EVD Series Variable Speed Drives

User manual

EMERSON™

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Safety

Safety instructions

EVD series variable speed drives are manufactured according to the latest China Safety Standard. Particular emphasis has been placed on the user's safety. Safety icons are explained below and safety instructions applicable to the products in this bulletin are grouped on page 3. These instructions should be retained throughout the lifetime of the drive. **You are strongly advised to follow these safety instructions**.

Safety icon explanation

DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury
CAUTION	Used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury
NOTICE	Used to address practices not related to personal injury
CAUTION	Without the safety alert symbol, is used to address practices not related to personal injury

Instructions pertaining to risk of electrical shock, fire, or injury to persons

WARNING	Electrical shock hazard • Disconnect and lock out power before servicing • Discharge all capacitors before servicing • Use compressor with grounded system only • Molded electrical plug must be used when required • Refer to original equipment wiring diagrams
WARNING	Burn hazard • Failure to follow these warnings could result in serious personal injury or property damage • Ensure that materials and wiring do not touch high temperature areas of the compressor • Use caution when brazing system components • Personal safety equipment must be used
WARNING	Use of Residual Current Device (RCD) and Ground Fault Interrupt GFE). There are three common types of GFI/ RCD: 1. AC - detects AC fault currents 2. A - detects AC and pulsating DC fault currents (provided the DC current reaches zero at least once every half cycle) 3. B - detects AC, pulsating DC and smooth DC fault currents • Type AC should never be used with drives • Type A can only be used with single phase drives • Type B must be used with three phase drives • The GFI and RCD must be a high-speed type breaker of 30 mA (<0.1 seconds) Only type B GFI / RCD are suitable for use with 3 phase inverter drives **It is important to check requirements with applicable legislation prior to installing a GFI or RCD**
CAUTION	Drive handling • Caution must be used when lifting and installing the drive. Failure to use caution may result in bodily injury • Personal safety equipment must be used • Failure to follow these warnings could result in personal injury or property damage

Safety Statements

- Only qualified and authorized HVAC or refrigeration personnel are permitted to install, commission and maintain this equipment.
- Electrical connections must be made by qualified electrical personnel.
- All valid standards and codes for installing, servicing, and maintaining electrical and refrigeration equipment must be observed.

Introduction

Product description

The inverter drive has been developed specifically for the variable speed compressors. The drive will power the compressor, control the running speed, provide compressor and drive protection and communicate with the master controller. The drive requires cooling and is typically installed in a system near the compressor.

Theory of Drive Operation

The primary purpose of the drive is to convert the 50/60 Hz AC input voltage into a variable frequency, variable voltage output to power the variable speed scroll compressor. The drive conditions the AC input Voltage through a series of conditioning processes to arrive at the desired output. The drive first converts the AC input voltage into a DC bus. The DC voltage is then pulse-width modulated to replicate a sinusoidal current at the desired frequency and voltage.

Nomenclature

The model number of the drive includes the power rating and nominal voltage input to the drive. See Addendum for all of the alpha and numeric characters in the drive model number.

Installation

Drive Handling

⚠ CAUTION

Caution must be used when lifting and installing the drive. Failure to use caution may result in bodily injury.

- Correct handling and storage of the drive is essential in preventing mechanical damage.
- The box and the protection bag inside need to be carefully opened. Do not use any sharp objects to open the protection bag, which may damage the drive.
- Never cut across the drive with any sharp materials.
- Do not hold on to the components on the drive or drive accessories, this may damage them.
- Once opened do not stack the drives on top of each other.
- When handling the drive, the only correct way is hold it by the edges of the heatsink.
- Do not drop any mechanical tools on the drive or drive accessories.
- It is always recommended to use ESD wrist straps while touching any part of the drive.

NOTICE

Personnel handling the drives in a manufacturing plant environment should guard against static electricity by using the appropriate equipment – antistatic wrist straps and mats.

Mounting

The drive should be located within 5 feet of the compressor since the wiring between the drive and compressor is unshielded.

Air-cooled drives are supported inside the HVAC system by an extended heatsink plate. The plate mounts through an opening in the cabinet sheet metal to expose the heat exchanger to the condenser fan air stream. The flange contains a gasketed surface to prevent water from entering the electronics side of the control box.

The flat plate option accommodates installation to systems using the mating gas or liquid cooled cold plate heat exchanger. The mating cold plate is designed by OEM to accommodate the system design. There are holes in the drive mounting flange for mounting purposes. These holes will accommodate a M5 sized screw for mounting.

The drive has plastic tray with PCBA and heatsink. It is preferred that the mounting hole is same to plastic tray and it is preferred that heatsink is isolated with system ground.

Drive Accessories and Dimensions

For dimensions and accessories, please contact Application Engineering for detailed dimensions with tolerance and drawings.

