



AQUAVAR[®]

Intelligent Pump Controller

INTRODUCTION

The **Aquavar®** Intelligent Pump Controller from CentriPro utilizes an all new Aquavar platform, and combines it with over 20 years of variable speed pumping experience. The Aquavar is designed to provide variable frequency pumping control of speed, pressure, flow and level over a wide range of submersible and above ground applications. Here are just a few of the features and benefits of this versatile product:

- Application specific "Start-Up Genie" guides you through quick and easy commissioning
- Removable, graphical control panel with display
- Fully backlit display with large text makes the control pad easy to read
- Info key activates on board parameter and fault descriptions
- *My Personal Menu* allows user to focus on specific user selected and saved parameters
- Alarm Log key for quick access to alarms and maintenance events
- Alarm Log records the last 5 alarms
- Hand on, Auto on, and Off buttons for easy pump operation at the keypad - No toggling between local and remote operation!
- Modbus® RTU included in standard drive - Other communications available with option cards
- Capable of controlling up to 2 fixed speed pumps, with one standard drive
- Duplex variable speed pumping control with auto lead/lag and alternate
- **USB Connectivity - Commission and monitor through PC software**
- Transducer assembly (0-300 psi) and 16' foot shielded cable
- Standard dual DC-link reactors - Reduces the level of harmonics similar to a 5% AC line reactor without the voltage drop across the full load range!
- EMC/RFI filters designed to reduce drive noise emissions and interference to strict standards.
- **Automatic Motor Adaption - For optimized performance and efficiency**
- **Automized Energy Optimization - Regulates output voltage to improve system efficiency as loads change**
- Protects the pump from damage due to cavitation, dead head and blocked suction.
- Helps protect the motor from short circuit, phase loss, overload, undervoltage, overvoltage
- Large connection area allows more space for incoming power and motor wiring

TRANSDUCER

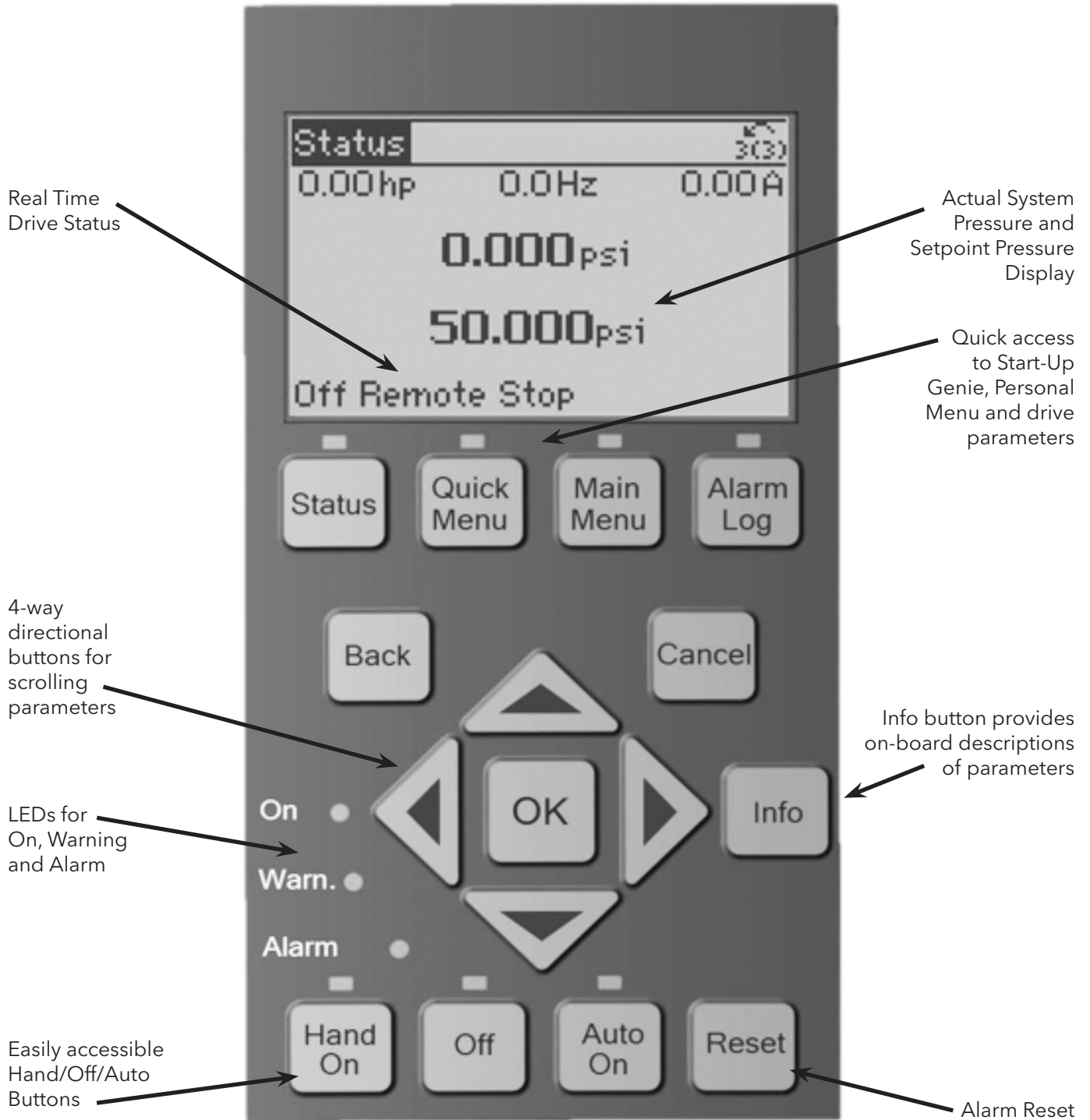
Includes: 4-20mA, 300psi transducer and 16' cable

Used for: Pressure transducer for constant pressure applications.
Transducer will be delivered with your drive when you use the "1" Transducer character.

NOTE: 9K515 - Repair part number for the transducer
9K391 - Repair part number for the transducer and 16' cable

