts, 0 to 20mA, 20 to 0mA, 4 to 20mA, 20 to 4 mA
		Digital: Motorised Potentiometer (Keypad), Modbus RTU
		Optional Gateway: Profibus DP, DeviceNet, EthernetIP

I/O Specification	Power Supply	24 Volt DC, 100mA, Short Circuit Protected 10 Volt DC, 5mA for Potentiometer
	Programmable Inputs	4 Total as standard 2 Digital 2 Analog / Digital Selectable
	Digital Inputs	10 – 30 Volt DC, internal or external supply, Response time : < 4ms
	Analog Inputs	Resolution : 12 bits Response time : < 4ms Accuracy : < + / - 2% of full scale Parameter adjustable scaling and offset
	Programmable Outputs	2 Total 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
Control Features	PID Control	Internal PID control with feedback display
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	2006/95/EC
	Machinery Directive	98/37/EC
	EMC Directive	2004/108/EC 230 Volt 1 Phase unit category C1 according to EN61800-3
	Conformance	UL, cUL, C-Tick, Gost

Model Code Guide

ODE-2-12037-1K#1#-01

- Product Family
- Generation
- Frame Size
- 110-115V = 1, 200-240V = 2, 380-480V = 4 | Supply Voltage
- Power Rating Code
- Single Phase = 1, 3 Phase = 3 | Input Phases
- kW = K, HP = H | Power Type
- 400 Volt EMC Filter = A, 200 Volt EMC Filter = B, No Internal EMC Filter = 0 | EMC Filter
- No Internal Brake Transistor = 1, Internal Brake Transistor = 4 | Brake Transistor
- IP20 = 2, IP66 Non-switched = X, IP66 Switched = Y | Enclosure
- Single Phase Output

NOT TO SCALE

Size	1	2	1	2
Enclosure	IP20	IP20	IP66	IP66
Height (mm)	173	221	232	257
Width (mm)	82	104	161	188
Depth (mm)	123	150	175	187
Weight (kg)	1.1	2.6	2.8	4.6
Fixings	4 x M4	4 x M4	4 x M4	4 x M4

OPTIDRIVE™ PCE

Motor Mount Variable Speed Drive

Up to 1.5kW / 2HP
200 – 240V 1 Phase Input
380 – 480V 3 Phase Input

The Integrated Drive Solution

Compact yet powerful, Optidrive PCE is the ideal solution for convenient motor control

IP55 / NEMA 12

Key Features

- High performance drive suitable for direct motor mounting
- Sensorless vector control — up to 200% torque from zero speed
- IP55 enclosure protects against dust and fluid ingress
- Available with local Potentiometer and forward / reverse selection
- Suitable for motor power ratings up to 1.5kW/2HP
- Supplied with universal adaptor plates

Switched & Non-switched Units Available

Local potentiometer for speed control

Programmable switch:

Drive REV/OFF/FWD
or:
Hand/OFF/Auto

Switched **Non-switched**

Universal Adaptor Plates

Supplied with 2 adaptor plates for direct fitting on most motors.

Deep adaptor plate **Shallow adaptor plate**

OPTIDRIVE™ PCE

	kW	HP	Amps	Size	kW Model Code	HP Model Code	Brake Transistor	Enclosure
200–240V ± 10% 1 Phase Input	0.75	1	4.3	1	OPC - 1 - 1 2 075 - 1 K 0 #	OPC - 1 - 1 2 010 - 1 H 0 #	0	N S
	1.5	2	7	1	OPC - 1 - 1 2 150 - 1 K 0 #	OPC - 1 - 1 2 020 - 1 H 0 #	0	N S
380–480V ± 10% 3 Phase Input	0.75	1	2.2	1	OPC - 1 - 1 2 075 - 3 K 0 #	OPC - 1 - 1 2 010 - 1 H 0 #	0	N S
	1.5	2	4.1	1	OPC - 1 - 1 2 150 - 3 K 0 #	OPC - 1 - 1 2 020 - 1 H 0 #	0	N S

