Bardac drives

E3 Series

AC Variable Speed Drive

General Purpose Drive
Easy control for all motor types

Easy to Use!

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

IP20 **NEMA 4X** (IP66)

E3 SERIES

Easy to Use

General Purpose Drive

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

Simple Commissioning

With just 14 basic parameters and application macro functions providing rapid set up, the E3 Series minimizes start-up time.

Intuitive Keypad Control

Precise digital control at the touch of a button.

Application Macros

Switch between **Industrial, Pump & Fan** modes to optimize E3 Series drives for your application.

Industrial | Pump | Fan

See **Page 6**

IP20

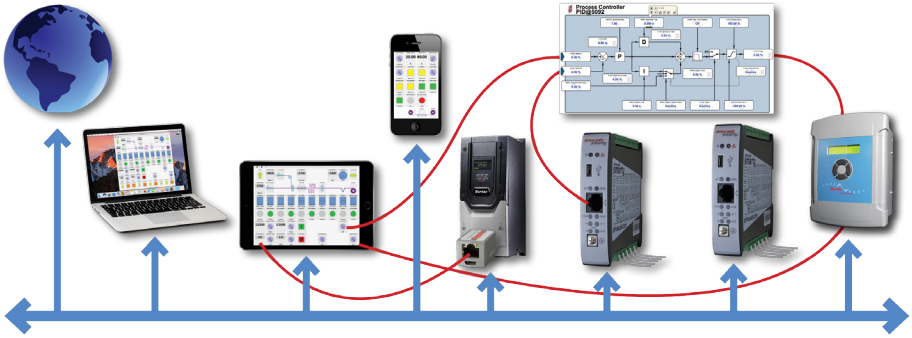
Up to 30HP

- ✓ Easy to use
- ✓ Compact & robust

See **Page 4**

All E3 Series drives are *drive.web ready*

drive.web uses distributed control over Ethernet to provide cost effective, high performance integration of drives and controls in systems of any size or complexity.



Bardac drives

NEMA 4X (IP66)

Up to 30HP

- ✓ Outdoor rated
- ✓ Dust-tight
- ✓ Washdown ready

See **Page 5**

Key Features

- ✓ Internal PI control
- ✓ Dynamic brake switch (Frame 2 and up)
- ✓ Dual analogue inputs
- ✓ Operates up to 50°C
- ✓ Bluetooth® connectivity
- ✓ Optional Internal Category C1 EMC filter
- ✓ Option for control of single phase motors (see **Page 8**)

Modbus RTU
CAN
on-board as standard

Sensorless Vector Control for all Motor Types

- **IM** IE2 & IE3 Induction Motors
- **PM** AC Permanent Magnet Motors
- **BLDC** Brushless DC Motors
- **SynRM** Synchronous Reluctance Motors

Precise and reliable control for **IE2, IE3 & IE4 motors**

E3 SERIES

IP20 Up to 30HP

Compact, robust and reliable general purpose drive for panel mounting

Incredibly Easy to Use

- ✓ Built in PI control
- ✓ Dynamic brake switch (Frame 2 and up)
- ✓ Application macros for industrial, fan and pump operation
- ✓ Bluetooth® connectivity
- ✓ Optional EMC filter (C1)

Simple Installation
DIN rail and keyhole mounting options

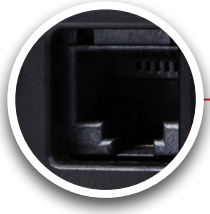
Fast Connection
5mm rising clamp terminals with captive screws

Power supply connects at top

Quick Reference
Integrated help card

Operates up to 122°F

Modbus RTU
CAN
on-board as standard



drive.web speedy
Ethernet & USB interface, Modbus TCP/IP, and adds extensive capability

Optistick Smart
Rapid commissioning tool

Dual analog inputs

Motor supply connects at base

Controls Multiple Motor Types

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

4 sizes cover global supply ratings

Simply Power Up

E3 Series drives provide 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.

E3 SERIES

NEMA 4X Outdoor

Up to 30HP

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

Coated Heatsink as Standard

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

Locally Customizable

Flat front to terminal cover with mounting points for switches and an internal PCB.

Switched or non-switched

Conformal coating as standard

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.

NEMA 4X (IP66) outdoor rated

Built with tough polycarbonate plastics specifically chosen to withstand degredation by ultra violet (UV), greases, oils and acids. Also robust enough not to be brittle at -20°C.