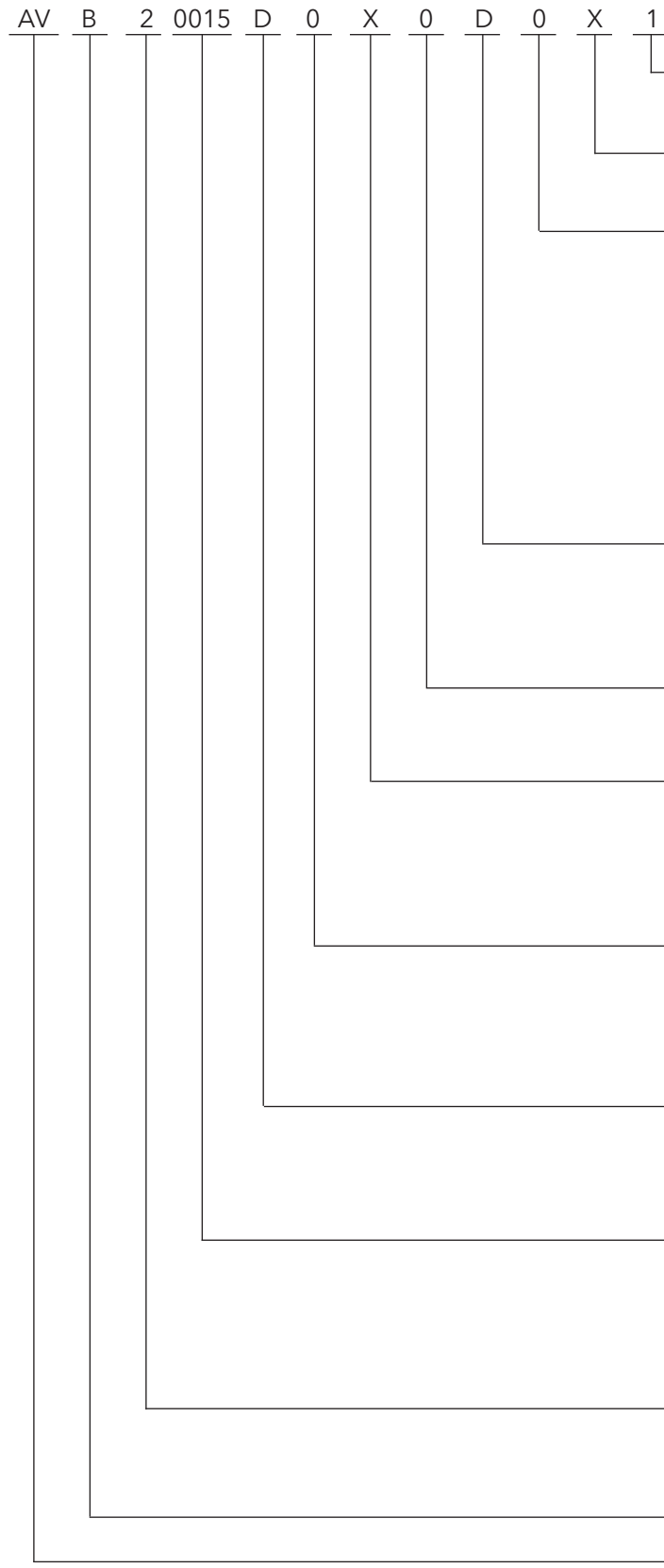


KEYPAD LAYOUT



NOMENCLATURE

Example Product Code



Transducer

1=Transducer 2=No Transducer

Motor Mounting Options*

X = No Accessories M = Motor Mount Hardware

Coating / EMC Filter Options**

0 = Standard Protection w/ H2 EMC Filter (Standard EMC Filter)

1 = Standard Protection w/ H3 EMC Filter

2 = Standard Protection w/ H1 EMC Filter

3 = 3C3 Board Coating w/ H2 EMC Filter (Standard EMC Filter)

4 = 3C3 Board Coating w/ H3 EMC Filter

5 = 3C3 Board Coating w/ H1 EMC Filter

Disconnect Options

X = No Accessories

S = Standard Disconnect (Single Phase Only)

D = Fused Disconnect

Backup Options

0 = No Backup

4 = 24VDC Backup

(Requires External Power)

Input/Output Options

X = No Additional I/O

C = PTC Thermistor Card

A = Analog I/O and Real-time Clock

D = PT100 Sensor Input

B = General Purpose I/O

E = Relay Card

Communications Options

0 = Standard Communication

1 = Modbus TCP

4 = LonWorks

2 = Profibus

5 = Profinet

3 = DeviceNet

6 = Ethernet IP

Enclosure

A = TYPE 1 (IP21)

D = TYPE 4X (IP66)

B = TYPE 12 (IP55)

E = IP20 (Chassis)

C = TYPE 3R

Nominal HP

0015 0075 0250 0600

0020 0100 0300 0750

0030 0150 0400 1000

0050 0200 0500 1250

Phase/Voltage

1 = 1/230 3 = 1/460*** 5 = 3/575

2 = 3/230 4 = 3/380-460

Type - B=Basic Drive

Model - AV

* Motor mounted units are not available in the initial launch. Product news will be issued when this configuration is available.

** 575V and single phase 10, 20, and 30HP are not available with EMC filter. These are sold without filter as standard.

*** Single phase 460V are not available with the initial Launch. Product news will be issued when this voltage is available.

PRODUCT CHART - IP20 CHASSIS

| Input Voltage | Input Phase | IP20 Chassis Base Model | Continuous Output Amps @ 45°C Ambient | Continuous Output Amps @ 50°C Ambient | Nominal Surface Motor HP* | Nominal Sub. Motor HP* 4" / 6" & Up | Frame Size |
|------------------|-------------|-------------------------|---------------------------------------|---------------------------------------|---------------------------|-------------------------------------|------------|
| 208-230 | 3 | AVB20015E0X0X0X2 | 6.6 | 5.9 | 1.5 | 1.5 | A2 |
| | | AVB20020E0X0X0X2 | 7.5 | 6.8 | 2 | 2 | |
| | | AVB20030E0X0X0X2 | 10.6 | 9.5 | 3 | 3 | |
| | | AVB20050E0X0X0X2 | 16.7 | 15.0 | 5 | | A3 |
| | | AVB20075E0X0X0X2 | 24.2 | 21.8 | 7.5 | 5 | B3 |
| | | AVB20100E0X0X0X2 | 30.8 | 27.7 | 10 | 7.5 | |
| | | AVB20150E0X0X0X2 | 46.2 | 41.6 | 15 | 10 / 15 | B4 |
| | | AVB20200E0X0X0X2 | 59.4 | 53.5 | 20 | 15 | |
| | | AVB20250E0X0X0X2 | 74.8 | 67.3 | 25 | 20 | C3 |
| | | AVB20300E0X0X0X2 | 88 | 79.2 | 30 | 25 | |
| | | AVB20400E0X0X0X2 | 115 | 103.5 | 40 | 30 | C4 |
| | | AVB20500E0X0X0X2 | 143 | 128.7 | 50 | | |
| | | AVB20600E0X0X0X2 | 170 | 153.0 | 60 | | |
| 380-460 | 3 | AVB40015E0X0X0X2 | 2.7 | 2.4 | 1.5 | 1 | A2 |
| | | AVB40020E0X0X0X2 | 3.4 | 3.1 | 2 | 1.5 | |
| | | AVB40030E0X0X0X2 | 4.8 | 4.3 | 3 | 2 | |
| | | AVB40050E0X0X0X2 | 8.2 | 7.4 | 5 | 3 | A3 |
| | | AVB40075E0X0X0X2 | 11 | 9.9 | 7.5 | 5 | |
| | | AVB40100E0X0X0X2 | 14.5 | 13.1 | 10 | 7.5 | B3 |
| | | AVB40150E0X0X0X2 | 21 | 18.9 | 15 | 10 | |
| | | AVB40200E0X0X0X2 | 27 | 24.3 | 20 | 15 | |
| | | AVB40250E0X0X0X2 | 34 | 30.6 | 25 | 20 | B4 |
| | | AVB40300E0X0X0X2 | 40 | 36.0 | 30 | 25 | |
| | | AVB40400E0X0X0X2 | 52 | 46.8 | 40 | 30 | C3 |
| | | AVB40500E0X0X0X2 | 65 | 58.5 | 50 | 40 | |
| | | AVB40600E0X0X0X2 | 80 | 72.0 | 60 | 50 | C4 |
| | | AVB40750E0X0X0X2 | 105 | 94.5 | 75 | 60 | |
| | | AVB41000E0X0X0X2 | 130 | 117.0 | 100 | 75 | C4 |
| | | AVB41250E0X0X0X2 | 160 | 144.0 | 125 | 100 | |
| | | 575 | 3 | AVB50015E0X0X0X2 | 2.4 | 2.2 | 1.5 |
| AVB50020E0X0X0X2 | 2.7 | | | 2.4 | 2 | | |
| AVB50030E0X0X0X2 | 3.9 | | | 3.5 | 3 | 2 | |
| AVB50050E0X0X0X2 | 6.1 | | | 5.5 | 5 | 3 | |
| AVB50075E0X0X0X2 | 9 | | | 8.1 | 7.5 | 5 | |
| AVB50100E0X0X0X2 | 11 | | | 9.9 | 10 | 7.5 | B3 |
| AVB50150E0X0X0X2 | 18 | | | 16.2 | 15 | | |
| AVB50200E0X0X0X2 | 22 | | | 19.8 | 20 | | |
| AVB50250E0X0X0X2 | 27 | | | 24.3 | 25 | | B4 |
| AVB50300E0X0X0X2 | 34 | | | 30.6 | 30 | | |
| AVB50400E0X0X0X2 | 41 | | | 36.9 | 40 | | C3 |
| AVB50500E0X0X0X2 | 52 | | | 46.8 | 50 | | |
| AVB50600E0X0X0X2 | 62 | | | 55.8 | 60 | | C4 |
| AVB50750E0X0X0X2 | 83 | | | 74.7 | 75 | | |
| AVB51000E0X0X0X2 | 100 | | | 90.0 | 100 | | C4 |
| AVB51250E0X0X0X2 | 131 | | | 117.9 | 125 | | |

* Nominal HP values are for reference only. Size Aquavar by maximum output amps of the motor.