Product Range · Generation · Frame Size · Supply Voltage · Power Rating · Input Phases · Power Type · Factory Build Options

Brake Transistor: No Brake Transistor

Enclosure: IP55 Non Switched, IP55 Switched

Factory Build Options

kW Models: Factory Settings
Motor Rated Frequency: 50Hz
Motor Rated Voltage: 400V

HP Models: Factory Settings
Motor Rated Frequency: 60Hz
Motor Rated Voltage: 460V

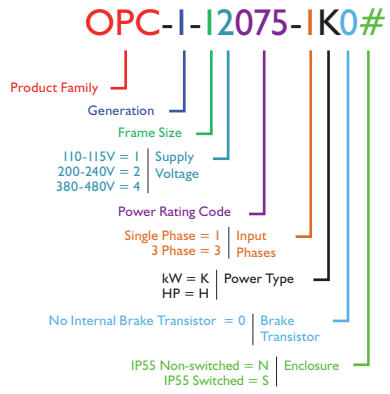
Replace # in model code with colour-coded option

Drive Specification

Input Ratings	Supply Voltage	200 – 240V ± 10% 380 – 480V ± 10%
	Supply Frequency	48 – 62Hz
	Phase Imbalance	3% Maximum allowed
	Inrush Current	< rated current
	Power Cycles	120 per hour maximum, evenly spaced
Output Ratings	Output Power	230 Volt 1 Phase Input : 0.75 – 1.5kW (1 – 2HP) 400 Volt 3 Phase Input : 0.75 – 1.5kW (1 – 2HP)
	Overload Capacity	150% for 60 seconds, 175% for 2 seconds
	Output Frequency	0 – 500Hz, 0.1Hz resolution
Ambient Conditions	Temperature	Storage : –40 to 60°C Operating : –10 to 40°C
	Altitude	Up to 1000m ASL without derating Up to 2000m maximum UL Approved Up to 4000m maximum (non UL) Above 1000m : Derate by 1% per 100m
	Humidity	95% Max, non-condensing
Enclosure	Ingress Protection	IP55
Programming	Keypad	Optional remote mountable keypad
	PC	Optistore V3

Control Specification	Control Method	V/F Voltage Vector Energy Optimised V/F Sensorless Vector Speed Control Sensorless Vector Torque Control
	PWM Frequency	4 – 32kHz Effective
	Stopping Mode	Ramp to Stop : User Adjustable 0.1 – 600 seconds Coast to Stop
	Braking	Motor Flux Braking
	Skip Frequency	Single point, user adjustable
	Setpoint Control	Analog Signal: 0 to 10 Volts, 0 to 20mA, 20 to 0mA, 4 to 20mA, 20 to 4 mA
		Digital: Motorised Potentiometer (Keypad)
I/O Specification	Power Supply	24 Volt DC, 100mA, Short Circuit Protected
	Programmable Inputs	4 Total as standard 2 Digital 2 Analog / Digital Selectable
	Digital Inputs	10 – 30 Volt DC, internal or external supply, Response time : < 4ms
	Analog Inputs	Resolution : 12 bits Response time : < 4ms Accuracy : < + / - 2% of full scale Parameter adjustable scaling and offset
	Programmable Outputs	1 Relay
	Relay Output	Maximum Voltage : 250 VAC, 30 VDC Switching Current Capacity : 6A
Control Features	PID Control	Internal PID control with feedback display
Maintenance & Diagnostics	Fault Memory	Last 4 Trips stored with time stamp
	Monitoring	Energy Consumption meter
Standards Compliance	EN 61800-3:2004	Adjustable speed electrical power drive systems. EMC requirements.

