

# E2 Single Phase

VFD for Shaded Pole or Permanent Split Capacitor Motors up to 1.5HP

CONCEPT VERSATILE  
IP20 or NEMA 12  
Basic or smart drive  
Solo or networked



THE NEW E2 SP  
Expandable  
Easy  
Economical  
Enduring  
Efficient

***Bardac***  
***drive technology***

# OPTIDRIVE E2 SP

## Single Phase Motor Controller

A unique VFD for variable torque, fan and pump type applications

The innovative E2 SP, Single Phase motor controller, uses a unique control algorithm that ensures reliable starting and control of either single or multiple motors in low starting torque applications.

These drives are designed only for use on Shaded Pole (SP) or Permanent Split Capacitor (PSC) type motors in variable torque, fan and centrifugal pump applications.

They use high frequency switching to provide near silent running which is most desirable in applications such as:

- Commercial and residential HVAC
- Fume extraction
- Laboratories
- Quiet locations.

Like the other E2 products the SP is expandable, versatile and economical in all its forms:

Basic or NEMA12 versions  
 Basic or full featured systems drive  
 Basic or peer-to-peer networking over Ethernet



### THE BASICS

- Compact packaging
- Simple mechanical and electrical installation
- 50°C ambient rating
- 150% rating for 60 seconds, 175% for 2 seconds
- Simple basic set up
- Integral brake transistor (size 2, 100% rated)
- ModbusRTU serial port
- Remote keypad and display option
- OPTISTICK plug in unit for fast up/down load of parameters

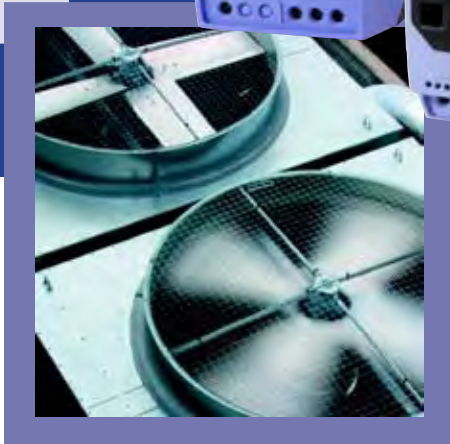
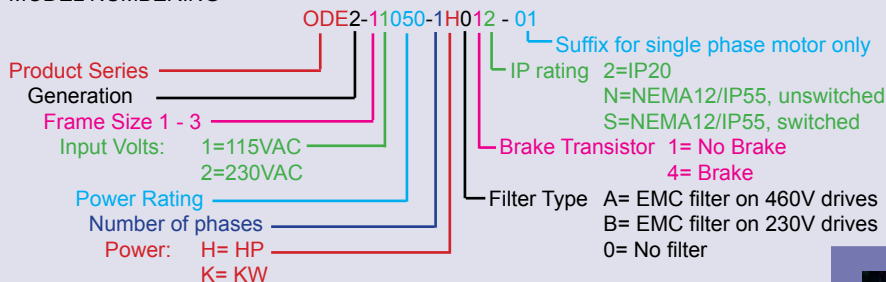
### SPECIFICATION

Output	Frequency	0 to 500Hz
Supply options	Frequency	48 - 62 Hz
	Volts/Phases	100 - 132 volts max, single phase (0.5 - 1.0HP) 180 - 264 volts max, 1-phase (0.5 - 1.5HP)
Environment	Temperature	Operating, -10 to 50°C max, storage, -40 to 60°C
	Altitude	0-2000M, derate 1% per 100M above 1000M
	Humidity	up to 95%, non condensing
	Ingress	Basic IP20, Optional IP55 (NEMA12)
Control	Mode	V/F
	PWM Hz	4 to 32KHz (effective)
	V/Hz ratio	Linear
	Boost	Automatic boost phase operation
	Stop modes	Coast / ramp / DC brake
	Setpoint ref	0-10VDC, 4-20mA, 0-20mA, Keypad, Modbus
	Presets	8 preset speeds
	PI control	Direct & analog input trim
	Spin start	Starts safely into rotating motor
	Accel/Decel	0 - 600 secs + Ramp stop decel 0 - 600 secs
	Configurable i/o	Input 1
Input/output 2		Selectable digital input / output
Input 3		Configurable analog or digital input
Input 4		Configurable analog or digital input
Output 1		Configurable analog or digital output
Relay 1		Normally open relay contact 30VDC 5A, 250VAC 6A
Protection	Drive trip	Over/under volts, over current, external trip,
	Motor	Overload, over temp, short circuit, ground fault
	Trip memory	Last 4 trips stored