PRODUCT CHART - TYPE 1

| Input Voltage | Input Phase | TYPE 1 Base Model | Continuous Output Amps @ 45°C Ambient | Continuous Output Amps @ 50°C Ambient | Nominal Surface Motor Hp* | Nominal Sub-Motor HP* 4" / 6" & Up | Frame Size |
|------------------|-------------|-------------------|---------------------------------------|---------------------------------------|---------------------------|------------------------------------|------------|
| 208-230 | 1 | AVB10020A0X0X0X1 | 7.5 | 6.8 | 2 | 2 | B1 |
| | | AVB10030A0X0X0X1 | 10.6 | 9.5 | 3 | 3 | |
| | | AVB10050A0X0X0X1 | 16.7 | 15.0 | 5 | | |
| | | AVB10075A0X0X0X1 | 24.2 | 21.8 | 7.5 | 5 | B2 |
| | | AVB10100A0X0X0X1 | 30.8 | 27.7 | 10 | 7.5 / 5 | |
| | | AVB10200A0X0X0X1 | 59.4 | 53.5 | 20 | 10 | |
| | | AVB10300A0X0X0X1 | 88 | 79.2 | 30 | 15 & 20 | |
| 208-230 | 3 | AVB20015A0X0X0X1 | 6.6 | 5.9 | 1.5 | 1.5 | A2 |
| | | AVB20020A0X0X0X1 | 7.5 | 6.8 | 2 | 2 | |
| | | AVB20030A0X0X0X1 | 10.6 | 9.5 | 3 | 3 | |
| | | AVB20050A0X0X0X1 | 16.7 | 15.0 | 5 | | A3 |
| | | AVB20075A0X0X0X1 | 24.2 | 21.8 | 7.5 | 5 | B1 |
| | | AVB20100A0X0X0X1 | 30.8 | 27.7 | 10 | 7.5 | |
| | | AVB20150A0X0X0X1 | 46.2 | 41.6 | 15 | 10 / 15 | B2 |
| | | AVB20200A0X0X0X1 | 59.4 | 53.5 | 20 | 15 | |
| | | AVB20250A0X0X0X1 | 74.8 | 67.3 | 25 | 20 | C1 |
| | | AVB20300A0X0X0X1 | 88 | 79.2 | 30 | 25 | |
| | | AVB20400A0X0X0X1 | 115 | 103.5 | 40 | 30 | C2 |
| | | AVB20500A0X0X0X1 | 143 | 128.7 | 50 | | |
| | | AVB20600A0X0X0X1 | 170 | 153.0 | 60 | | |
| | | 380-460 | 3 | AVB40015A0X0X0X1 | 2.7 | 2.4 | 1.5 |
| AVB40020A0X0X0X1 | 3.4 | | | 3.1 | 2 | 1.5 | |
| AVB40030A0X0X0X1 | 4.8 | | | 4.3 | 3 | 2 | |
| AVB40050A0X0X0X1 | 8.2 | | | 7.4 | 5 | 3 | |
| AVB40075A0X0X0X1 | 11 | | | 9.9 | 7.5 | 5 | A3 |
| AVB40100A0X0X0X1 | 14.5 | | | 13.1 | 10 | 7.5 | |
| AVB40150A0X0X0X1 | 21 | | | 18.9 | 15 | 10 | B1 |
| AVB40200A0X0X0X1 | 27 | | | 24.3 | 20 | 15 | |
| AVB40250A0X0X0X1 | 34 | | | 30.6 | 25 | 20 | B2 |
| AVB40300A0X0X0X1 | 40 | | | 36.0 | 30 | 25 | |
| AVB40400A0X0X0X1 | 52 | | | 46.8 | 40 | 30 | C1 |
| AVB40500A0X0X0X1 | 65 | | | 58.5 | 50 | 40 | |
| AVB40600A0X0X0X1 | 80 | | | 72.0 | 60 | 50 | C2 |
| AVB40750A0X0X0X1 | 105 | | | 94.5 | 75 | 60 | |
| AVB41000A0X0X0X1 | 130 | | | 117.0 | 100 | 75 | C2 |
| AVB41250A0X0X0X1 | 160 | | | 144.0 | 125 | 100 | |
| 575 | 3 | AVB50015A0X0X0X1 | 2.4 | 2.2 | 1.5 | 1.5 | A3 |
| | | AVB50020A0X0X0X1 | 2.7 | 2.4 | 2 | | |
| | | AVB50030A0X0X0X1 | 3.9 | 3.5 | 3 | 2 | |
| | | AVB50050A0X0X0X1 | 6.1 | 5.5 | 5 | 3 | |
| | | AVB50075A0X0X0X1 | 9 | 8.1 | 7.5 | 5 | |
| | | AVB50100A0X0X0X1 | 11 | 9.9 | 10 | 7.5 | |
| | | AVB50150A0X0X0X1 | 18 | 16.2 | 15 | | B1 |
| | | AVB50200A0X0X0X1 | 22 | 19.8 | 20 | | |
| | | AVB50250A0X0X0X1 | 27 | 24.3 | 25 | | B2 |
| | | AVB50300A0X0X0X1 | 34 | 30.6 | 30 | | |
| | | AVB50400A0X0X0X1 | 41 | 36.9 | 40 | | C1 |
| | | AVB50500A0X0X0X1 | 52 | 46.8 | 50 | | |
| | | AVB50600A0X0X0X1 | 62 | 55.8 | 60 | | C2 |
| | | AVB50750A0X0X0X1 | 83 | 74.7 | 75 | | |
| | | AVB51000A0X0X0X1 | 100 | 90.0 | 100 | | C2 |
| | | AVB51250A0X0X0X1 | 131 | 117.9 | 125 | | |

* Nominal HP values are for reference only. Size Aquavar by maximum output amps of the motor.