Wiring Diagram

There are three types wiring diagram for different drive. One is for 1PH EVD drive, refer to Figure 2. Another one is for 3PH EVD drive except 36KW drive, refer to Figure 3. The last one is for EVD1-36KW drive, refer to Figure 4.

Operation and function

Hi-pot procedure / set-up

Refer to the Addendum for hi-pot procedure and setup. Please call your Application Engineer for additional details.

Temperature and humidity

Drive operating temperature range	-25°C to 65°C
Drive storage temperature range	-40°C to 85°C
Humidity	Maximum Relative Humidity 95%

Pre-operation checks

Check the drive carefully before use it. Make sure that all the wires are correctly and tightly connected. Improper operation may cause fire or injury to persons.

Pre-operation checks

⚠ CAUTION

Check the drive carefully before use. Make sure that all the wires are correctly and tightly connected. Improper operation may cause fire or injury to persons.

Power On/Off

NOTICE

The drive should use rated AC power supply: 3PH, 50/60Hz, 340-440V on EVD1xxxB-Dx-xxx models and 1PH, 50/60Hz, 160-265V on EVD2080B-Cx-xxx drive models.

Use of incorrect power supply may damage the drive. User should make sure that the correct combination of power supply, drive and accessories are used.

When powering off the drive, make sure to wait at least 2 minutes to ensure that the drive is completely turned off.

Communication setting

The communication hardware is RS485. And the communication protocol is Modbus RTU. Please refer to the Addendum 1 and 2 for definition and format. For read function, the drive can support 20 addresses for one time.

Communication Set Up	
Baud rate	2400
Parity	EVEN
Stop bit	1
Slave address	45
Data bit	8

Communication Function Code	
Read function	03
Write function	06

Input voltage and input current

The drives are designed for rated AC power supply: 50/60Hz, 340-440V on EVDxxxxB-Dx-xxx models, 190~254V on EVD1xxxB-Jx-xxx and 160-265V on EVD2080B-Cx-xxx drive models.

Published performance for the drive and compressor combination will have a performance tolerance specified on the compressor performance data sheet when the Drive input voltage is in the specified range as above.

Drive	Max Input Current	Max Output Current
EVD1360B-D1-112	58A	58A
EVD1180B-D1-111	38A	38A
EVD2180B-D1-111	38A	38A
EVD2180B-D8-111	38A	38A
EVD1150B-D1-111	27A	27A
EVD2150B-D1-111	27A	27A
EVD2150B-D8-111	27A	27A
EVD1110B-D1-111	21A	21A
EVD2110B-D1-111	21A	21A
EVD2110B-D8-111	21A	21A
EVD1110B-D1-113	21A	21A
EVD2110B-D1-113	21A	21A
EVD2110B-D8-113	21A	21A
EVD1080B-D1-113	17A	17A
EVD2080B-C1-113	35A	25A

Power Factor Correction

The drive has active power factor correction for single phase and passive power factor correction for three phase. The drive is capable of correcting the AC input current to maximize system efficiency.

Speed Control

The frequency range of EVD is from 15Hz to 120Hz. If the frequency set by system controller is less than 15Hz but not zero, then the compressor will work at 15Hz. Similarly, if the frequency set by system controller is greater than 120Hz, then the compressor will work at 120Hz.

Start-up

Refer to the Addendum for start-up procedures and requirements.

Shutdown

Refer to the Addendum for shutdown procedures and requirements.

Fault Clearing

In the Modbus relationship, the drive is considered a slave, and the system controller is the master. Faults will not clear unless they are commanded to.

To clear faults, use the following method:

1. The compressor has been shut down for at least 35 seconds.
2. The fault condition no longer exists (registers 78-79)
3. The drive has received a zero speed command (register 101 = 0).
4. The drive has been disabled (register 100 = 0).
5. Write '1' to register 103.

Faults will not clear unless all items above are true.

Drive Configuration

Another feature available on the drive is the option to change Slave address, configure the drive to use different types of compressors. Modbus registers 104 - 106 serve this function (refer to Modbus Map within the Addendum for details).

Register 104 defines the slave address for communication, the default value is 45 and it can always be connected with master controller, if you change the default value to different value A, it means both A and 45 can be used for slave address to connect.

Register 105 is for different compressor model. When the value is changed in register 105, you should power off for two mins and the new parameter will be available when the power on again.

Register 106 is for shut down rate for compressor.

Drive Cooling

Because of the power electronics used in the drive and the associated heat generation, drive cooling is required to keep the drive components in their design temperature range. The allowable temperature range of the drive (The ambient air surrounding the drive) is -25°C to 65°C. Drive temperature should be monitored during system development at system extreme conditions to ensure that the maximum allowable drive temperature isn't exceeded. The highest drive temperature will typically occur during high load conditions and/or during high drive ambient.