Model Code Guide



Plug-in Modules

Extend functionality or communication options

Mains Isolator Option

Expansion Modules

Encoder Feedback

Product Code: OPT-2-ENCOD-IN

- Compatible with Incremental Encoders up to 4096ppr
- 5 Volt Power Supply built-in
- Inputs suitable for 5 – 24 Volt DC
- Encoder Frequency up to 500kHz

Extended I/O

Product Code: OPT-2-EXTIO-IN

- Additional 3 Digital Inputs
- Additional Relay Output

Extended Relay/ Cascade Control

Product Code: OPT-2-CASCD-IN

- Additional 3 Relay Outputs

Fieldbus Interfaces

EtherNet/IP™

Product Code: OPT-2-ETHNT-IN

DeviceNet™

Product Code: OPT-2-DEVNT-IN

PROFIBUS®

Product Code: OPT-2-PROFB-IN

BACnet™

BACnet/IP

Product Code: OPT-2-BNTIP-IN

PROFINET®

Product Code: OPT-2-PFNET-IN

Modbus TCP

Product Code: OPT-2-MODIP-IN

EtherCAT® Technology Group

Product Code: OPT-2-ETCAT-IN

Compatibility

A mains isolator can be used with IP55 size 4 and 5 Optidrive P2 & Optidrive HVAC units.

For IP55 Frame Size 4

Product Code: OPT-2-ISOL4

For IP55 Frame Size 5

Product Code: OPT-2-ISOL5

OPTIPORT 2

Remote Keypad & LED Display

Product Code: OPT-2-OPORT-IN

OPTIPAD

Remote Keypad & OLED Display

Product Code: OPT-2-OPPAD

Optiport 2 and Optipad units act as the remote keypad and display for the Optidrive on the network which has the same serial address. The physical layout and the operation of the Optiport keypad and display mimic the Optidrive exactly.

OPTIPORT 2

- Real-time keypad and display operation mimics Optidrive
- Single electrical interface for power and data
- Communicates with any compatible drive across a network
- Easy keypad switching to other network addresses
- IP54 rated when through panel mounted
- Bright LED Display
- Membrane keypad
- Parameter lock function available
- 3m Data Cable included

OPTIPAD

In addition to Optiport 2 features, Optipad benefits from:

- Multi-language OLED Display
- IP55 rated

Specification

- Simple plug in RJ45 connection
- 24 Volt DC Power provided directly by the Optidrive
- RS485 2 Wire Signal Interface
- Operating Temperature: −10°C to +50°C
- Storage Temperature: −40°C to +60°C

Compatible with:

Optidrive E2
Optidrive P2
Optidrive HVAC

Configuration

Depending on the requirement of the application, Optiport 2 and Optipad keypads can be used in the following different ways:

1 keypad with 1 drive

1 keypad with multiple Optidrives (up to 63 max)

2 keypads with one drive

2 keypads with multiple Optidrives (up to 63 max)

OptiTools Studio

OPTISTICK

Rapid Commissioning Tool

Product Code: OPT-2-STICK-IN

Powerful PC Software

Drive commissioning and parameter backup

Bluetooth®

- Powerful PC based commissioning and programming software
- Multi Drive Network Support
- Supports two key functions
- Drive Programming & Commissioning
  - Parameter Upload, Download & Storage
  - Changed Parameter Highlighting
  - Parameter List Printing
- Provides Access to Optidrive P2 & HVAC PLC programming function
  - 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

Compatible with:

Windows XP, Windows Vista & Windows 7

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

Compatible with:

Optidrive E2, Optidrive P2, Optidrive HVAC

485AD

PC Connection Kit

Product Code: OD-485AD

485AD PC Connection Kit is an isolated USB to RS485 communications adaptor designed for use with OptiTools Studio