PRODUCT CHART - TYPE 12 & TYPE 3R

| Input Voltage | Input Phase | TYPE 12 Base Model | TYPE 3R Base Model | Cont. Output Amps @ 45°C Ambient | Cont. Output Amps @ 50°C Ambient | Nominal Surface Motor HP* | Nominal Sub. Motor HP* 4" / 6" & Up | Frame Size | DV / DT Load Filter NEMA 3R** | |
|------------------|------------------|--------------------|--------------------|----------------------------------|----------------------------------|---------------------------|-------------------------------------|------------|-------------------------------|----|
| 208-230 | 1 | AVB10015B0X0X0X1 | AVB10015C0X0X0X1 | 6.6 | 5.9 | 1.5 | 1.5 | A5 | V1K8A03 | |
| | | AVB10020B0X0X0X1 | AVB10020C0X0X0X1 | 7.5 | 6.8 | 2 | 2 | B1 | V1K8A03 | |
| | | AVB10030B0X0X0X1 | AVB10030C0X0X0X1 | 10.6 | 9.5 | 3 | 3 | | V1K12A03 | |
| | | AVB10050B0X0X0X1 | AVB10050C0X0X0X1 | 16.7 | 15.0 | 5 | | | V1K18A03 | |
| | | AVB10075B0X0X0X1 | AVB10075C0X0X0X1 | 24.2 | 21.8 | 7.5 | 5 | | V1K25A03 | |
| | | AVB10100B0X0X0X1 | AVB10100C0X0X0X1 | 30.8 | 27.7 | 10 | 7.5 / 5 | B2 | V1K35A03 | |
| | | AVB10200B0X0X0X1 | AVB10200C0X0X0X1 | 59.4 | 53.5 | 20 | 10 | C1 | V1K80A03 | |
| | AVB10300B0X0X0X1 | AVB10300C0X0X0X1 | 88 | 79.2 | 30 | 20 / 15 | C2 | V1K110A03 | | |
| | 3 | AVB20015B0X0X0X1 | AVB20015C0X0X0X1 | 6.6 | 5.9 | 1.5 | 1.5 | A5 | V1K8A03 | |
| | | AVB20020B0X0X0X1 | AVB20020C0X0X0X1 | 7.5 | 6.8 | 2 | 2 | | V1K8A03 | |
| | | AVB20030B0X0X0X1 | AVB20030C0X0X0X1 | 10.6 | 9.5 | 3 | 3 | | V1K12A03 | |
| | | AVB20050B0X0X0X1 | AVB20050C0X0X0X1 | 16.7 | 15.0 | 5 | | | V1K18A03 | |
| | | AVB20075B0X0X0X1 | AVB20075C0X0X0X1 | 24.2 | 21.8 | 7.5 | 5 | | V1K25A03 | |
| | | AVB20100B0X0X0X1 | AVB20100C0X0X0X1 | 30.8 | 27.7 | 10 | 7.5 | B1 | V1K35A03 | |
| | | AVB20150B0X0X0X1 | AVB20150C0X0X0X1 | 46.2 | 41.6 | 15 | 10 / 15 | | V1K55A03 | |
| | | AVB20200B0X0X0X1 | AVB20200C0X0X0X1 | 59.4 | 53.5 | 20 | 15 | B2 | V1K80A03 | |
| | | AVB20250B0X0X0X1 | AVB20250C0X0X0X1 | 74.8 | 67.3 | 25 | 20 | C1 | V1K80A03 | |
| | | AVB20300B0X0X0X1 | AVB20300C0X0X0X1 | 88 | 79.2 | 30 | 25 | | V1K110A03 | |
| | | AVB20400B0X0X0X1 | AVB20400C0X0X0X1 | 115 | 103.5 | 40 | 30 | | V1K130A03 | |
| | | AVB20500B0X0X0X1 | AVB20500C0X0X0X1 | 143 | 128.7 | 50 | | C2 | V1K160A03 | |
| | | AVB20600B0X0X0X1 | AVB20600C0X0X0X1 | 170 | 153.0 | 60 | | | V1K200A03 | |
| | | 380-460 | 3 | AVB40015B0X0X0X1 | AVB40015C0X0X0X1 | 2.7 | 2.4 | 1.5 | 1 | A5 |
| AVB40020B0X0X0X1 | | | | AVB40020C0X0X0X1 | 3.4 | 3.1 | 2 | 1.5 | V1K8A03 | |
| AVB40030B0X0X0X1 | AVB40030C0X0X0X1 | | | 4.8 | 4.3 | 3 | 2 | V1K8A03 | | |
| AVB40050B0X0X0X1 | AVB40050C0X0X0X1 | | | 8.2 | 7.4 | 5 | 3 | V1K12A03 | | |
| AVB40075B0X0X0X1 | AVB40075C0X0X0X1 | | | 11 | 9.9 | 7.5 | 5 | V1K12A03 | | |
| AVB40100B0X0X0X1 | AVB40100C0X0X0X1 | | | 14.5 | 13.1 | 10 | 7.5 | V1K18A03 | | |
| AVB40150B0X0X0X1 | AVB40150C0X0X0X1 | | | 21 | 18.9 | 15 | 10 | B1 | V1K25A03 | |
| AVB40200B0X0X0X1 | AVB40200C0X0X0X1 | | | 27 | 24.3 | 20 | 15 | | V1K35A03 | |
| AVB40250B0X0X0X1 | AVB40250C0X0X0X1 | | | 34 | 30.6 | 25 | 20 | B2 | V1K35A03 | |
| AVB40300B0X0X0X1 | AVB40300C0X0X0X1 | | | 40 | 36.0 | 30 | 25 | | V1K55A03 | |
| AVB40400B0X0X0X1 | AVB40400C0X0X0X1 | | | 52 | 46.8 | 40 | 30 | | V1K55A03 | |
| AVB40500B0X0X0X1 | AVB40500C0X0X0X1 | | | 65 | 58.5 | 50 | 40 | C1 | V1K80A03 | |
| AVB40600B0X0X0X1 | AVB40600C0X0X0X1 | | | 80 | 72.0 | 60 | 50 | | V1K80A03 | |
| AVB40750B0X0X0X1 | AVB40750C0X0X0X1 | | | 105 | 94.5 | 75 | 60 | C2 | V1K110A03 | |
| AVB41000B0X0X0X1 | AVB41000C0X0X0X1 | | | 130 | 117.0 | 100 | 75 | | V1K130A03 | |
| AVB41250B0X0X0X1 | AVB41250C0X0X0X1 | 160 | 144.0 | 125 | 100 | V1K160A03 | | | | |
| 575 | 3 | AVB50015B0X0X0X1 | AVB50015C0X0X0X1 | 2.4 | 2.2 | 1.5 | 1.5 | A5 | V1K8A03 | |
| | | AVB50020B0X0X0X1 | AVB50020C0X0X0X1 | 2.7 | 2.4 | 2 | | | V1K8A03 | |
| | | AVB50030B0X0X0X1 | AVB50030C0X0X0X1 | 3.9 | 3.5 | 3 | 2 | | V1K8A03 | |
| | | AVB50050B0X0X0X1 | AVB50050C0X0X0X1 | 6.1 | 5.5 | 5 | 3 | | V1K8A03 | |
| | | AVB50075B0X0X0X1 | AVB50075C0X0X0X1 | 9 | 8.1 | 7.5 | 5 | | V1K12A03 | |
| | | AVB50100B0X0X0X1 | AVB50100C0X0X0X1 | 11 | 9.9 | 10 | 7.5 | | V1K12A03 | |
| | | AVB50150B0X0X0X1 | AVB50150C0X0X0X1 | 18 | 16.2 | 15 | | B1 | V1K18A03 | |
| | | AVB50200B0X0X0X1 | AVB50200C0X0X0X1 | 22 | 19.8 | 20 | | | V1K25A03 | |
| | | AVB50250B0X0X0X1 | AVB50250C0X0X0X1 | 27 | 24.3 | 25 | | | V1K35A03 | |
| | | AVB50300B0X0X0X1 | AVB50300C0X0X0X1 | 34 | 30.6 | 30 | | B2 | V1K35A03 | |
| | | AVB50400B0X0X0X1 | AVB50400C0X0X0X1 | 41 | 36.9 | 40 | | | V1K55A03 | |
| | | AVB50500B0X0X0X1 | AVB50500C0X0X0X1 | 52 | 46.8 | 50 | | | V1K55A03 | |
| | | AVB50600B0X0X0X1 | AVB50600C0X0X0X1 | 62 | 55.8 | 60 | | C1 | V1K80A03 | |
| | | AVB50750B0X0X0X1 | AVB50750C0X0X0X1 | 83 | 74.7 | 75 | | | V1K110A03 | |
| | | AVB51000B0X0X0X1 | AVB51000C0X0X0X1 | 100 | 90.0 | 100 | | C2 | V1K110A03 | |
| AVB51250B0X0X0X1 | AVB51250C0X0X0X1 | 131 | 117.9 | 125 | | V1K160A03 | | | | |

* Nominal HP values are for reference only. Size Aquavar by maximum output amps of the motor.

** dv/dt filter recommended for applications with motor leads longer than 50'. It is recommended to use the dv/dt filter with all submersible applications. dv/dt filter is supplied with all Aquavar ordered with Accessories code "F".