Dust-Tight Design

Install directly on your processing equipment and be sure of protection from dust and contaminants.

Washdown Ready

With a sealed ABS enclosure and corrosion resistant heatsink, E3 Series NEMA 4X drives are ideal for high-pressure washdown applications.

Switched Models

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

Saving energy cannot be easier than this!

For ultimate ease of use

E3 SERIES

Application Macros

Switch modes at the touch of a button to optimize E3 Series drives for your application

Single parameter application macro selection

Industrial Mode

Industrial Mode optimizes E3 Series drives for load characteristics of typical industrial applications.

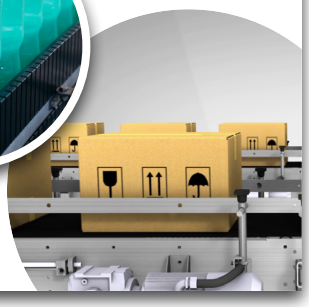
Applications include:

- ✓ Conveyors
- ✓ Mixers
- ✓ Treadmills

Sensorless Vector provides high starting torque and excellent speed regulation

IP20
panel mount units or
NEMA 4X
for direct machine mounting

Rapid parameter cloning using **OPTISTICK** Smart



Pump Mode

Pump Mode makes energy efficient pump control easier than ever.

Applications include:

- ✓ Dosing Pumps
- ✓ Borehole Pumps
- ✓ Transfer Pumps
- ✓ Swimming Pools
- ✓ Spas
- ✓ Fountains

- Constant or variable torque
- Internal PI control

Fan Mode

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

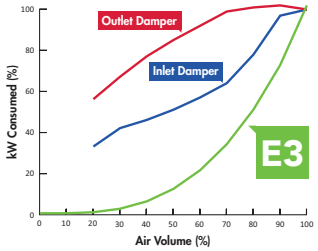
Applications include:

- ✓ Air Handling Units
- ✓ Ventilation Fans
- ✓ Circulating Fans
- ✓ Air Curtains
- ✓ Kitchen Extract

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

Instant Power Savings

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



Modbus RTU
CAN

on-board as standard

How much energy could you save?

Estimate potential energy savings, CO_2 emissions and financial savings for your application with the Bardac Drives **Energy Savings Calculator** tool.

bardac.com/calculator

E3 SERIES

	HP	kW	Amps	Frame	Model Code
110–115V ± 10% 1 Phase Input	0.5	0.37	2.3	1	E3 - 1 1 0023 - 1 0 1 #
	1	0.75	4.3	1	E3 - 1 1 0043 - 1 0 1 #
	1.5	1.1	5.8	2	E3 - 2 1 0058 - 1 0 4 #
200–240V ± 10% 1 Phase Input	0.5	0.37	2.3	1	E3 - 1 2 0023 - 1 # 1 #
	1	0.75	4.3	1	E3 - 1 2 0043 - 1 # 1 #
	2	1.5	7	1	E3 - 1 2 0070 - 1 # 1 #
	2	1.5	7	2	E3 - 2 2 0070 - 1 # 4 #
	3	2.2	10.5	2	E3 - 2 2 0105 - 1 # 4 #
	5	4	15.3	3	E3 - 3 2 0153 - 1 0 4 #
200–240V ± 10% 3 Phase Input	0.5	0.37	2.3	1	E3 - 1 2 0023 - 3 0 1 #
	1	0.75	4.3	1	E3 - 1 2 0043 - 3 0 1 #
	2	1.5	7	1	E3 - 1 2 0070 - 3 0 1 #
	2	1.5	7	2	E3 - 2 2 0070 - 3 # 4 #
	3	2.2	10.5	2	E3 - 2 2 0105 - 3 # 4 #
	5	4	18	3	E3 - 3 2 0180 - 3 # 4 #
	7.5	5.5	24	3	E3 - 3 2 0240 - 3 # 4 #
	10	7.5	30	4	E3 - 4 2 0300 - 3 # 4 #
	15	11	46	4	E3 - 4 2 0460 - 3 # 4 #
380–480V ± 10% 3 Phase Input	1	0.75	2.2	1	E3 - 1 4 0022 - 3 # 1 #
	2	1.5	4.1	1	E3 - 1 4 0041 - 3 # 1 #
	2	1.5	4.1	2	E3 - 2 4 0041 - 3 # 4 #
	3	2.2	5.8	2	E3 - 2 4 0058 - 3 # 4 #
	5	4	9.5	2	E3 - 2 4 0095 - 3 # 4 #
	7.5	5.5	14	3	E3 - 3 4 0140 - 3 # 4 #
	10	7.5	18	3	E3 - 3 4 0180 - 3 # 4 #
	15	11	24	3	E3 - 3 4 0240 - 3 # 4 #
	20	15	30	4	E3 - 4 4 0300 - 3 # 4 #
	25	18.5	39	4	E3 - 4 4 0390 - 3 # 4 #
	30	22	46	4	E3 - 4 4 0460 - 3 # 4 #

