



Variable frequency drive SVX 3-/3-phase 4 kW 480V;IP21; integrated EMC filter and braking transistor; coated printed circuit boards



Powering Business Worldwide™

**Part no.** SVX006A1-4A1B2  
**Catalog No.** 138437  
**Alternate Catalog No.** SVX006A1-4A1B2

## Delivery program

|                                  |          |    |   |
|----------------------------------|----------|----|---|
| Product range                    |          |    | Variable frequency drives   |
| Part group reference (e.g. DIL)  |          |    | SVX   |
| Rated operational voltage        | $U_e$    |    | 400 V AC, 3-phase<br>480 V AC, 3-phase<br>500 V AC, 3-phase   |
| Output voltage with $V_e$        | $U_2$    |    | 400 V AC, 3-phase<br>480 V AC, 3-phase<br>500 V AC, 3-phase   |
| Mains voltage (50/60Hz)          | $U_{LN}$ | V  | 380 (-15%) - 500 (+10%)   |
| <b>Rated operational current</b> |          |    |   |
| At 150% overload                 | $I_e$    | A  | 9   |
| At 110% overload                 | $I_e$    | A  | 12  |
| <b>Assigned motor rating</b>     |          |    |   |
| Note                             |          |    | For AC motors with internal and external ventilation with 50 Hz / 60 Hz   |
| Note                             |          |    | Overload cycle for 60 s every 600 s   |
| Note                             |          |    | at 400 V, 50 Hz   |
| 150 % Overload                   | P        | kW | 4   |
| 110 % Overload                   | P        | kW | 5.5   |
| 150 % Overload                   | $I_M$    | A  | 8.5   |
| 110 % Overload                   | $I_M$    | A  | 11.3  |
| Note                             |          |    | at 440 - 480 V, 60 Hz   |
| 150 % Overload                   | P        | HP | 5   |
| 110 % Overload                   | P        | HP | 7.5   |
| 150 % Overload                   | $I_M$    | A  | 7.6   |
| 110 % Overload                   | $I_M$    | A  | 11  |
| Degree of Protection             |          |    | IP21  |
| Fieldbus connection (optional)   |          |    | PROFIBUS-DP<br>PROFINET<br>EtherCAT<br>EtherNet/IP<br>LonWorks<br>CANopen®<br>DeviceNet<br>Modbus-TCP<br>Modbus-RTU<br>BACnet MS/TP |
| Fitted with                      |          |    | Radio interference suppression filter<br>Brake chopper<br>OLED display<br>Additional PCB protection                                 |
| Frame size                       |          |    | FR4   |
| Connection to SmartWire-DT       |          |    | no  |

## Technical data

|                |  |  |   |
|----------------|--|--|---|
| <b>General</b> |  |  |   |
| Standards      |  |  | General requirements: IEC/EN 61800-2<br>EMV requirements: IEC/EN 61800-3<br>Safety requirements: IEC/EN 61800-5-1 |
| Certifications |  |  | CE, UL, cUL, RCM  |

|                                    |          |    |   |
|------------------------------------|----------|----|---|
| Approvals                          |          |    | DNV   |
| Production quality                 |          |    | RoHS, ISO 9001  |
| Climatic proofing                  | $\rho_w$ | %  | < 95% relative humidity, no condensation, no corrosion, no dripping water   |
| Air quality                        |          |    | 3C2, 3S2  |
| Ambient temperature                |          |    |   |
| Operating ambient temperature min. |          | °C | -10   |
| Operating ambient temperature max. |          | °C | + 50  |
| operation (110 % overload)         | $\theta$ | °C | -10 - +40   |
| Storage                            | $\theta$ | °C | -40 - +70   |
| Radio interference level           |          |    |   |
| Radio interference class (EMC)     |          |    | C2, C3, depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary. |
| Environment (EMC)                  |          |    | 1st and 2nd environments as per EN 61800-3  |
| Mounting position                  |          |    | Vertical  |
| Altitude                           |          | m  | 0 - 1000 m above sea level<br>above 1000 m with 1 % performance reduction per 100 m<br>max. 3000 m  |
| Degree of Protection               |          |    | IP21  |
| Protection against direct contact  |          |    | BGV A3 (VBG4, finger- and back-of-hand proof)   |