PRODUCT CHART - TYPE 4X

| Input Voltage | Input Phase | TYPE 4X Base Model | Continuous Output Amps @ 45°C Ambient | Continuous Output Amps @ 50°C Ambient | Nominal Surface Motor HP* | Nominal Submersible Motor HP* 4" / 6" & Up | Frame Size | DV / DT Load Filter NEMA 3R** |
|------------------|-------------|--------------------|---------------------------------------|---------------------------------------|---------------------------|--|------------|-------------------------------|
| 208-230 | 1 | AVB10015D0X0X0X1 | 6.6 | 5.9 | 1.5 | 1.5 | A5 | V1K8A03 |
| | | AVB10020D0X0X0X1 | 7.5 | 6.8 | 2 | 2 | B1 | |
| | | AVB10030D0X0X0X1 | 10.6 | 9.5 | 3 | 3 | | |
| | | AVB10050D0X0X0X1 | 16.7 | 15.0 | 5 | 5 | | |
| | | AVB10075D0X0X0X1 | 24.2 | 21.8 | 7.5 | 5 | B2 | V1K18A03 |
| | | AVB10100D0X0X0X1 | 30.8 | 27.7 | 10 | 7.5 / 5 | | V1K25A03 |
| | | AVB10200D0X0X0X1 | 59.4 | 53.5 | 20 | 10 | C3 | V1K35A03 |
| AVB10300D0X0X0X1 | 88 | 79.2 | 30 | 15 & 20 | C4 | V1K80A03 | | |
| 208-230 | 3 | AVB20015D0X0X0X1 | 6.6 | 5.9 | 1.5 | 1.5 | A5 | V1K8A03 |
| | | AVB20020D0X0X0X1 | 7.5 | 6.8 | 2 | 2 | | |
| | | AVB20030D0X0X0X1 | 10.6 | 9.5 | 3 | 3 | | |
| | | AVB20050D0X0X0X1 | 16.7 | 15.0 | 5 | 5 | B1 | V1K12A03 |
| | | AVB20075D0X0X0X1 | 24.2 | 21.8 | 7.5 | 5 | | V1K18A03 |
| | | AVB20100D0X0X0X1 | 30.8 | 27.7 | 10 | 7.5 | | V1K25A03 |
| | | AVB20150D0X0X0X1 | 46.2 | 41.6 | 15 | 10 / 15 | B2 | V1K35A03 |
| | | AVB20200D0X0X0X1 | 59.4 | 53.5 | 20 | 15 | | V1K55A03 |
| | | AVB20250D0X0X0X1 | 74.8 | 67.3 | 25 | 20 | C1 | V1K80A03 |
| | | AVB20300D0X0X0X1 | 88 | 79.2 | 30 | 25 | | V1K110A03 |
| | | AVB20400D0X0X0X1 | 115 | 103.5 | 40 | 30 | C2 | V1K130A03 |
| | | AVB20500D0X0X0X1 | 143 | 128.7 | 50 | | | V1K160A03 |
| | | AVB20600D0X0X0X1 | 170 | 153.0 | 60 | | | V1K200A03 |
| 380-460 | 3 | AVB40015D0X0X0X1 | 2.7 | 2.4 | 1.5 | 1 | A5 | V1K8A03 |
| | | AVB40020D0X0X0X1 | 3.4 | 3.1 | 2 | 1.5 | | |
| | | AVB40030D0X0X0X1 | 4.8 | 4.3 | 3 | 2 | | |
| | | AVB40050D0X0X0X1 | 8.2 | 7.4 | 5 | 3 | | |
| | | AVB40075D0X0X0X1 | 11 | 9.9 | 7.5 | 5 | | |
| | | AVB40100D0X0X0X1 | 14.5 | 13.1 | 10 | 7.5 | B1 | V1K12A03 |
| | | AVB40150D0X0X0X1 | 21 | 18.9 | 15 | 10 | | V1K18A03 |
| | | AVB40200D0X0X0X1 | 27 | 24.3 | 20 | 15 | | V1K25A03 |
| | | AVB40250D0X0X0X1 | 34 | 30.6 | 25 | 20 | B2 | V1K35A03 |
| | | AVB40300D0X0X0X1 | 40 | 36.0 | 30 | 25 | | V1K55A03 |
| | | AVB40400D0X0X0X1 | 52 | 46.8 | 40 | 30 | C1 | V1K80A03 |
| | | AVB40500D0X0X0X1 | 65 | 58.5 | 50 | 40 | | V1K110A03 |
| | | AVB40600D0X0X0X1 | 80 | 72.0 | 60 | 50 | | V1K130A03 |
| | | AVB40750D0X0X0X1 | 105 | 94.5 | 75 | 60 | C2 | V1K160A03 |
| | | AVB41000D0X0X0X1 | 130 | 117.0 | 100 | 75 | | |
| AVB41250D0X0X0X1 | 160 | 144.0 | 125 | 100 | | | | |
| 575 | 3 | AVB50015D0X0X0X1 | 2.4 | 2.2 | 1.5 | 1.5 | A5 | V1K8A03 |
| | | AVB50020D0X0X0X1 | 2.7 | 2.4 | 2 | | | |
| | | AVB50030D0X0X0X1 | 3.9 | 3.5 | 3 | 2 | | |
| | | AVB50050D0X0X0X1 | 6.1 | 5.5 | 5 | 3 | | |
| | | AVB50075D0X0X0X1 | 9 | 8.1 | 7.5 | 5 | | |
| | | AVB50100D0X0X0X1 | 11 | 9.9 | 10 | 7.5 | B1 | V1K12A03 |
| | | AVB50150D0X0X0X1 | 18 | 16.2 | 15 | | | V1K25A03 |
| | | AVB50200D0X0X0X1 | 22 | 19.8 | 20 | | | V1K35A03 |
| | | AVB50250D0X0X0X1 | 27 | 24.3 | 25 | | B2 | V1K55A03 |
| | | AVB50300D0X0X0X1 | 34 | 30.6 | 30 | | | V1K80A03 |
| | | AVB50400D0X0X0X1 | 41 | 36.9 | 40 | | C1 | V1K110A03 |
| | | AVB50500D0X0X0X1 | 52 | 46.8 | 50 | | | V1K130A03 |
| | | AVB50600D0X0X0X1 | 62 | 55.8 | 60 | | | V1K160A03 |
| | | AVB50750D0X0X0X1 | 83 | 74.7 | 75 | | C2 | V1K160A03 |
| | | AVB51000D0X0X0X1 | 100 | 90.0 | 100 | | | |
| AVB51250D0X0X0X1 | 131 | 117.9 | 125 | | | | | |

* Nominal HP values are for reference only. Size Aquavar by maximum output amps of the motor.

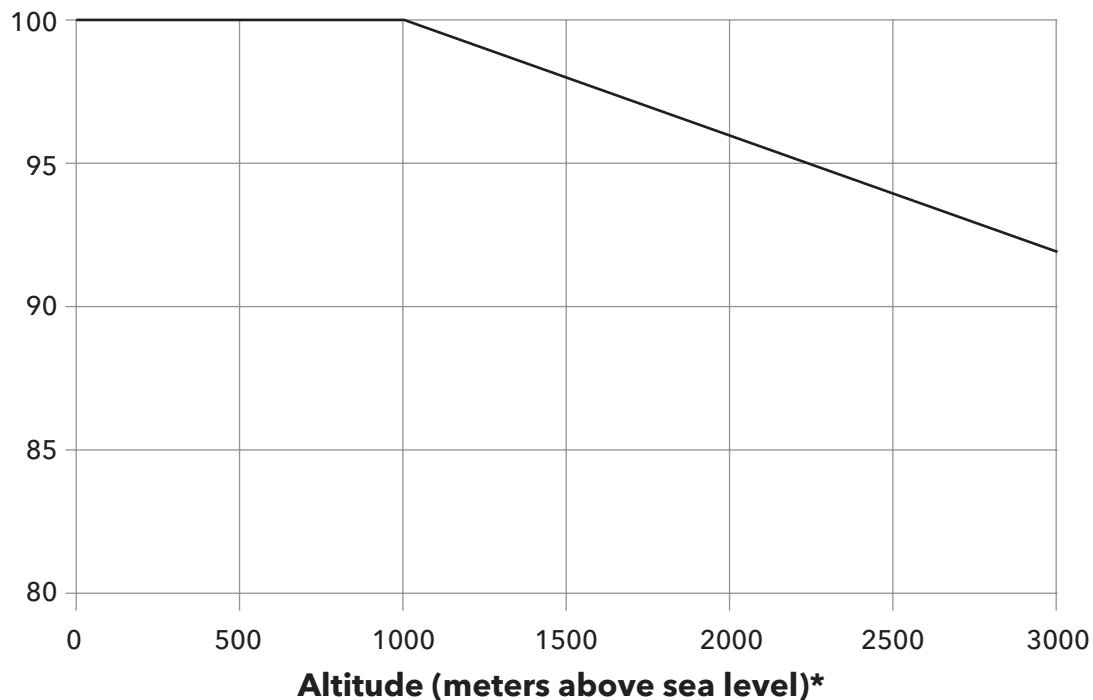
** dv/dt filter recommended for applications with motor leads longer than 50'. It is recommended to use the dv/dt filter with all submersible applications.

SPECIFICATIONS

Ratings and Enclosures

- IP20 Open, TYPE 1, TYPE 12, TYPE 3R, TYPE 4X
- 1.5 - 125 HP (frame A - C) wall or motor mounted
- Relative humidity lower than 95% without condensation.
- Ambient temperature 14° F - 113° F (-10°C - 45°C). Higher temperatures can be achieved by derating the output amperage of the drive 10% for up to 122° F (50°C).
- At altitudes from 0 to 1000 meters (0 to 3300 feet) rated current is available. For altitudes above 1000 meters (3300 feet) use table listed below. Maximum 3000 meters (9900 feet). (Consult factory above 3000 meters (9900 feet)). See chart below for derate in % of output current.