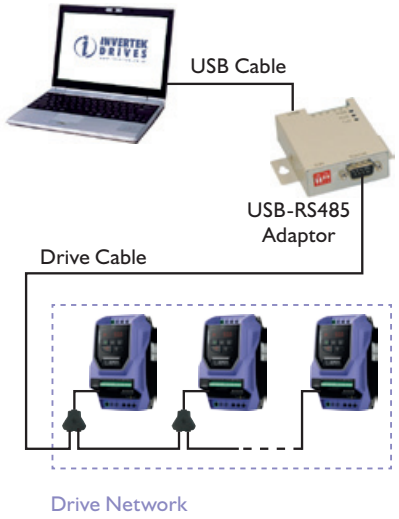
Key Benefits

- To provide interface between PC and drive
- For use with OptiTools Studio PC software
- Panel mount possibility
- Provides electrical isolation between PC and drive network

Components in this package

- USB-485 adaptor
- User and Installation guides
- USB cable
- DB9 > RJ11 Cable (For Optidrive Plus / VTC / PCE)
- DB9 > RJ45 Cable (For Optidrive P2 / HVAC / E2)
- Windows driver CD

Configuration



485SP

RS485 Data Cable Splitter

Product Code: OPT-RJ45SP (RJ45 1 - 2 way)

RS485 data cable splitter is an RJ45 1 to 2-way connection block

DATA CABLES

RJ45 to RJ45 RS485 Data Cable, 0.5m length, Blue
Product Code: OPT-J4505

RJ45 to RJ45 RS485 Data Cable, 1.0m length, Blue
Product Code: OPT-J4510

RJ45 to RJ45 RS485 Data Cable, 3.0m length, Blue
Product Code: OPT-J4530

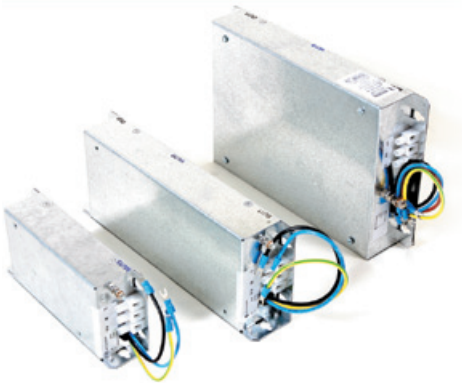
Invertek Drives provides a range of filters, braking resistors and chokes to complement the Optidrive range:

OPTIFILTER

RFI Line Filters

All Optidrive products are manufactured as standard with an internal EMC filter, unless specified by the customer. In general, this internal filter will provide compliance with international standard requirements for the majority of industrial installations and applications.

Where a higher standard of EMC compliance is desired or required, Invertek Drives can provide a range of suitable filters to ensure that an EMC compliant solution for all possible applications can be realised.



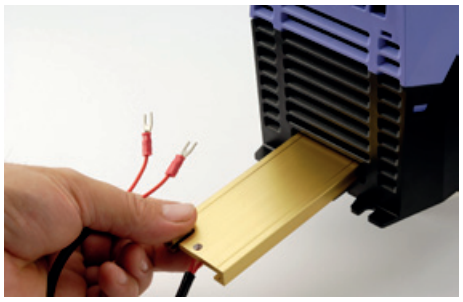
Product Codes

OPT-2-EI010-20
OPT-2-EI025-20
OPT-2-E3006-20
OPT-2-E3016-20
OPT-2-E3025-20

OPTIBRAKE

Dynamic Braking Resistors

Optibrake dynamic braking resistors are designed specifically for the Optidrive range. For use with high inertia loads which need to be stopped rapidly. Optibrake dynamic braking resistors assist the Optidrive in managing the electrical energy returned from the motor during braking by converting it to heat energy.



Product Codes

OD-BR100-IN
OD-BRES4-IN

INPUT CHOKES

Reduce supply harmonic current distortion and increase protection against mains voltage spikes and notches

Input chokes can be used to reduce the supply line harmonic currents and voltage distortion generated by almost all inverter drives on the market today. Invertek Drives have selected a range of chokes matched to the Optidrive range to provide the best reduction in supply current harmonics whilst also providing enhanced protection for the Optidrive against transient voltages ('spikes') or other mains borne interference.