Drive Over Temperature Protection

The drive is self-protected against high internal temperature. There are different modes of protection; temperature high and foldback. When temperature is too high, the compressor speed will decrease until the internal temperature recover or the compressor speed is in minimum speed.

Air Cooled Heat Exchanger

Drives cooled by the aluminum air cooled heat exchanger are designed to be in the air flow stream of the condenser. The air-cooled heat exchanger must be installed so that the heat exchanger fins are parallel to the cooling air flow. The airflow must be a minimum of 3 meters/sec measured at the outlet of heatsink in the direction of airflow.

Foldback

To protect the drive components or the compressor, the compressor speed will 'foldback' or slow down to help reduce risk to components. The foldback event(s) will be flagged in the drive's Modbus registers. This will allow the operating system to respond and mitigate the conditions causing foldback.

For further information refer to the Addendum.

EMC Guidelines:

- Mount the EMI filter as close as possible to the drive.
- Install the star earth (ground) connection as close as possible to the drive. A non-coating screw is recommended for installation on service panel to maintain good ground connection. The star connection includes:
  - System Input ground
  - Drive Heat-sink ground
  - EMI filter ground
- The usage of additional ferrites and numbers of turns in the input power supply cables, compressor cables, sensor cables are optional but preferred based on system application and noise level.
- Any of the input power supply cables, sensor cables, compressor cables and communication cables should not cross or touch each other to avoid noise coupling. Usage of shielded cable is optional depending on system application, but if used it's mandatory to have correct connections on both sides of the cable.

Troubleshooting

The drive has a EMC filter board, capacitor board, choke and drive board, should issues occur follow the steps below.

When EMC filter board fails, the drive board will lose power, you can use multimeters to test the input and output voltage, and voltage discrepancies.

When choke fails, you can use multimeters to test for disconnection.

When capacitor board fails, you can read the drive DC voltage, or you can use multimeters to test the voltage between P and N. The voltage should be less than 1.3*input voltage.

The drive may indicate fault or protection for various reasons. When this occurs, users should power down the drive, inspect the drive, and check the drive's running condition carefully. For the definitions of these faults, please refer to the Troubleshooting – Fault and Protection within the Addendum.

Fault and protection table

Register		Max Input Current	Parameters	EVD1 Definition and Data format	Check and Handling
78	Bit 0	1st Fault Occured (Read) 78	Compressor Phase Over Current	Hardware + software + hall sensor error	Over Condenser Temp or Drive damage
	Bit 1		AC Input Over Current	Software peak + Hardware + AC input RMS	Low Input Voltage or Over Condensor Temp or Drive damage
	Bit 2		DC Bus Over Voltage	DC Bus Voltage > Voltage limit for 2s	Over input Voltage or drive damage
	Bit 3		DC Bus Under Voltage	DC Bus Voltage < Voltage limit for 2ms	Low input Voltage or drive damage
	Bit 4		AC Input Over Voltage	AC input Voltage > Voltage limit for 12s	Check Input voltage
	Bit 5		AC Input Under Voltage	AC input Voltage < Voltage limit for 12s	Check Input voltage
	Bit 6		Compressor Model Configuration Error	Register[105]!=set model for 1s	confirm the model number
	Bit 7		Micro Electronic Fault or Drive EEPROM Fault	Micro Electronic Fault+Drive EEPROM Fault	Drive damage
	Bit 11		Power Module Over Temp	(Module Temp >Limit Temp for 5s)	Check for drive cooling
	Bit 12		PFC-IGBT Over Temp	(PFC-IGBT Temp > Limit Temp for 5s)	Check for drive cooling
	Bit 13		Lost Rotor Position	Lost Rotor	Over pressure difference
79	Bit 0	1st Fault occurred (Read) 79	DC Voltage Low	DC Bus Voltage < Voltage limit for 30s	Low input Voltage or drive damage
	Bit 1		IGBT Over Current	PFC IGBT Current >85A for 5us	Over Condenser Temp or Drive damage
	Bit 2		Compressor Phase Current Foldback Timeout	(when register [48]=1 and compressor speed is minHz for 30s, bit2=1 and compressor stop)	Over Condenser Temp or Compressor damage
	Bit 3		Power Module Temp. Fold Back Timeout	(when register [49]=1 and compressor speed is min Hz for 30s, bit3=1 and compressor stop)	Check for drive cooling
	Bit 4		AC Input Current Fold Back Timeout	(when register [50]=1 and compressor speed is min Hz for 30s, bit4=1 and compressor stop)	Low Input Voltage or Over Condenser Temp or Drive damage
	Bit 5		Power Module Temp Low or Sensor Open fault	Inverter Temp Sensor Open fault	Low ambient or drive damage
	Bit 6		PFC-IGBT Temp Low	PFC Temp Sensor Open fault	Low ambient or drive damage
	Bit 7		Modbus Communication Lost	No comm. data received for 30S (Recover Automatically)	Communication fault or drive damage
	Bit 11		Power Module Temp High	(Module Temp >Limit Temp for 2s)	Check for drive cooling
	Bit 12		PFC-IGBT Temp High	(PFC-IGBT Temp > Limit Temp for 2s)	Check for drive cooling
	Bit 13		DSP to PFC Communication Lost	DSP to PFC MCU comms lost	communication fault
	Bit 14		Comms to DSP Communication Lost		communication fault or drive damage
	Bit 15		Fault Limit Lockout		