### Main circuit

|                                       |            |     |   |
|---------------------------------------|------------|-----|---|
| Supply                                |            |     |   |
| Rated operational voltage             | $U_e$      |     | 400 V AC, 3-phase<br>480 V AC, 3-phase<br>500 V AC, 3-phase   |
| Mains voltage (50/60Hz)               | $U_{LN}$   | V   | 380 (-15%) - 500 (+10%)   |
| System configuration                  |            |     | AC supply systems with earthed center point   |
| Supply frequency                      | $f_{LN}$   | Hz  | 50/60   |
| Frequency range                       | $f_{LN}$   | Hz  | 45–66 ( $\pm$ 0%)   |
| Power section                         |            |     |   |
| Function                              |            |     | Variable frequency drive with internal DC link and IGBT inverter                                    |
| Output voltage with $V_e$             | $U_2$      |     | 400 V AC, 3-phase<br>480 V AC, 3-phase<br>500 V AC, 3-phase   |
| Output Frequency                      | $f_2$      | Hz  | 0 - 50/60 (max. 320)  |
| Switching frequency                   | $f_{PWM}$  | kHz | 10<br>adjustable 1 - 16   |
| Operation Mode                        |            |     | U/f control<br>sensorless vector control (SLV)  |
| Frequency resolution (setpoint value) | $\Delta f$ | Hz  | 0.01  |
| Rated operational current             |            |     |   |
| At 150% overload                      | $I_e$      | A   | 9   |
| At 110% overload                      | $I_e$      | A   | 12  |
| Fitted with                           |            |     | Radio interference suppression filter<br>Brake chopper<br>OLED display<br>Additional PCB protection |
| Frame size                            |            |     | FR4   |
| Motor feeder                          |            |     |   |
| Note                                  |            |     | For AC motors with internal and external ventilation with 50 Hz / 60 Hz                             |
| Note                                  |            |     | Overload cycle for 60 s every 600 s   |
| Note                                  |            |     | at 400 V, 50 Hz   |
| 150 % Overload                        | P          | kW  | 4   |
| 110 % Overload                        | P          | kW  | 5.5   |
| Note                                  |            |     | at 440 - 480 V, 60 Hz   |
| 150 % Overload                        | P          | HP  | 5   |
| 110 % Overload                        | P          | HP  | 7.5   |

### Control section

|                          |       |   |                       |
|--------------------------|-------|---|-----------------------|
| External control voltage | $U_c$ | V | 24 V DC (max. 250 mA) |
| Reference voltage        | $U_s$ | V | 10 V DC (max. 10 mA)  |

|                 |  |  |
|-----------------|--|--|
| Analog inputs   |  | 2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA                               |
| Analog outputs  |  | 1, parameterizable, 0/4 - 20 mA  |
| Digital inputs  |  | 6, parameterizable, max. 30 V DC   |
| Digital outputs |  | 1, parameterizable, 48 V DC/50 mA  |
| Relay outputs   |  | 2, parameterizable, N/O, 8 A (24 V DC) / 8 A (250 V AC) / 0,4 A (125 V DC) |

### Assigned switching and protective elements

|   |  |             |
|---|--|-------------|
| Power Wiring                                  |  |             |
| Main choke                                    |  |             |
| 150 % overload (CT/I <sub>H</sub> , at 50 °C) |  | DX-LN3-016  |
| Motor feeder                                  |  |             |
| motor choke                                   |  |             |
| 150 % overload (CT/I <sub>H</sub> , at 50 °C) |  | DX-LM3-011  |
| 110 % overload (VT/I <sub>L</sub> , at 40 °C) |  | DX-LM3-016  |
| Sine filter                                   |  |             |
| 150 % overload (CT/I <sub>H</sub> , at 50 °C) |  | DX-SIN3-010 |
| 110 % overload (VT/I <sub>L</sub> , at 40 °C) |  | DX-SIN3-016 |

