Corporate Overview

Bardac drives

Bardac . . . the safe bet!

Bardac Drives & Automation

AGENDA

- ‣ Corporate Background
- ‣ AC Drives & Motors
- ‣ DC Drives & Motors
- ‣ *drive.web* automation technology
- ‣ Global view with a local focus

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PRODUCTS

- ▸ AC Drives 0.1 to 400 horsepower
- ▸ DC Drives 0.1 to 2,000+ horsepower
- ▸ *drive.web* automation technology
- ▸ DC servo linear amplifier drives
- ▸ AC & DC motors
- ▸ Engineered systems
- ▸ Worldwide sales & service

Bardac Drives & Automation

AC DRIVES

- Closed loop vector drives up to 400 HP (230 & 460V)

- Sensorless vector drives up to 400 HP (230 & 460V)

- 600VAC drives up to 150 HP

- HVAC & pump drives up to 400 HP (230 & 460V)

- Industrial general purpose VFDs up to 50 HP

  115/230/460 Volts, all purpose features

- Single Phase Motor VFDs up to 1.5 HP (115 & 230V)

- NEMA 12 drives up to 400 HP – CLV, HVAC, SV, GP, SP

- NEMA 4X drives up to 30 HP – CLV, SV, HVAC, GP, SP

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DC DRIVES – REGEN & NON-REGEN

‣ 1-phase OEM drives up to 2 HP

‣ 1-phase systems drives up to 10 HP

‣ 3-phase digital systems drives up to 2000+ HP

‣ 3-phase analog drives up to 150 HP

‣ 3-phase digital separate SCR stack controllers

‣ 3-phase 12 pulse SCR stack controllers

‣ 3-phase slip ring motor controllers to 2000 HP

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drive.web Distributed Control Technology

- ▸ System integration without PLC
- ▸ Cost effective in systems of any size
- ▸ Peer-to-peer Ethernet networking
- ▸ Internet accessible
- ▸ Graphical function block tools
- ▸ Onboard data storage
- ▸ Powerful system navigation
- ▸ *savvyPanel* touch screens
- ▸ WiFi roaming with iPad, iPhone, etc.
- ▸ Easy links to most drives, PLCs, etc.
- ▸ Supports enterprise integration
- ▸ *savvy* intuitive signal flow tools
- ▸ Online training and field support

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AC DRIVES

- ▸ Closed & open loop vector drives
- ▸ Systems drives
- ▸ General purpose VFDs
- ▸ NEMA 12 & NEMA 4X drives

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AC DRIVE FAMILY FEATURES

▸ High frequency switching for quiet operation

▸ Built in a DB switch in size 2 and up

▸ ModbusRTU serial port up to 115 kbps

▸ Spin start, PI control, boost, trip memory

▸ Optional remote keypad & display

▸ Optional ModbusTCP/IP over Ethernet

▸ Optional peer-to-peer Ethernet networking

▸ Optional *drive.web* programmable control

▸ Optional distributed i/o over Ethernet

P2 OPEN & CLOSED LOOP VECTOR DRIVES

- IP20, NEMA 4X, & NEMA 12 enclosures
- Ratings to 400HP
- 230/460/600 volts
- Expandable systems features
- DC bus sharing
- *savvy* graphical programming
- Optional encoder feedback
- Optional *drive.web* control
- Many fieldbus options available

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V3 HVAC, FAN, & PUMP DRIVES

▸ IP20, NEMA 4X, & NEMA 12 enclosures

▸ Ratings to 400HP

▸ 230/460/600 volts

▸ Energy efficient >98%

▸ Low input harmonics

▸ BACnet, ModbusRTU standard

▸ *savvy* graphical programming

▸ HVAC & pump functions

▸ Optional *drive.web* control

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E3 SERIES GENERAL PURPOSE VFDs

▸ IP20 & NEMA 4X enclosures

▸ Ratings to 50HP

▸ 230/460 volts

▸ High frequency switching for quiet operation

▸ Brake transistor, size 2 and up

▸ ModbusRTU, RS485 115 kbps

▸ Spin start, PI control, boost

▸ Optional *drive.web* control

▸ Optional Ethernet

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E3 SERIES SINGLE PHASE MOTOR VFDs

▸ IP20 & NEMA 4X enclosures

▸ For use with Shaded Pole or Permanent Split Capacitor motors

▸ For use in variable torque fan & centrifugal pump type applications

▸ 115 volts, 1Ø up to 0.75 HP

▸ 230 volts, 1Ø up to 1.5 HP

▸ Expandable i/o & systems features

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NEMA 4X (IP66) DRIVES

For harsh, wet, dirty environments

▸ Vector up to 30HP

▸ General purpose VFDs up to 30HP

▸ HVAC & Pump drives up to 30HP

▸ Basic versions with keypad & display

▸ Switched versions with:
  ▸ Lockable isolator switch
  ▸ FWD/OFF/REV switch
  ▸ Speed pot