Figure

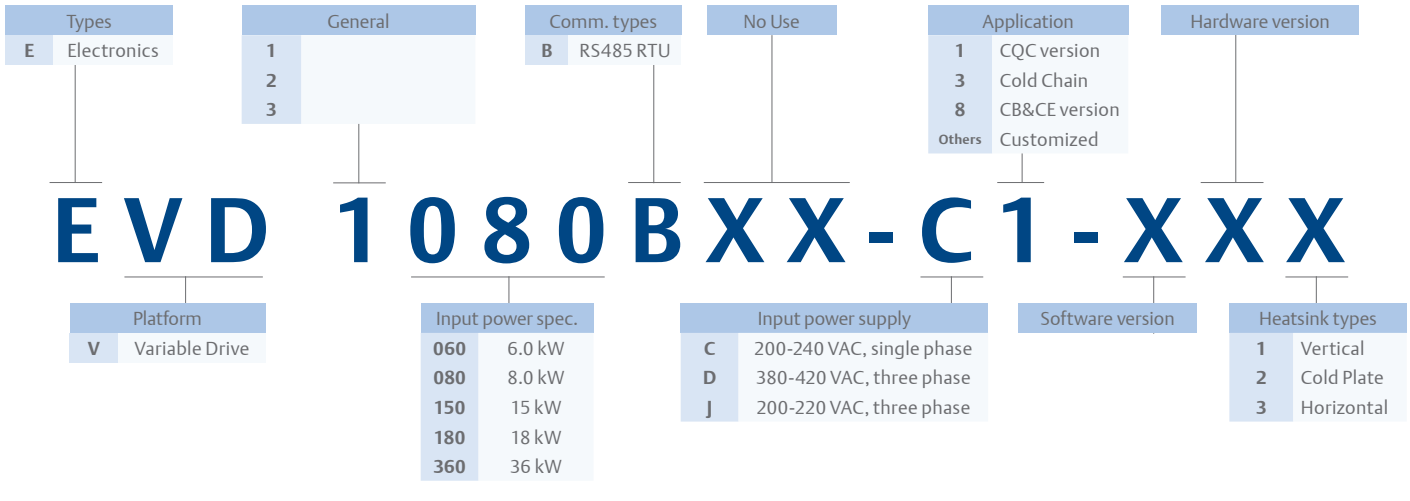


Figure 1: Electronics Nomenclature

Drive product list

Drive	Operation Input Voltage	Compressor Model	Max Input Current	Max Output Current
EVD1360B-D1-112	3PH, 340V~440V,50Hz/60Hz	ZPW112AE-4X9 ZPV112AE-4X9	58A	58A
EVD1180B-D1-111	3PH, 340V~440V,50Hz/60Hz	ZPV0662E-4X9 JPW066AC-4X9 JPV066AC-4X9 ZWW070SP-4X9 JPW079AC-4X9 JPV079AC-4X9 ZPW0802E-4X9 ZPV0962E-4X9	38A	38A
EVD2180B-D1-111		ZPV0662E-4X9 JPW066AC-4X9 JPV066AC-4X9 ZWW070SP-4X9 ZWW070AP-4X9 JPW079AC-4X9 JPV079AC-4X9 ZPW0802E-4X9 ZPV0802E-4X9 ZPV0962E-4X9 YPV0962T-4X9		
EVD2180B-D8-111				
EVD1150B-D1-111	3PH, 340V~440V,50Hz/60Hz	ZHW050SP-4X9 ZPV0662E-4X9 JPW066AC-4X9 JPV066AC-4X9 ZWW070SP-4X9 JPW079AC-4X9 JPV079AC-4X9 ZPW0802E-4X9 ZPV0802E-4X9	27A	27A
EVD2150B-D1-111		ZHW050SP-4X9 ZPV0662E-4X9 YPV0662T-4X9 JPW066AC-4X9 JPV066AC-4X9 ZWW070SP-4X9 ZWW070AP-4X9 JPW079AC-4X9 JPV079AC-4X9 ZPW0802E-4X9 ZPV0802E-4X9 ZBW080TE-4X9 ZFW080TE-4X9 ZBV080TE-4X9 ZFW080QE-4X9		
EVD2150B-D8-111				
EVD1110B-D1-111	3PH, 340V~440V,50Hz/60Hz	ZPV030HT-4X9 VPW030DE-4X9 VPV030DE-4X9 VPW030LE-4X9 VPV030LE-4X9 ZPV030DE-4X9 ZPW030DE-4X9 YPV030LT-4X9 ZBW038DE-4X9 VPW038DE-4X9 VPV038DE-4X9 VPW038LE-4X9 VPV038LE-4X9 ZPV038DE-4X9 ZPW038DE-4X9 VPW038SE-4X9 VPV038SE-4X9 ZPV038SE-4X9 ZPW038SE-4X9 ZWW050SP-4X9 ZBW050SE-4X9 ZBW050SP-4X9 ZFW050SP-4X9 ZFW050SE-4X9 ZPV050DE-4X9 ZHW050SP-4X9	21A	21A
EVD1110B-D1-113				
EVD2110B-D1-111				