Input chokes are available for the complete range of Optidrive products, and are recommended for use in all installations and in particular:

- where the local mains supply quality may be poor or unknown
- where high current switching loads such as large DC drives or soft starts are operating
- where the mains supply impedance is low
- in remote areas prone to lightening strikes

Product Codes (Open Type)

OPT-2-LI016-20
OPT-2-LI025-20
OPT-2-L3006-20
OPT-2-L3010-20
OPT-2-L3036-20
OPT-2-L3050-20
OPT-2-L3090-20
OPT-2-L3200-00
OPT-2-L3300-00

Product Codes (Enclosed)

OPT-2-LI016-66
OPT-2-LI025-66
OPT-2-L3006-66
OPT-2-L3010-66
OPT-2-L3018-66

OUTPUT FILTERS

Output filters improve the quality of the output waveform.

In most applications, the unfiltered output from an inverter drive gives satisfactory performance but to improve system functionality, reliability and longevity, output filtering is strongly recommended in some applications.

Product Codes (Open Type)

OPT-2-M3008-20
OPT-2-M3012-20
OPT-2-M3030-20
OPT-2-M3075-20
OPT-2-M3180-20
OPT-2-M3300-00

Product Codes (Enclosed)

OPT-2-M3008-66
OPT-2-M3012-66
OPT-2-M3018-66

	Product Code	Description	Optidrive Compatibility P2	HVAC	E2	PCE	Page
I/O Options	OPT-2-EXTIO-IN	Extended I/O Plug In Option Module	●	●			22
	OPT-2-ENCOD-IN	Encoder Feedback Plug In Option Module	●				22
	OPT-2-CASCD-IN	Cascade Control Plug In Option Module	●	●			22
	OPT-2-CANIO-IN	External Remote I/O Interface	●				22
	OPT-2-LOCMO-IN	Optidrive P2 / HVAC Local Mouse	●				22
Communication Interfaces	OPT-2-BNTIP-IN	Bacnet IP Plug in Interface		●			22
	OPT-2-DEVNT-IN	DeviceNet Plug In Interface Module	●	●			22
	OPT-2-ETHNT-IN	EthernetIP Plug In Interface Module	●	●			22
	OPT-2-PROFB-IN	Profibus DP Plug In Interface Module	●	●			22
Communication Gateways	OD-DEVNET-IN	DeviceNET External Gateway & Cables	●	●	●		22
	OD-PROFB-IN	Profibus External Gateway & Cables	●	●	●		22
Remote Keypads	OPT-2-OPPAD-IN	Optipad Remote OLED Keypad with RJ45 Cable	●	●	●		23
	OPT-2-OPORT-IN	Optiport 2 with RJ45 Cable	●	●	●		23
	OD-OPRTP-IN	Optiport+ Remote Keypad with RJ11 Cable				●	23
Communications Options	OPT-2-STICK-IN	Optistick with Bluetooth Interface	●	●	●		24
	OD-485AD-IN	USB PC Connection Kit	●	●	●	●	24
RJ45 Accessories	OPT-2-RJHUB-IN	RJ45 8 Way Network Hub	●	●	●		25
	OPT-J45SP-IN	RS485 3 Way Data Cable Splitter RJ45	●	●	●		25
	OPT-J4505-IN	RS485 Data Cable, 0.5M RJ45	●	●	●		25
	OPT-J4510-IN	RS485 Data Cable, 1.0M RJ45	●	●	●		25
	OPT-J4530-IN	RS485 Data Cable, 3.0M RJ45	●	●	●		25