▸ Outdoor Rated

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Bardac
drives

DC DRIVES

▸ Single Phase, regen & non-regen to 10 HP

▸ 3-Phase, regen & non-regen to 2000+HP

▸ 3-Phase 12 pulse drives

▸ Linear amplifier servos up to 12 amps

▸ Separate Stack Controllers

▸ Slip ring motor controllers to 2000 HP

▸ Annealer Controllers

▸ Field Regulators

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K-SERIES, OEM DC DRIVES – REGEN & NON-REGEN

- ‣ Up to 2 HP
- ‣ DIN mounting
- ‣ Plug in terminals
- ‣ Arm volts or tach f/b
- ‣ Isolated versions
- ‣ 115/230 VAC selectable for 90/180VDC arm
- ‣ Adjustable ramps, max/min speed, IR comp
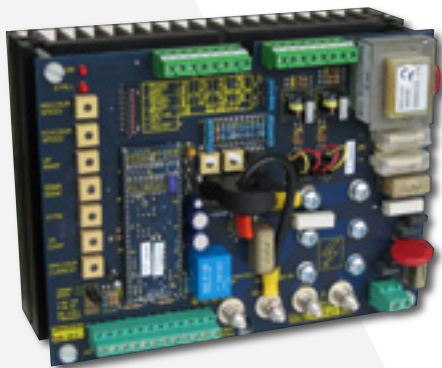- ‣ Fields up to 1 amp
- ‣ Volume discounts

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DC DRIVES – 1-PHASE SYSTEMS DRIVES

Regen up to 36A, non-regen up to 48A

- ▸ 115/230 VAC selectable for 90/180VDC arm
- ▸ 230/460 VAC selectable for 180/360VDC arm
- ▸ Adjustable ramps, max/min speed, IR comp
- ▸ European voltage versions

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PLX SERIES DC DRIVES – 3-PHASE DIGITAL DRIVES TO 2000+ HP

- ▸ Compact packages
- ▸ 8.5" x 11" thru 75HP!
- ▸ High performance
- ▸ AVF/tach/encoder f/b
- ▸ Auto field controller
- ▸ *drive.web* Ethernet
- ▸ *savvy* graphical tools
- ▸ Extensive, flexible i/o
- ▸ "power" version with fuses, contactor, etc.
- ▸ International ratings
- ▸ Many fieldbus options available

smarty dw240 series

▸ **PLC, Motion Controller, and Process Controller . . . all in one!**

▸ drive.web distributed control over Ethernet

▸ Direct field wiring for easier, quicker, cost-saving installation

▸ Homogeneous integration for drives, HMIs, remote I/O

▸ *savvy* system design tools

▸ Right for the IIoT future

▸ Easy, intuitive, affordable, expandable

▸ For systems of any size or complexity

▸ Designed and built with innovation in the USA

smarty[1]

smarty[2]

smarty[7]

smarty[3]

smarty[6]

smarty[4]

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Bardac drives

More *drive.web* Products

smarty
- DIN mount controllers with flexible analog, logic & encoder i/o
- 16 points of high resolution I/O

savvy
Smart, intuitive graphical tools for device programming, system design & monitoring

speedy
Miniature drive interface controllers with gateway to ModbusTCP/IP, ModbusRTU, EIP/PCCC, etc.

savvyPanel
Smart, touch screen operator station technology
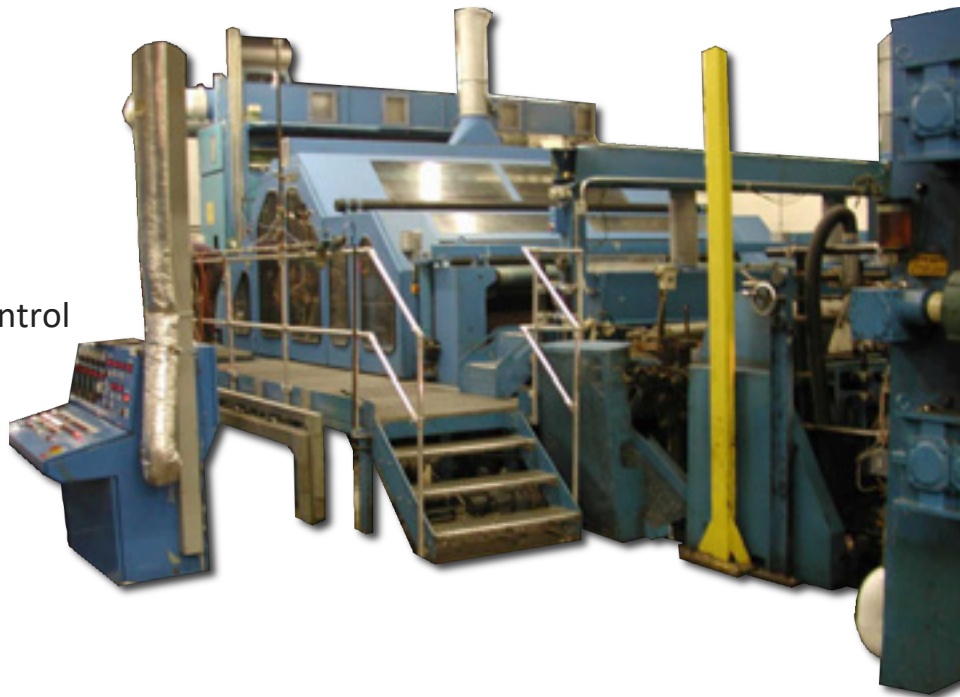
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drive.web KEY FEATURES