EVD2110B-D8-111		ZPV030HT-4X9 ZPV030HE-4X9 YPV030HT-4X9 VPW030DE-4X9 VPV030DE-4X9 VPW030LE-4X9 VPV030LE-4X9 ZPV030DE-4X9 ZPW030DE-4X9 YPV030LT-4X9 YPV038LT-4X9 ZBW038DE-4X9 VPW038DE-4X9 VPV038DE-4X9 VPW038LE-4X9 VPV038LE-4X9 ZPV038DE-4X9 ZPW038DE-4X9 VPW038SE-4X9 VPV038SE-4X9 ZPV038SE-4X9 ZPW038SE-4X9 YPV050ST-4X9 YPW050ST-4X9 ZWW050SP-4X9 ZBW050SE-4X9 ZBW050SP-4X9 ZFW050SP-4X9 ZFW050SE-4X9 ZPV050DE-4X9 ZHW050SP-4X9		
EVD2110B-D1-113				
EVD2110B-D8-113				
EVD1080B-D1-113	3PH, 340V~440V,50Hz/60Hz	ZPV030HT-3X9 ZPV030HE-3X9 VPW030DE-3X9 VPV030DE-3X9 VPW030LE-3X9 VPV030LE-3X9 YPV030LT-3X9 ZPV030DE-3X9 ZPW030DE-3X9 YPV038LT-3X9 VPW038DE-3X9 VPV038DE-3X9 VPW038LE-3X9 VPV038LE-3X9 ZPV038DE-3X9 ZPW038DE-3X9 ZWW050SP-3X9	17A	17A
EVD2080B-C1-113	1PH,160V~265V,50/60Hz	ZPV030HT-3X9 ZPV030HE-3X9 VPW030DE-3X9 VPV030DE-3X9 VPW030LE-3X9 VPV030LE-3X9 YPV030LT-3X9 ZPV030DE-3X9 ZPW030DE-3X9 YPV038LT-3X9 VPW038DE-3X9 VPV038DE-3X9 VPW038LE-3X9 VPV038LE-3X9 ZPV038DE-3X9 ZPW038DE-3X9 ZWW050SP-3X9	35A	25A
EVD3080B-C8-111		ZPV030HT-3X9 ZPV030HE-3X9 VPW030DE-3X9 VPV030DE-3X9 VPW030LE-3X9 VPV030LE-3X9 YPV030LT-3X9 ZPV030DE-3X9 ZPW030DE-3X9 YPV038LT-3X9 VPW038DE-3X9 VPV038DE-3X9 VPW038LE-3X9 VPV038LE-3X9 ZPV038DE-3X9 ZPW038DE-3X9 ZWW050SP-3X9	35A	25A

Drive accessories product number list

Drive	EMC Filter Board	Capacitor Board	Choke
EVD1360B-D1-112	NA	514-0401-00*	037-0091-00
EVD1180B-D1-111	143-0079-00	143-0058-00	037-0064-00
EVD1150B-D1-111			
EVD2180B-D1-111(CQC)	143-0079-00	143-0090-00	037-0092-00
EVD2180B-D8-111(CB/CE)			
EVD2150B-D1-111(CQC)	143-0091-00	143-0092-00	037-0093-00
EVD2150B-D8-111(CB/CE)			
EVD1110B-D1-111	143-0065-00	143-0066-00	037-0068-00
EVD1110B-D1-113			
EVD1080B-D1-113			
EVD2080B-C1-113	143-0030-00	NA	037-0063-00

Note: *514-0401-00 are capacitors and not a capacitor board. Each drive needs 2 capacitors.