# E2 Single Phase IP20

Single phase motor controller for use only with Shaded Pole (SP) or Permanent Split Capacitor (PSC) type motors in variable torque, fan and centrifugal pump applications

## MODEL NUMBERING



Model	Supply	Motor	Power	Amps	Size
ODE2-11005-1H012-01	1Ø, 115V	1Ø, 115V	0.5HP	7.0	1
ODE2-21007-1H012-01	1Ø, 115V	1Ø, 115V	0.75HP	10.5	2
ODE2-12005-1H012-01	1Ø, 230V	1Ø, 230V	0.5HP	4.3	1
ODE2-12010-1H012-01	1Ø, 230V	1Ø, 230V	1HP	7.0	1
ODE2-22015-1H042-01	1Ø, 230V	1Ø, 230V	1.5HP	10.5	2

## DIMENSIONS & WEIGHT

Size	Height	Width	Depth	Weight
1	6.8" (173mm)	3.3" (82mm)	4.9" (123mm)	2.5lbs (1.1kg)
2	8.7" (221mm)	4.1" (104mm)	5.9" (150mm)	5.9lbs (2.6kg)

# E2 Single Phase NEMA 12 / IP55

## For harsh & dirty environments

**Switched** version with keypad, display, speed pot, forward/off switch & power isolator switch

**Unswitched** version with keypad & display



- 40°C ambient temperature
- Conduit cable entry
- Padlockable power switch
- Wash down duty
- ModbusRTU port
- Compact packaging
- All standard drive features included
- Brake standard on 230V, size 2
- Optional internal Ethernet size 2
- Optional internal [drive.web](http://drive.web) sizes 2

## NEMA 12 / IP55 DRIVES

Model	Supply	Motor	Power	Amps	Size
ODE2-11005-1H01#-01	1Ø, 115V	1Ø, 115V	0.5HP	7.0	1
ODE2-21007-1H01#-01	1Ø, 115V	1Ø, 115V	0.75HP	10.5	2
ODE2-12005-1H01#-01	1Ø, 230V	1Ø, 230V	0.5HP	4.3	1
ODE2-12010-1H01#-01	1Ø, 230V	1Ø, 230V	1HP	7.0	1
ODE2-22015-1H04#-01	1Ø, 230V	1Ø, 230V	1.5HP	10.5	2

# N = Unswitched, S = Switched

## DIMENSIONS & WEIGHT

Size	Height	Width	Depth	Weight
1	7.9" (200mm)	5.5" (140mm)	6.4" (162mm)	5.4lbs (2.4kg)
2	12.2" (310mm)	6.5" (164mm)	6.9" (176mm)	10.3lbs (4.6kg)

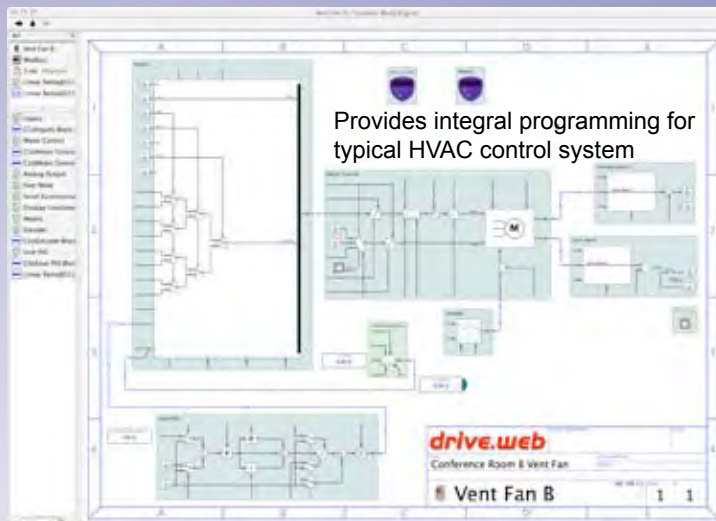
# THE SMARTER E2 Single Phase

The **dw213 smarty** programmable system integrator is cost effective for systems of any size or complexity. It has a plug and play interface to the E2 SP and other drives and provides easy peer-to-peer networking over Ethernet without the need for a PLC. Key features include:

- 16 additional flexible analog/logic, plug in i/o
- 10/100baseTX Ethernet
- Peer-to-peer networking
- Programmable control with arithmetic, logic, etc.
- Internet access
- **savvy** intuitive, graphical system design software
- Powerful system navigation tools
- Optional ModbusTCP/IP (slave) interface
- Optional encoder input
- Optional process control function block library
- Optional advanced math function block library
- Optional high voltage input isolation
- Optional on board storage of signal flow diagram



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