I_{OUT}(%)



Electrical Characteristics

- INPUT POWER**
- 3 phase 380 V to 480 V ±10%
 - 1 phase 200 V to 240 V ±10%
 - 3 phase 200 V to 240 V ±10%
 - 3 phase 525 V to 600 V ±10%
 - Frequency 50 or 60 Hz, ±2Hz

- OUTPUT POWER**
- 3 phase from 0 to V_{supply}
 - 0 to 120 Hz frequency

BUILT-IN CONTROL CONNECTIONS

| | |
|-----------------------------------|--|
| Analog input | 2, voltage or current, direct or inverse |
| Programmable digital inputs | 6, 2 can be used as digital outputs |
| Programmable analog outputs | 1, 0-10vdc or 4 - 20 mA |
| Programmable relay outputs | 2, standard Form C, 240 VAC, 2 A |
| Auxiliary voltage | +24 V DC, maximum 200 mA |

PUMP AND MOTOR PROTECTIONS

Motor Protections

- Ground Fault
- Motor Stall
- Motor Over Temperature (Predictive and Sensor Based)
- Motor Condensation (Motor Preheat Circuit)
- Motor Overload (Programmable Action)

Pump Protections

- Pump No-Flow
- Under Pressure
- No Water / Loss of Prime
- Short-Cycle
- Vibration (Programming Automated)

WEATHER SHIELD

The weather shield is intended to provide additional protection of outdoor rated drives when there is a risk of snow collecting on the top of the drive or excessive rain, which could sub cool the drive, leading to internal condensation. The weather shield is made of corrosion resistant stainless and AISI316 and is also suitable for installation in coastal areas and marine environments.

The weather shield is also to be used if there is a risk of direct sunlight on the display, since heat generated by the sun radiation might damage the LCD as well as limit the maximum ambient temperature.

NOTE: The weather shield should only be used together with outdoor rated drives and will not provide sufficient protection for outdoor installation of drives not designed for this purpose.

Weather shield selection:

| Frame Size | Ordering Number |
|----------------|-----------------|
| A4, A5, B1, B2 | 9K655 |
| C1, C2 | 9K698 |

Aquavar expansion cards can be included in the drive using the smart part number on page 4. Expansion cards can also be ordered as a field installable option using the "K" part numbers listed.

COMMUNICATION OPTIONS (Repair Part Number)

| | | |
|--------------------|-------------------|---------------------|
| Modbus TCP (9K667) | DeviceNet (9K669) | Profinet (9K671) |
| Profibus (9K668) | LonWorks (9K670) | Ethernet IP (9K672) |

INPUT/OUTPUT OPTIONS (Repair Part Number)

ANALOG I/O CARD (9K653)

Includes: 3 Analog IN for 0 - 10VDC

OR

0-20mA*

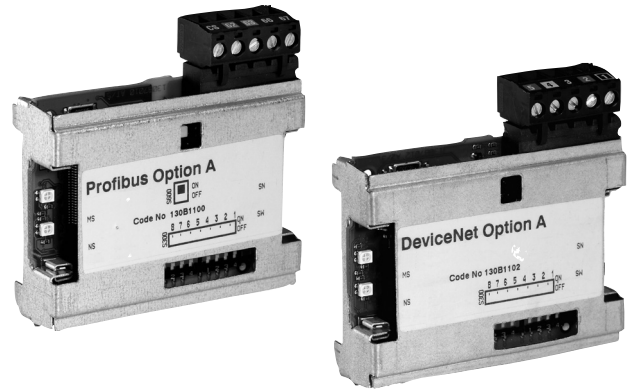
4-20mA*

Ni1000 Temperature Sensor

Pt1000 Temperature Sensor

3 Analog OUT for 0 - 10VDC

Battery backup for real-time clock



Used for: Providing battery backup of clock function during loss of power (real-time clock is native to the drive, and will reset to zero during power outage without Analog I/O card.)

Extension of analog I/O on control card (multi zone with 3 sensors)

Extended PID controllers with I/O's (set point inputs, sensor inputs and outputs)

| AIN | GND | AIN | GND | AIN | GND | AOUT O-10VDC | GND | AOUT O-10VDC | GND | AOUT O-10VDC | GND |
|-----|-----|-----|-----|-----|-----|-----------------|-----|-----------------|-----|-----------------|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

* Requires 510Ω resistor

GENERAL I/O CARD (9K654)

Includes: 3 Digital IN, 2 Digital OUT, 2 Analog IN (voltage), 1 Analog OUT (current)

Used for: Extension of number of digital and analog inputs and outputs

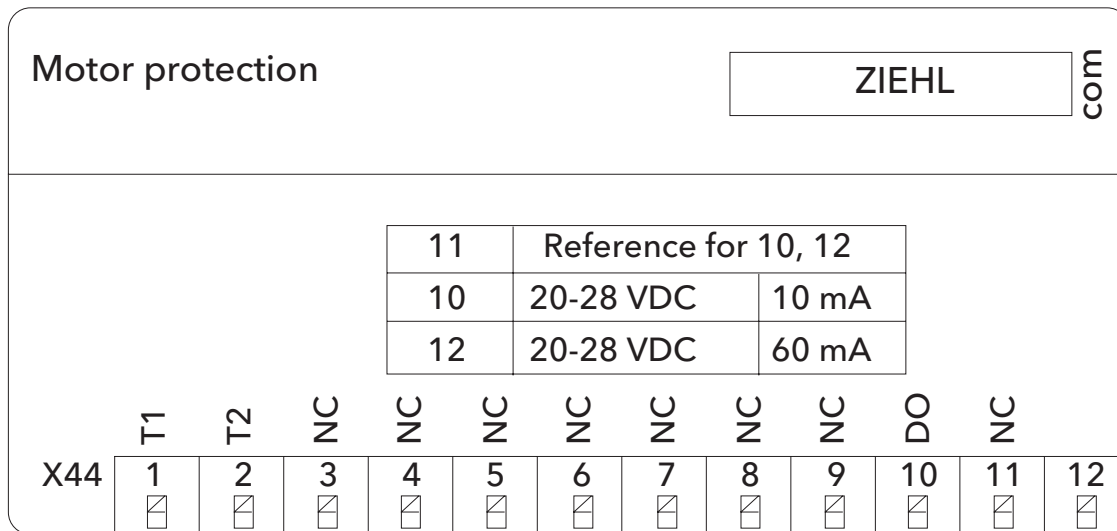
| COM | DIN | DIN7 | DIN8 | DIN9 | GND(1) | DOUT3 | DOUT4 | AOUT2 | 24V | GND(2) | AIN3 | AIN4 |
|-------------|-----|------|------|------|--------|-------|-------|-------|-----|--------|------|------|
| X30/ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

INPUT/OUTPUT OPTIONS *(continued)*

PTC THERMISTOR CARD (9K656)

Includes: Twelve terminal PTC card

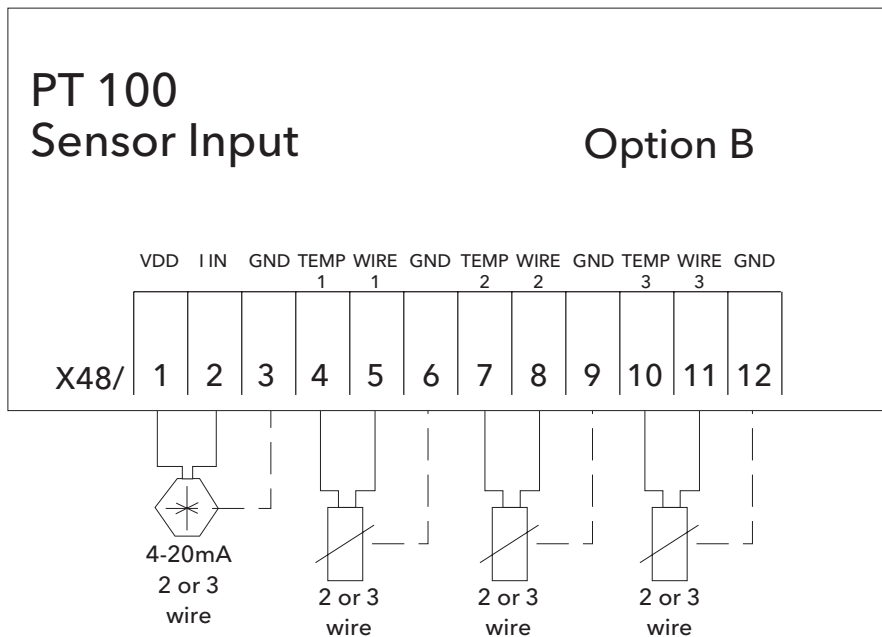
Used for: Monitor temperature of electric motor with PTC thermistor input (PTC Thermistor Card option is Certified for ATEX for use with motors in potentially explosive atmospheres.)