Model Code: Product Family & Generation | Frame Size | Voltage Code | Output Current x 10 | Supply Phases | EMC Filter | Brake Transistor | Enclosure Option

Model Code Guide:

E3-120043-3F12

- Product Family
- Generation
- Frame Size
- 110 – 115V = 1, 200 – 240V = 2, 380 – 480V = 4 — Voltage Code
- Capacity
- Single Phase = 1, 3 Phase = 3 — Supply Phases
- Internal EMC Filter = F, No Internal EMC Filter = 0 — EMC Filter
- No Internal Brake Transistor = 1, Internal Brake Transistor = 4 — Brake Transistor
- IP20 = 2, NEMA 4X Outdoor use Non-switched = A, NEMA 4X Outdoor use Switched = B — Enclosure Type

IP20

	Size	1	2	3	4
in	Height	6.8	8.7	10.3	16.6
mm	Height	173	221	261	420
in	Width	3.3	4.4	5.2	6.7
mm	Width	83	110	131	171
in	Depth	4.9	5.9	6.9	8.4
mm	Depth	123	150	175	212
lb	Weight	2.2	3.8	7.1	20.1
kg	Weight	1.0	1.7	3.2	9.1
	Mounting	4xM5	4xM5	4xM5	4xM8

NEMA 4X

	Size	1	2	3	4
in	Height	9.1	10.1	12.2	14.2
mm	Height	232	257	310	360
in	Width	6.4	7.4	8.3	9.5
mm	Width	161	188	211	240
in	Depth	6.4	7.2	9.4	10.8
mm	Depth	162	182	238	275
lb	Weight	5.5	7.7	15.4	20.9
kg	Weight	2.5	3.5	7.0	9.5
	Mounting	4xM4	4xM4	4xM4	4xM4

Drive Specification

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: 0.5–5HP (0.37–4kW) 230V 3 Ph Input: 0.5–15HP (0.37–11kW) 400V 3 Ph Input: 0.75–22kW 460V 3 Ph Input: 1–30HP
	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	**IP20:** Storage: –40 to 140°F Operating: 14 to 122°F **NEMA 4X:** Storage: –40 to 140°F Operating: 14 to 104°F
	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
Enclosure	Ingress Protection	IP20, NEMA 4X (IP66)

Programming	Keypad	Built-in keypad as standard Optional remote mountable keypad	
	Display	7 Segment LED	
	Computer	***drive.web savvy-SFD software***	
Control Specification	Control Method	Sensorless Vector Speed Control PM Vector Control BLDC Control Synchronous Reluctance	
	PWM Frequency	4–32kHz Effective	
	Stopping Mode	Ramp to stop: User Adjustable 0.1–600 secs Coast to 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 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 EtherNet/IP
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	4 Total 2 Digital 2 Analog / Digital selectable
	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	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
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 according to EN61800-3:2004
	Machinery Directive	2006/42/EC
	Conformance	CE, UL, RCM

E3 SERIES

For Single Phase Motors

IP20 **NEMA 4X** (IP66)

Up to 1.5HP

Single Phase Motor Control for PSC & Shaded-Pole Motors

Key Features

- ✓ 110–115V and 200–240V models
- ✓ Small mechanical envelope
- ✓ Rugged industrial operation
- ✓ Fast setup, and simple operation with 14 basic parameters
- ✓ Unique motor control strategy optimized for single phase motors
- ✓ Motor current and rpm indication
- ✓ Built in PI control
- ✓ Dynamic brake switch (Frame 2 and up)
- ✓ Application macros for industrial, fan and pump operation
- ✓ Bluetooth® connectivity
- ✓ Optional EMC filter (C1)

