One source for engineering, manufacturing and support
Variable speed starter
The DE1 variable speed starter (VSS) is designed for customers who have basic applications but require modular features that can be used in a variety of ways. The DE1 offers customers a simple base line design that can be modified to meet specific needs.

Liquid cooled drive
The LCX VFD is well suited for locations when air-cooling would be difficult or expensive or when high performance is required. The LCX VFD has an enclosed NEMA enclosure with an integrated liquid cooling system. Efficiency: Temperature derating included
Regulated and adjustable: High control input rating (K), ambient temperature (–10° to 48° C) with cooling, harmonics mitigating design

General-purpose microdrive
General-purpose drive
The DG1 general-purpose drives are part of the Eaton next-generation PowerXL™ series of variable speed drives. They are designed with the latest technology to provide high performance, reliability, and efficiency. Rugged and reliable: Temperature controlled fan
Regulated and adjustable: Startup Wizard, customizable software, advanced capabilities and inputs, local/remote button, modular design, text display

Medium-voltage drive
The Ampgard® SC 9000™ medium-voltage VFD combines innovative technology with the reliable Ampgard® enclosure. It is designed for large industrial applications and can be used for various tasks such as Start-up circuit, brake chopper circuit, temperature deratings up to 60 °C
Regulated and adjustable: Temperature derating included
Regulated and adjustable: High performance microdrives for a variety of applications

Regenerative drive
or mechanical braking, thus simplifying system design. It also delivers superior reliability, reducing equipment down time and maintenance costs. Rugged and reliable: Temperature controlled fan
Space-saving design: Same reliable control module and operating system as SPX
Regulated and adjustable: Startup Wizard, customizable software, advanced capabilities and inputs, local/remote button, modular design, text display

Enclosure
Rugged and reliable: Uses the core SPA/SPI drive platform; therefore, sharing many of the drive-related characteristics of the component drive
Space-saving design: Tested and proven solution built to meeting commercial and industrial applications. Engineered solutions to decentralized applications
Ease of use: Only 14 standard parameters for startup—quick commissioning, parameter copy function from drive to drive and PC connectivity via COM-STICK, integrated info card

Communication
Communication: Compatible with a wide variety of industry standards and protocols, ensuring seamless integration into existing systems. These include PROFIBUS DP, DeviceNet, Modbus RTU/TCP, EtherCAT, and BACnet MS/TP.

Open NEMA 1, 12

Enclosed NEMA 1

Enclosed NEMA 1, 12, 3R

Enclosed NEMA 1, 12, 4X

Open IP20
A drive for any application

Your application might call for an ultra-compact solution, clean power or future configurability.

Whether it is a standard product from the catalog or a custom-enclosed variable frequency drive (VFD) solution, Eaton delivers. Eaton drives are designed for industrial, HVAC, water/wastewater treatment, machinery OEM and other application demands.

Whether designing a new industrial complex, renovating an existing structure or developing a new machine, Eaton has the right product for your application.

Product selection matrix

<table>
<thead>
<tr>
<th>Application</th>
<th>DE1</th>
<th>DC1</th>
<th>DA1</th>
<th>H-Max</th>
<th>DG1</th>
<th>SVX</th>
<th>SPX</th>
<th>LCX</th>
<th>SPI/SPA</th>
<th>CPX</th>
<th>CFX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-phase input</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>—</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Maximum 230 V hp</td>
<td>3</td>
<td>5</td>
<td>7.5</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>—</td>
<td>200</td>
<td>100</td>
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<tr>
<td>Maximum 480 V hp</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>2200</td>
<td>3200</td>
<td>2400</td>
<td>800</td>
<td>400</td>
</tr>
<tr>
<td>Maximum 575 V hp</td>
<td>—</td>
<td>—</td>
<td>20</td>
<td>250</td>
<td>200</td>
<td>250</td>
<td>3200</td>
<td>2800</td>
<td>2200</td>
<td>800</td>
<td>400</td>
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<tr>
<td>OEM drives</td>
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<td>HVAC drives</td>
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<td>General purpose</td>
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<td>High performance</td>
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<tr>
<td>Harmonic mitigating</td>
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</tbody>
</table>

= Open drive standard

= Enclosed drive standard

= Enclosed—consult Enclosed Drives Plant (Watertown, WI)
Selection considerations

- What is your system application?
- Is your load constant torque or variable torque?
- What are your voltage and hp requirements?
- What is the motor Full Load Amps (FLA)?
- Do you need an open or enclosed product?
- What NEMA enclosure rating do you need?
- Do you need a main breaker or a bypass?
- Do you need any accessories or communication cards?