### Design verification as per IEC/EN 61439

|  |                   |    |     |
|--|-------------------|----|-----|
| Technical data for design verification   |                   |    |     |
| Rated operational current for specified heat dissipation   | I <sub>n</sub>    | A  | 9   |
| Heat dissipation per pole, current-dependent   | P <sub>vid</sub>  | W  | 0   |
| Equipment heat dissipation, current-dependent  | P <sub>vid</sub>  | W  | 100 |
| Static heat dissipation, non-current-dependent   | P <sub>vs</sub>   | W  | 0   |
| Heat dissipation capacity  | P <sub>diss</sub> | W  | 0   |
| Operating ambient temperature min.   |                   | °C | -10 |
| Operating ambient temperature max.   |                   | °C | 50  |
| IEC/EN 61439 design verification   |                   |    |     |
| 10.2 Strength of materials and parts   |                   |    |     |
| 10.2.2 Corrosion resistance  |                   |    |     |
| 10.2.3.1 Verification of thermal stability of enclosures   |                   |    |     |
| 10.2.3.2 Verification of resistance of insulating materials to normal heat   |                   |    |     |
| 10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects |                   |    |     |
| 10.2.4 Resistance to ultra-violet (UV) radiation   |                   |    |     |
| 10.2.5 Lifting   |                   |    |     |
| 10.2.6 Mechanical impact   |                   |    |     |
| 10.2.7 Inscriptions  |                   |    |     |
| 10.3 Degree of protection of ASSEMBLIES  |                   |    |     |
| 10.4 Clearances and creepage distances   |                   |    |     |
| 10.5 Protection against electric shock   |                   |    |     |
| 10.6 Incorporation of switching devices and components   |                   |    |     |
| 10.7 Internal electrical circuits and connections  |                   |    |     |
| 10.8 Connections for external conductors   |                   |    |     |
| 10.9 Insulation properties   |                   |    |     |
| 10.9.2 Power-frequency electric strength   |                   |    |     |
| 10.9.3 Impulse withstand voltage   |                   |    |     |
| 10.9.4 Testing of enclosures made of insulating material   |                   |    |     |
| 10.10 Temperature rise   |                   |    |     |
| 10.11 Short-circuit rating   |                   |    |     |
| 10.12 Electromagnetic compatibility  |                   |    |     |
| 10.13 Mechanical function  |                   |    |     |

## Approvals

|                                      |   |
|--------------------------------------|---|
| Product Standards                    | UL 508C; CSA-C22.2 No. 14; IEC/EN61800-3; IEC/EN61800-5; CE marking |
| UL File No.                          | E134360   |
| UL Category Control No.              | NMMS, NMMS2, NMMS7, NMMS8   |
| CSA File No.                         | UL report applies to both US and Canada                             |
| CSA Class No.                        | 3211-06   |
| North America Certification          | UL listed, certified by UL for use in Canada                        |
| Specially designed for North America | No  |
| Suitable for                         | Branch circuits   |
| Max. Voltage Rating                  | 3~ 480 V AC IEC: TN-S UL/CSA: "Y" (Solidly Grounded Wey)            |
| Degree of Protection                 | IEC: IP21   |

## Dimensions



## Assets (links)

### Declaration of CE Conformity

00002807

## Additional product information (links)

|   |   |
|---|---|
| <b>IL04020008Z Frequency inverter 9000X</b> |   |
| IL04020008Z Frequency inverter 9000X        | <a href="ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL04020008Z2018_05.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL04020008Z2018_05.pdf</a>   |
| Documentation                               | <a href="http://www.eaton.eu/Europe/Electrical/ProductsServices/AutomationControl/SwitchingProtectingDrivingMotors/9000X/SVX9000/index.htm#tabs-4">http://www.eaton.eu/Europe/Electrical/ProductsServices/AutomationControl/SwitchingProtectingDrivingMotors/9000X/SVX9000/index.htm#tabs-4</a> |