Modbus RTU
CAN

on-board as standard

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

Dedicated to Single Phase Motor Control

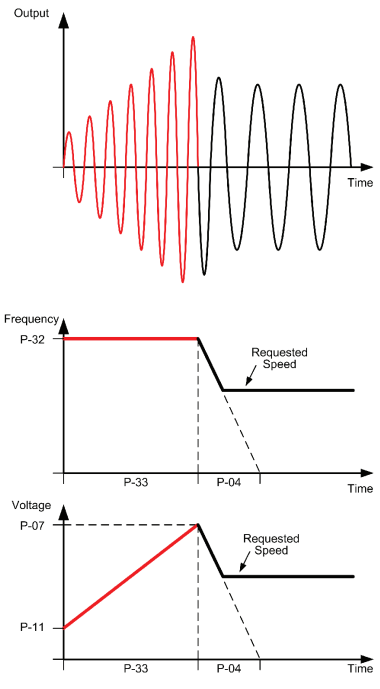
Designed to be cost effective and easy to use, the E3 Series for Single Phase Motors is for use with PSC (Permanent Split Capacitor) or Shaded-Pole Single Phase induction motors. Only for use in variable torque applications such as pumps and fans.

The E3 Series 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 E3 Series
- 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 while maintaining a fixed starting frequency, before reducing the frequency and voltage to the desired operating point.



E3 SERIES

	HP	kW	Amps	Frame	Model Code
110–115V±10% 1 Phase Input	0.5	0.37	7	1	E3 - 1 1 0070 - 1 # 1 # - 01
	0.75	0.55	10.5	2	E3 - 2 1 0105 - 1 # 4 # - 01
200–240V±10% 1 Phase Input	0.5	0.37	4.3	1	E3 - 1 2 0043 - 1 # 1 # - 01
	1	0.75	7	1	E3 - 1 2 0070 - 1 # 1 # - 01
	1.5	1.1	10.5	2	E3 - 2 2 0105 - 1 # 4 # - 01

Model Code: Product Family & Generation; Frame Size; Voltage Code; Output Current x 10; Supply Phases; EMC Filter; Brake Transistor; Enclosure Option; Single Phase Output

Replace # in model code with color-coded option as seen below

Model Code Guide:

E3-120043-3F12-01

- Product Family
- Generation
- Frame Size
- Voltage Code: 110 – 115V = 1; 200 – 240V = 2; 380 – 480V = 4
- Capacity
- Supply Phases: Single Phase = 1; 3 Phase = 3
- EMC Filter: Internal EMC Filter = F; No Internal EMC Filter = 0
- Brake Transistor: No Internal Brake Transistor = 1; Internal Brake Transistor = 4
- Enclosure Type: IP20 = 2; NEMA 4X Outdoor use Non-switched = A; NEMA 4X Outdoor use Switched = B
- Single Phase Output

Enclosure Types

A  **NEMA 4X Outdoor Use** Non-switched

B  **NEMA 4X Outdoor Use** Switched

2  **IP20**

EMC Filter

F Internal EMC Filter

0 No Internal EMC Filter

IP20

	Size	1	2
in	Height	6.8	8.7
mm	Height	173	221
in	Width	3.3	4.4
mm	Width	83	110
in	Depth	4.9	5.9
mm	Depth	123	150
lb	Weight	2.2	3.8
kg	Weight	1.0	1.7
	Mounting	4xM5	4xM5

NEMA 4X

	Size	1	2
in	Height	9.1	10.1
mm	Height	232	257
in	Width	6.4	7.4
mm	Width	161	188
in	Depth	6.4	7.2
mm	Depth	162	182
lb	Weight	5.5	7.7
kg	Weight	2.5	3.5
	Mounting	4xM4	4xM4

Drive Specification

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: 0.5–1.5HP (0.37–1.1kW)
	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	**IP20:** Storage: –40 to 140°F Operating: 14 to 122°F **NEMA 4X:** Storage: –40 to 140°F Operating: 14 to 104°F
	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
Enclosure	Ingress Protection	IP20, NEMA 4X (IP66)
Programming	Keypad	Built-in keypad as standard Optional remote mountable keypad
	Display	7 Segment LED
	Computer	***drive.web savvy-SFD software***

Control Specification	Control Method	V/F Voltage Energy Optimsied V/F	
	PWM Frequency	4–32kHz Effective	
	Stopping Mode	Ramp to stop: User Adjustable 0.1–600 secs Coast to stop	
	Braking	Motor Flux Braking Built-in braking transistor (frame size 2)	
	Skip Frequency	Single point, user adjustable	
	Setpoint Control	Analog Signal	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 EtherNet/IP
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	4 Total 2 Digital 2 Analog / Digital selectable	
	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	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	

Application Features	PI Control	Internal PI Controller Standby / Sleep Function
	Fire Mode	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 230V 1Ph. Filtered Units : Cat C1 according to EN61800-3:2004
	Machinery Directive	2006/42/EC
	Conformance	CE, UL, RCM

drive.web automation

drive.web uses distributed control over Ethernet to provide cost effective, high performance integration of drives and controls in systems of any size or complexity.

smarty dw240 series

controllers with a wide range of I/O

Used for all programmable control, peer-to-peer Ethernet networking and system integration tasks.