RJ11 Accessories	OD-485SP-IN	RS485 3 Way Data Cable Splitter RJ11				●	25
	OD-48503-IN	RS485 Data Cable, 0.3M RJ11				●	25
	OD-48510-IN	RS485 Data Cable, 1.0M RJ11				●	25
	OD-48530-IN	RS485 Data Cable, 3.0M RJ11				●	25
EMC Filters	OPT-2-E1010-20	External EMC Filter, 10A, 200-240V, 1 Phase	●		●	●	26
	OPT-2-E1025-20	External EMC Filter, 25A, 200-240V, 1 Phase	●	●	●		26
	OPT-2-E3006-20	External EMC Filter, 6A, 200-480V, 3 Phase	●	●	●		26
	OPT-2-E3016-20	External EMC Filter, 16A, 200-480V, 3 Phase	●	●	●		26
	OPT-2-E3025-20	External EMC Filter, 25A, 200-480V, 3 Phase	●		●	●	26
Braking Resistors	OPT-BR050-IN-I55	Brake Resistor, IP55, Size 2, 200W, 50R	●		●		26
	OD-BR100-IN	Brake Resistor, Size 2, 100R, 200W	●		●		26
	OD-BRES4-IN	Brake Resistor, Size 4, 33R, 500W	●				26
Input Chokes	OPT-2-L1016-20	Input Choke, 1 Phase, 16 Amp, IP20	●	●	●		26
	OPT-2-L1016-66	Input Choke, 1 Phase, 16 Amp, IP66	●	●	●		26
	OPT-2-L1025-20	Input Choke, 1 Phase, 25 Amp, IP20	●	●	●		26
	OPT-2-L1025-66	Input Choke, 1 Phase, 25 Amp, IP66	●	●	●		26
	OPT-2-L1035-20	Input Choke, 1 Phase, 35 Amp, IP20	●	●	●		26
	OPT-2-L3010-20	Input Choke, 3 Phase, 10 Amp, IP20	●	●	●		26
	OPT-2-L3010-66	Input Choke, 3 Phase, 10 Amp, IP66	●	●	●		26
	OPT-2-L3018-66	Input Choke, 3 Phase, 18 Amp, IP66	●	●	●		26
	OPT-2-L3200-00	Input Choke, 3 Phase, 200 Amp, IP00	●	●	●		26
	OPT-2-L3300-00	Input Choke, 3 Phase, 300 Amp, IP00	●	●	●		26
	OPT-2-L3036-20	Input Choke, 3 Phase, 36 Amp, IP20	●	●	●		26
	OPT-2-L3050-20	Input Choke, 3 Phase, 50 Amp, IP20	●	●	●		26
	OPT-2-L3006-20	Input Choke, 3 Phase, 6 Amp, IP20	●	●	●		26
	OPT-2-L3006-66	Input Choke, 3 Phase, 6 Amp, IP66	●	●	●		26
	OPT-2-L3090-20	Input Choke, 3 Phase, 90 Amp, IP20	●	●	●		26
Output Chokes	OPT-2-M3012-20	Output Filter, 12 Amp, IP20	●	●	●		26
	OPT-2-M3012-66	Output Filter, 12 Amp, IP66	●	●	●		26
	OPT-2-M3018-66	Output Filter, 18 Amp, IP66	●	●	●		26
	OPT-2-M3180-20	Output Filter, 180 Amp, IP20	●	●	●		26
	OPT-2-M3030-20	Output Filter, 30 Amp, IP20	●	●	●		26
	OPT-2-M3300-00	Output Filter, 300 Amp, IP00	●	●	●		26
	OPT-2-M3075-20	Output Filter, 75 Amp, IP20	●	●	●		26
	OPT-2-M3008-20	Output Filter, 8 Amp, IP20	●	●	●		26
	OPT-2-M3008-66	Output Filter, 8 Amp, IP66	●	●	●		26
I/O Options (E2)	OPT-LOGIP-11	110V Logic Input Card			●		-
	OPT-LOGIP-23	230V Logic Input Card			●		-
	ODP-2ROUT-IN	Dual Relay Output Card			●		-
	OPT-HVACO-IN	HVACO Drive Running & Tripped Relay Output Card			●		-
	OD-LOCMO-IN	Local Test / Control Option Card			●		-
Local Isolator	OPT-2-ISOLO-S4	Local Isolator, Frame Size 4	●	●			-
	OPT-2-ISOLO-S5	Local Isolator, Frame Size 5	●	●			-