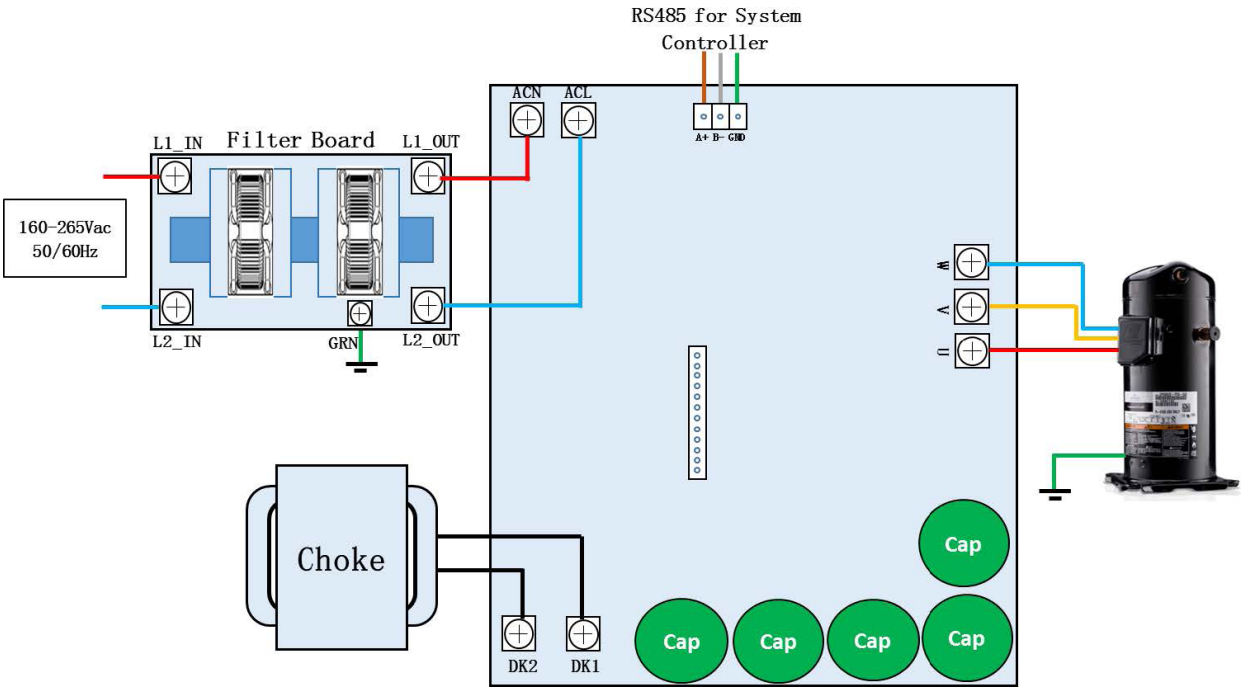


Figure 2: Wire diagram for EVD2080B-Cx-xxx (1PH)