PT100 SENSOR INPUT CARD (9K657)

Includes: Twelve terminal PTC100 card

Used for: Sensor Input for PT100 and PT1000 temperature sensors for motor bearing temperatures

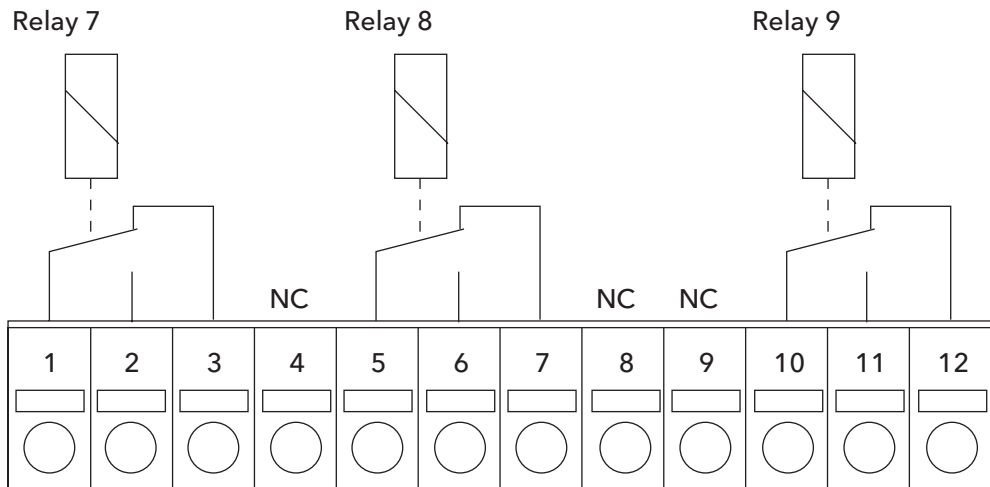


INPUT/OUTPUT OPTIONS *(continued)*

RELAY CARD (9K658)

Includes: 3 standard Form C, 240 VAC, 2 A

Used for: Extension of the number of output relays

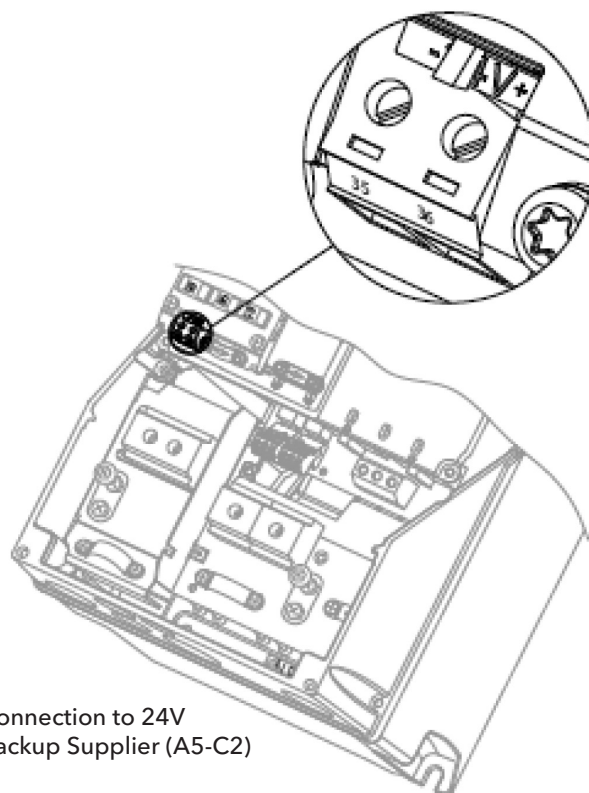


BACKUP OPTIONS

24VDC BACKUP (9K659)

Includes: Pos and Neg Terminals for 24VDC

Used for: Interface to external 24 VDC auxiliary power supply
(Enables full LCP operation without line voltage supplied.)



Connection to 24V
Backup Supplier (A5-C2)

DISCONNECT OPTIONS

FUSED AND STANDARD (NON-FUSED) DISCONNECT

Includes: Fused disconnect enclosure includes fused disconnect in 3 phase NEMA 1, NEMA 12 & NEMA 4X. Standard disconnect available in single phase enclosures only.

Used for: Local disconnect of supply power to the drive.

COATING/EMC FILTER OPTIONS

3C3 BOARD COATING

Includes: Additional protection for printed circuit board (PCB) above the standard protection to 3C2.

Used for: Aggressive environments where drive may be subject to corrosive gases. **NOTE: THIS IS NOT A SUBSTITUTE FOR SIZING THE PROPER ENCLOSURE. ENCLOSURE SHOULD BE SELECTED BASED UPON ENVIRONMENT.**

EMC OPTIONS

Includes: H2 filter (EN 55011 Class A2) standard on all models except 575V and single phase, 10, 20 and 30 HP. 575V and single phase, 10, 20 and 30 HP drives are not available with EMC filter.

Options: H1 or H3 (EN 55011 Class A1/B)

Used for: Increased level of EMC and RFI noise dampening

MOTOR MOUNTING OPTIONS

MOTOR MOUNTING

Includes: Two motor mounting plate adapters sized for motors 56C through 440 frame

Used for: Intended for motor mounting of the VFD. Requires a vertical configuration and the vertical motor to have a mounting foot. The Aquavar with adapter plates mounts right to the motor foot!

DV/DT FILTERS* (ORDER SEPARATELY)

Includes: NEMA 3R dv/dt filter

Used for: Provides motor protection by limiting voltage spikes below 1,000 volts for long lead (submersible) applications.

FEATURES:

- 2 - 130 amps; 240V - 600V; 2 - 125HP
- NEMA 3R Enclosure
- Carrier Frequency: 1 - 12 kHz
- Fundamental Frequency: 0 - 60Hz
- Efficiency: > 98%
- Insulation Rating 600V Class
- Agency Approvals: UL, cUL
- Maximum Altitude: 6,000 feet
 - (Derate for applications above 6,000 feet)

* dv/dt filters are recommended on all pumping applications with Motor leads longer than 50'



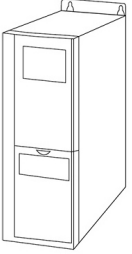
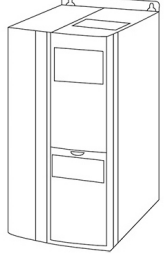
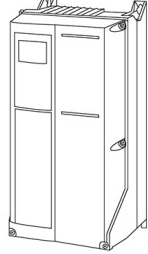
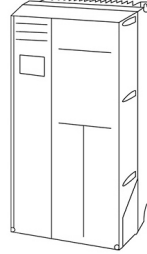
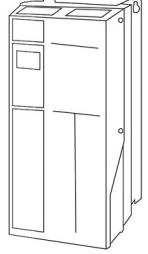
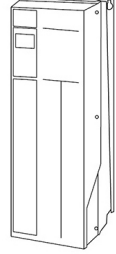
DV / DT filters have been sized in the outdoor rated Product Charts (Page 8). DV /DT filters to be ordered separately to mount near the drive.