- DIN mount controllers with flexible analog, logic, and encoder I/O
- 51 points of high resolution I/O
- Includes gateway to ModbusTCP/IP, ModbusRTU, EIP/PCCC, etc.
- USB port for easy system-wide programming

smarty dw210 series

controllers with a wide range of I/O

Used for all programmable control, peer-to-peer Ethernet networking and system integration tasks.

- DIN mount controllers with flexible analog, logic, and encoder I/O
- 16 points of high resolution I/O
- Includes gateway to ModbusTCP/IP, ModbusRTU, EIP/PCCC, etc.
- USB port for easy system-wide programming

speedy

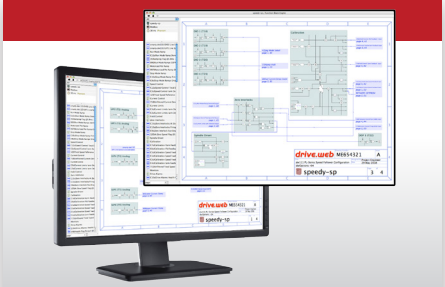
miniature, full-featured controllers

Tiny, full-featured, programmable controllers for embedding into drives, sensors, HMIs, etc.

- The easiest, affordable way to get all your drives & devices up onto peer-to-peer Ethernet
- Includes gateway to ModbusTCP/IP, ModbusRTU, EIP/PCCC, etc.
- USB port for easy system-wide programming

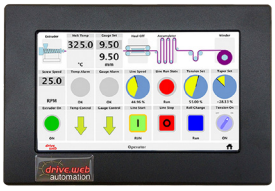
E3 SERIES
Installation & Peripheral Options

A range of external EMC Filters, Brake Resistors, Input Chokes and Output Filters are available, to suit all installation requirements



savvy
the smart automation tool

Smart, intuitive graphical tools for device programming, system design, and monitoring.



Also available on PC and iOS devices

savvyPanel
smart, touch screen operator station technology

Provides unprecedented flexibility in instrumentation, control, and monitoring.

Remote Keypads

T2-OPPAD-IN
Remote Keypad & TFT Display

T2-OPPORT-IN
Remote Keypad & LED Display

RJ45 Accessories

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

T2-J4505-IN	RJ45 Cable 0.5m
T2-J4510-IN	RJ45 Cable 1.0m
T2-J4530-IN	RJ45 Cable 3.0m
T2-J45SP-IN	RS485 3 Way Data Cable Splitter RJ45

Ancillary Support Products

Communication Interfaces, Input and Output Reactors, DB resistors, EMC Filters, and Motors are available!

Please visit bardac.com or call 1-888-667-7333

E3 SERIES

Bardac drives

(410) 604-3400

E3 Series - AC Variable Speed Drive

Low Power Applications

Dedicated to low power applications, E3 Series drives combine innovative technology, reliability, robustness and ease of use in a range of compact IP20 & NEMA 4X enclosures.

Simple Commissioning

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

E3 Series NEMA 4X

Environmentally protected, NEMA 4X rated models can be mounted directly on your processing equipment.

NEMA 4X (IP66)

Washdown Ready

With a sealed ABS enclosure and corrosion resistant heatsink, E3 Series NEMA 4X models are ideal for high-pressure washdown applications.

On-drive Control

NEMA 4X models feature optional, convenient controls for speed control, REV/OFF/FWD and Power ON/OFF, complete with safety lock.

Single Phase Motor Control

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

About *Bardac Drives*

Since our founding in 1992, Bardac has worked hard to build our reputation around key goals:

- Innovative technologies
- Reliable products
- Focus on automation; Distributed Control, AC Drives, DC Drives, and Motors
- All catalog items normally in stock
- Competitive pricing
- Unrelenting customer support

bardac.com

For more about the E3 Series:
bardac.com/e3-series/

Bardac Drives

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Email: info@bardac.com