EatonCare Technical Resource Center (TRC)—low-voltage variable frequency drives support

24/7 phone support

- 1-877-386-2273 option 2, option 6
  - Option 1: Pre-sale application support, new or aftermarket part number identification
  - Option 2: Network and communication questions
  - Option 3: Startup or programming questions
  - Option 4: Troubleshooting assistance
- Email
  - Technical support: TRCDrivesTechSupport@Eaton.com
  - Pre-sale support: PresaleVFD@Eaton.com
  - Aftermarket: VFDAftermarketEG@Eaton.com

Startup and service

Startup and service support can be provided by Eaton's Electrical Engineering Services & Systems (EESS) or an Eaton certified independent service provider (ISP).

www.eaton.com/vfdaftermarket

To contact EESS: Use the Locate an Eaton Engineering Office tool on the right-hand side of the screen

To contact an ISP: Select the ISP nearest you using the list of independent service providers found on the Documentation tab, under Service and Startup

Online resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton drives</td>
<td>Eaton.com/Drives</td>
</tr>
<tr>
<td>Eaton engineer services</td>
<td>Eaton.com/EESS</td>
</tr>
<tr>
<td>Eaton systems integrators</td>
<td>Eaton.com/SI</td>
</tr>
<tr>
<td>Eaton CAD drawings</td>
<td>Eaton.com/Drawings</td>
</tr>
<tr>
<td>Eaton software downloads</td>
<td>Eaton.com/Software</td>
</tr>
<tr>
<td>Eaton Europe</td>
<td>Eaton.eu/Electrical</td>
</tr>
<tr>
<td>Eaton Asia</td>
<td>Eaton.com.cn</td>
</tr>
</tbody>
</table>

PC software

<table>
<thead>
<tr>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>9000XDrive and 9000XLoad—Used with SVX, SPX, LCX, SPI, SPA and all enclosed drives using these units</td>
</tr>
<tr>
<td>MaxConnect and MaxLoader—Used with H-Max</td>
</tr>
<tr>
<td>DrivesConnect—Used with DE1, DCT and DA1</td>
</tr>
<tr>
<td>Power Xpert inControl—Used with PowerXL DG1</td>
</tr>
</tbody>
</table>

Notes:

Download at Eaton.com/software → Adjustable Frequency Drives.
Download at Eaton.com/drives → Software Downloads.

Online training

Eaton 101 Series—low-voltage motor control

H-Max VFD demo simulator—online H-Max demo simulation
Online H-Max training simulator that reviews the keypad, display, menu navigation, basic parameter changes and the operation of the demo cases (www.eaton.com/h-max)

PowerXL DG1 VFD demo simulator—online DG1 demo simulation
Online PowerXL DG1 training simulator that reviews the keypad, display, menu navigation, basic parameter changes and the operation of the demo cases (www.eaton.com/DG1)

Classroom training

Certification and service training
Commissioner certification training (SVX, SPX, H-Max, CPX, CFX)
Service provider training (SVX, SPX, CPX, CFX, HVX)

Note:

Calculators

Harmonics estimator—estimate total harmonic distortion (THD) of system
By having the transformer information and the one-line diagrams, a harmonics analysis can be quickly put together to ensure that the system will meet requirements set by IEEE 519. Drive configurations can quickly be changed, allowing engineers to provide the most cost-effective solution
(www.eaton.com/drives → Software Downloads → Register for Harmonics Calculator)

Energy savings estimator—estimate ROI for system
The program creates an energy savings estimation report that details yearly energy savings, reduction in CO₂ emissions and estimated payback time by analyzing system configuration, total installation costs and duty cycle
(www.eaton.com/drives → Software Downloads → Register for Energy Savings Estimator)

Continue to learn more about Eaton drives, enclosed VFD offering and services.
Please visit us at Eaton.com/drives