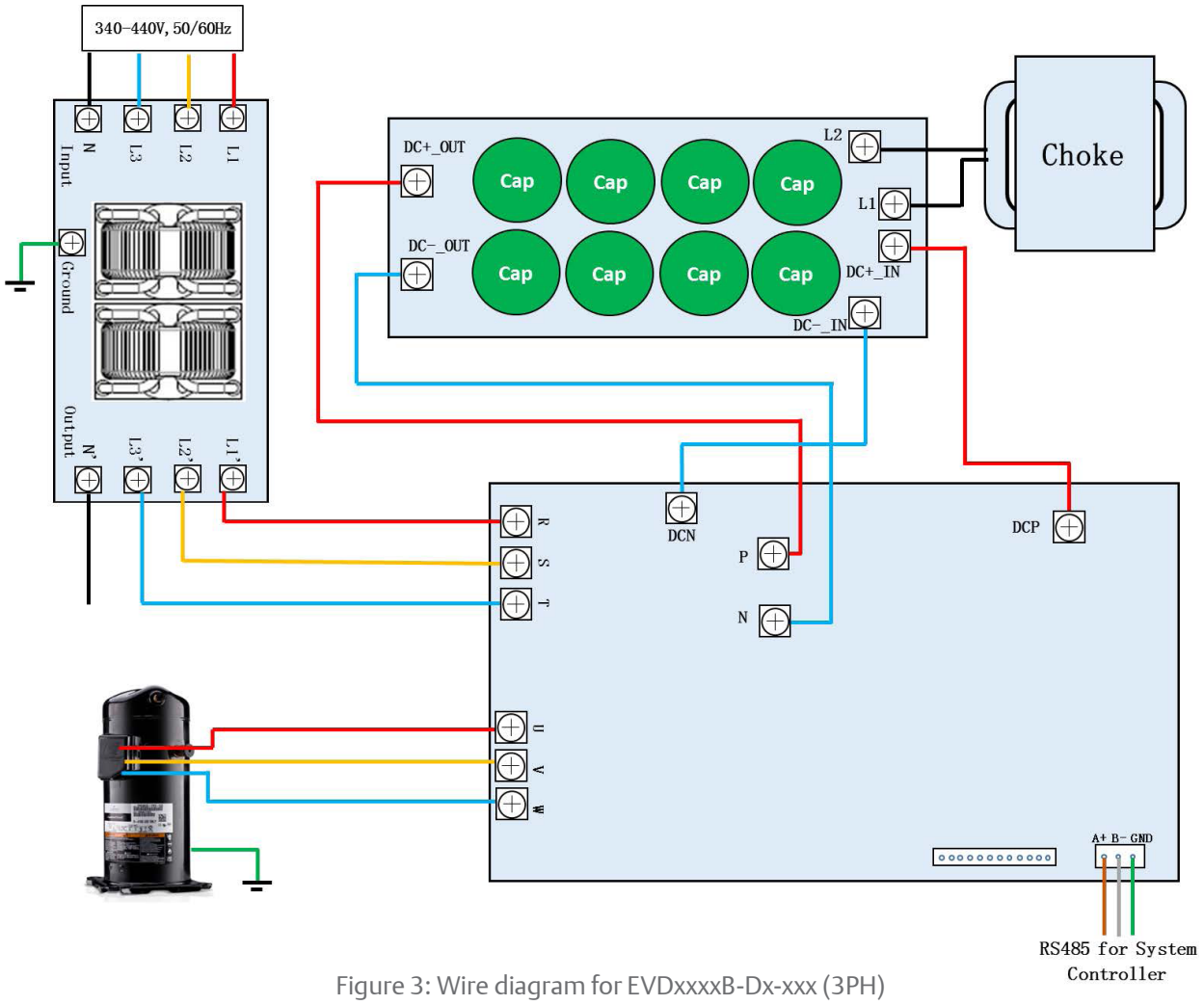


Figure 3: Wire diagram for EVDxxxxB-Dx-xxx (3PH)

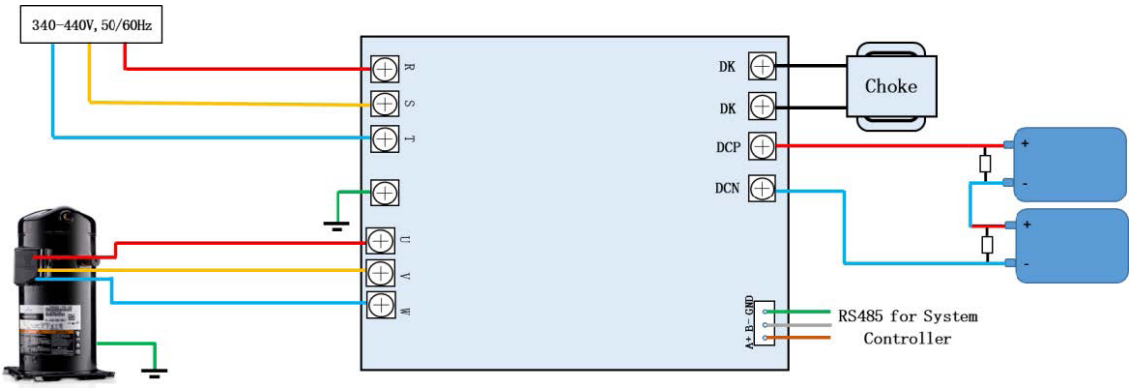


Figure 4: Wire Diagram For EVD1360B-D1-xxx (3PH)

Figure 5: S/N Nomenclature

Table

Table 1 – Ramp up procedure

Drive	Description	Target frequency (Hz)	Ramp up rate (Hz/sec)	Duration (sec)
I	Compressor command started	20	10	2
II	Compressor reaches minimum start frequency	25	1	5
III	Compressor remains at platform frequency	25	-	10
IV	Compressor reaches commanded frequency	Commanded	1	-

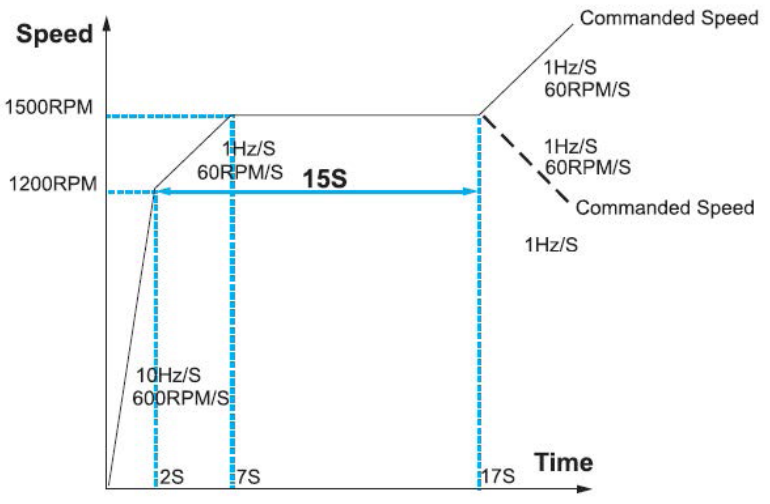


Table 1 – Ramp up procedure

Drive	Description	Target frequency (Hz)	Ramp down rate (Hz/sec)
I	Compressor gets to 30Hz	30	5
II	Compressor gets to minimum frequency	15	2.5
III	Compressor stop	-	-