- ‣ Provides distributed control over Ethernet
- ‣ Easy interface to most drives, MMIs, etc.
- ‣ Easier, cheaper, faster than a PLC
- ‣ Intuitive *savvy* signal flow programming tools
- ‣ Entire system configuration stored in devices
- ‣ Field upgradable firmware options
- ‣ Multi-user tools with Internet access
- ‣ All system devices accessible from one point
- ‣ savvy runs on Windows, Mac OSX, Linux
- ‣ Powerful password protection
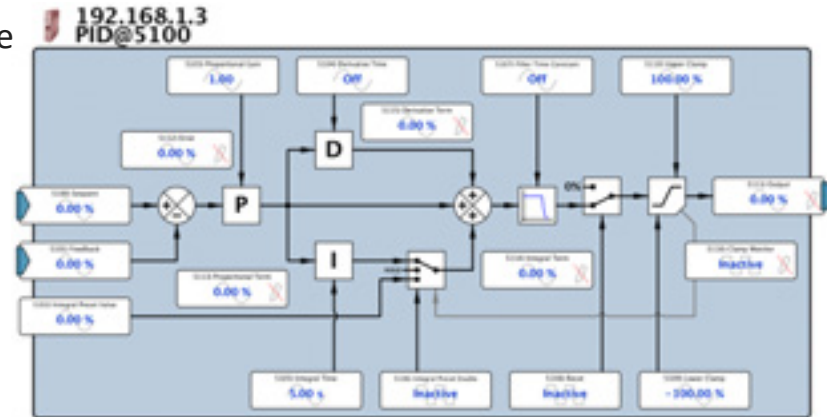- ‣ Event driven text/email from devices

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drive.web KEY APPLICATIONS

▸ Process lines

▸ Steel & paper mills

▸ Plastic & metal extrusion lines

▸ Printing, coating, laminating, winding

▸ Material handling, conveyors, hoists

▸ Petro-chemical, pharmaceutical, flow control

▸ HVAC drive coordination

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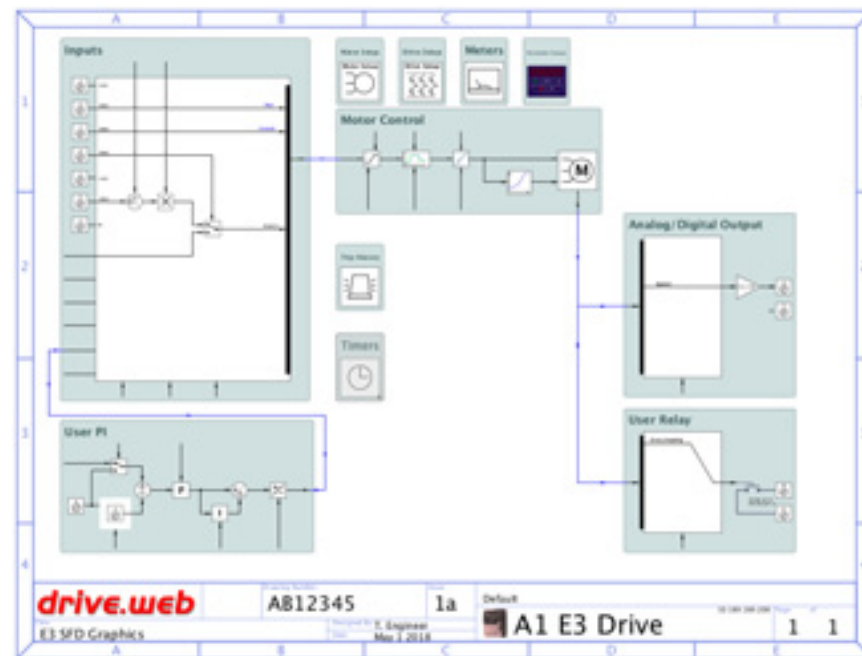
drive.web KEY GRAPHICAL FUNCTION BLOCKS

- ▸ Arithmetic, logic, timers, comparators, switches

- ▸ Presets, latches, filters, counters, state machine

- ▸ Linear & S-ramps, PIDs, profilers

- ▸ Winder diameter, torque, taper calculation

- ▸ "Electronic line shaft", phase lock, speed lock

- ▸ Encoder registration, indexing & orientation

- ▸ Sun position calc. for solar energy systems

- ▸ Event driven email from devices

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Bardac drives

drive.web PROGRAMMING FEATURES

▸ Drag & drop connections

▸ Page and level browse navigation controls

▸ Drill down, jump, filter, search, pan, zoom

▸ Hover text help

▸ Contextual menus for get info, editing, naming, etc.

▸ Instant links to the built in manual

▸ Trend charts with data export

▸ Docks for easy parameter organization

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THANK YOU!

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