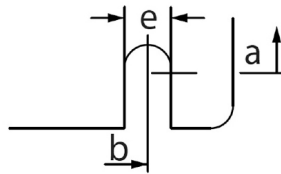
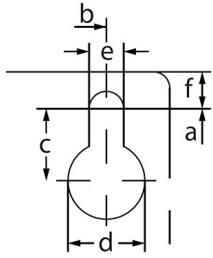
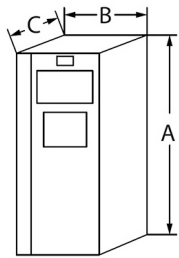
MECHANICAL DIMENSIONS

| Frame size (HP): | A2 | | A3 | | A4 | A5 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 |
|---------------------------------|----------------|----------------|----------------|----------------|-------------------------------|-------------------------------|---|---|----------------|----------------|---|---|----------------|----------------|
| 208-230V | 1.5-3 | | 5 | | 1.5-3 | 1.5-5 | 7.5-15 | 20 | 7.5-15 | 20-25 | 25-40 | 50-60 | 30-40 | 50-60 |
| 380-460V | 1.5-5 | | 7.5-10 | | 1.5-5 | 1.5-10 | 15-25 | 30-40 | 15-25 | 30-50 | 50-75 | 100-125 | 60-75 | 100-125 |
| 575V | | | 1.5-10 | | | 1.5-10 | 15-25 | 15-40 | 15-25 | 30-50 | 50-75 | 50-125 | 60-75 | 100-125 |
| Enclosure Options | IP20 OPEN | TYPE 1 | IP20 OPEN | TYPE 1 | TYPE 12 TYPE 3R TYPE 4X | TYPE 12 TYPE 3R TYPE 4X | TYPE 1 TYPE 12 TYPE 3R TYPE 4X | TYPE 1 TYPE 12 TYPE 3R TYPE 4X | IP20 OPEN | IP20 OPEN | TYPE 1 TYPE 12 TYPE 3R TYPE 4X | TYPE 1 TYPE 12 TYPE 3R TYPE 4X | IP20 OPEN | IP20 OPEN |
| Height in (mm) | | | | | | | | | | | | | | |
| Enclosure | 9.69 (246) | 14.65 (372) | 9.69 (246) | 14.65 (372) | 15.35 (390) | 16.54 (420) | 18.90 (480) | 25.59 (650) | 13.78 (350) | 18.11 (460) | 26.77 (680) | 30.31 (770) | 19.29 (490) | 23.62 (600) |
| with De-coupling Plate | 14.72 (374) | - | 14.72 (374) | - | - | - | - | - | 16.5 (419) | 23.43 (595) | - | - | 24.8 (630) | 31.5 (800) |
| Backplate | 10.55 (268) | 14.76 (375) | 10.55 (268) | 14.76 (375) | 15.35 (390) | 16.54 (420) | 18.90 (480) | 25.59 (650) | 15.71 (399) | 20.47 (520) | 26.77 (680) | 30.31 (770) | 21.65 (550) | 25.98 (660) |
| Distance Between Mounting Holes | 10.12 (257) | 13.78 (350) | 10.12 (257) | 13.78 (350) | 15.79 (401) | 15.83 (402) | 17.87 (454) | 24.57 (624) | 14.96 (380) | 19.49 (495) | 25.51 (648) | 29.09 (739) | 20.51 (521) | 24.84 (631) |
| Width in (mm) | | | | | | | | | | | | | | |
| Enclosure | 3.54 (90) | 3.54 (90) | 5.12 (130) | 5.12 (130) | 7.87 (200) | 9.53 (242) | 9.53 (242) | 9.53 (242) | 6.50 (165) | 9.09 (231) | 12.13 (308) | 14.57 (370) | 12.13 (308) | 14.57 (370) |
| Backplate | 3.54 (90) | 3.54 (90) | 5.12 (130) | 5.12 (130) | 7.87 (200) | 9.53 (242) | 9.53 (242) | 9.53 (242) | 6.50 (165) | 9.09 (231) | 12.13 (308) | 14.57 (370) | 12.13 (308) | 14.57 (370) |
| Distance Between Mounting Holes | 2.76 (70) | 2.76 (70) | 4.33 (110) | 4.33 (110) | 6.73 (171) | 8.46 (215) | 8.27 (210) | 8.27 (210) | 5.51 (140) | 7.87 (200) | 10.71 (272) | 13.15 (334) | 10.63 (270) | 12.99 (330) |
| Depth in (mm) | | | | | | | | | | | | | | |
| Without A/B Option Card* | 8.07 (205) | 8.07 (205) | 8.07 (205) | 8.07 (205) | 6.89 (175) | 7.87 (200) | 10.24 (260) | 10.24 (260) | 9.76 (248) | 9.53 (242) | 12.20 (310) | 13.19 (335) | 13.11 (333) | 13.11 (333) |
| With A/B Option Card* | 8.66 (220) | 8.66 (220) | 8.66 (220) | 8.66 (220) | 6.89 (175) | 7.87 (200) | 10.24 (260) | 10.24 (260) | 10.31 (262) | 9.53 (242) | 12.20 (310) | 13.19 (335) | 13.11 (333) | 13.11 (333) |
| Screw Holes inches (mm) | | | | | | | | | | | | | | |
| Screw Hole c | 0.31 (8) | 0.31 (8) | 0.31 (8) | 0.31 (8) | 0.32 (8.2) | 0.32 (8.2) | 0.47 (12) | 0.47 (12) | 0.31 (8) | - | 0.47 (12) | 0.47 (12) | - | - |
| Screw Hole d | 0.43 (11) | 0.43 (11) | 0.43 (11) | 0.43 (11) | 0.47 (12) | 0.47 (12) | 0.75 (19) | 0.75 (19) | 0.47 (12) | - | 0.75 (19) | 0.75 (19) | - | - |
| Screw Hole e | 0.22 (5.5) | 0.22 (5.5) | 0.22 (5.5) | 0.22 (5.5) | 0.26 (6.5) | 0.26 (6.5) | 0.35 (9) | 0.35 (9) | 0.27 (6.8) | 0.33 (8.5) | 0.35 (9) | 0.35 (9) | 0.33 (8.5) | 0.33 (8.5) |
| Screw Hole f | 0.35 (9) | 0.35 (9) | 0.35 (9) | 0.35 (9) | 0.24 (6) | 0.35 (9) | 0.35 (9) | 0.35 (9) | 0.31 (7.9) | 0.59 (15) | 0.39 (9.8) | 0.39 (9.8) | 0.67 (17) | 0.67 (17) |
| Max. Weight - lb (kg) | 11 (5) | 12 (5.5) | 15 (6.8) | 16 (7.3) | 22 (10) | 31 (14.1) | 51 (23.1) | 60 (27.2) | 27 (12.2) | 52 (23.6) | 100 (45.4) | 144 (65.3) | 78 (35.4) | 111 (50.4) |

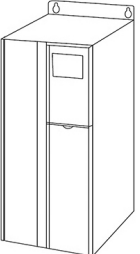
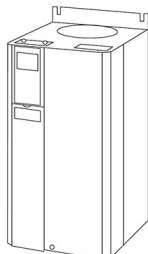
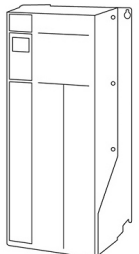
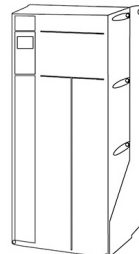
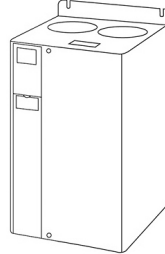
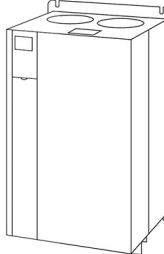
* Depth of enclosure will vary with different options installed.

DIMENSIONS

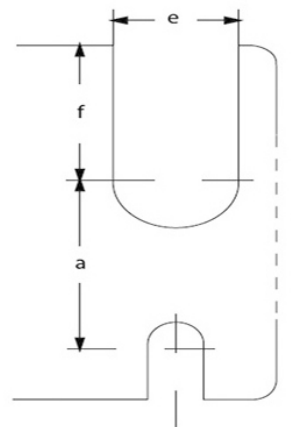
| | | | | | |
|--|--|--|---|--|--|
| A2  IP20/21* OPEN/TYPE 1 | A3  IP20/21* OPEN/TYPE 1 | A4  IP55/66 TYPE 12/4X | A5  IP55/66 TYPE 3R/12/4X | B1  IP21/55/66 TYPE 1/3R/12/4X | B2  IP21/55/66 TYPE 1/3R/12/4X |
|--|--|--|---|--|--|



Top and bottom mounting holes

| | | | | | |
|---|---|--|--|---|---|
| B3  IP20/21* OPEN/TYPE 1 | B4  IP20/21* OPEN/TYPE 1 | C1  IP21/55/3R/66 TYPE 1/3R/12/4X | C2  IP21/55/3R/66 TYPE 1/3R/12/4X | C3  IP20/21* OPEN/TYPE 1 | C4  IP20/21* OPEN/TYPE 1 |
|---|---|--|--|---|---|

Top and bottom mounting holes
(B4 + C3 + C4 only)



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