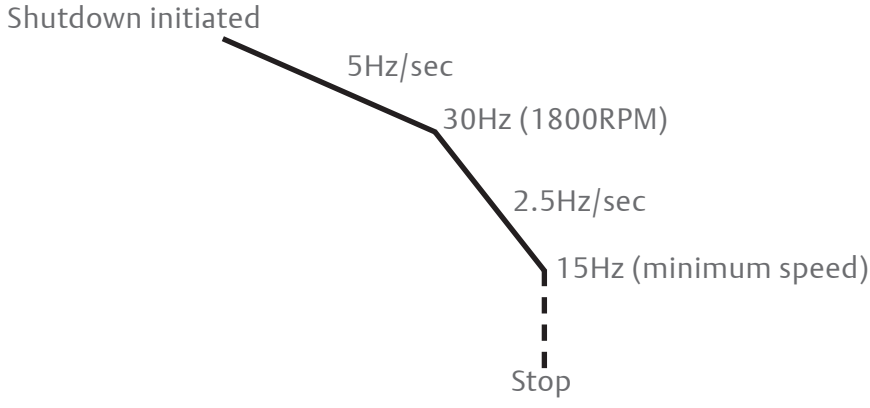
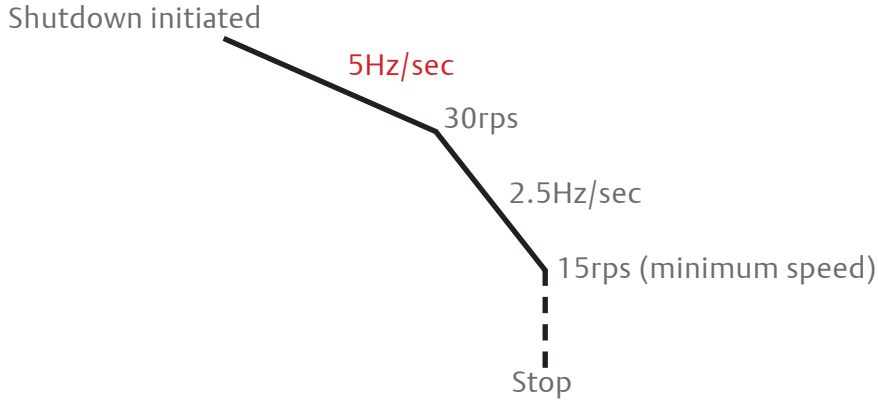


Table 1 – Special shutdown logic

Drive	Description	Target frequency (Hz)	Ramp down rate (Hz/sec)
I	Compressor gets to 30Hz	55	5
II	Compressor gets to minimum frequency	50	2.5
III	Compressor stop	-	-

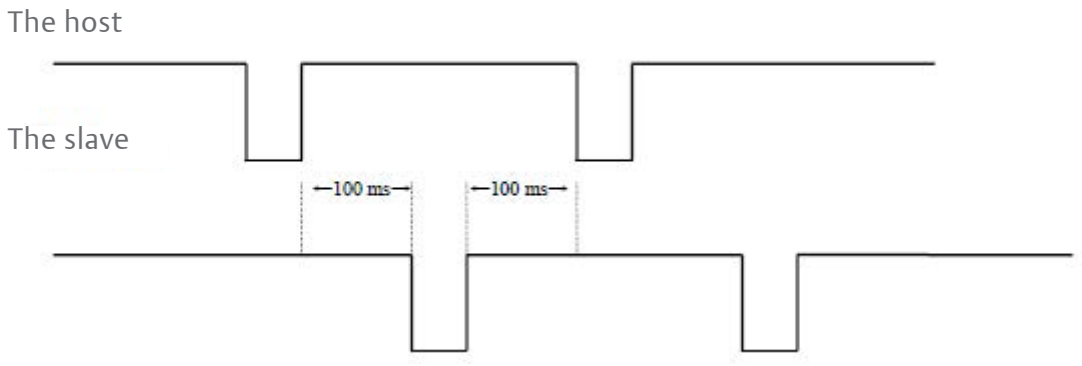


Note: Contact our applications engineer for detailed documents.

Addendum

Addendum 1 - Modbus RTU definition

Half duplex asynchronous serial communication mode is used in this communication protocol. The drive works as the slave. When the slave receives the command from the host, it will answer after 100ms.



Communication diagram

Addendum 2 - Communication format

Half duplex asynchronous serial communication mode is used in this communication protocol. The drive works as the slave. When the slave receives the command from the host, it will answer after 100ms.

Transmission type

Items	Content
Baud rate	2400bps
Start bit	1 bit
Data bit length	8 bits
Parity bit	EVEN
Stop bit	1 bit

Data format

Each character or byte is sent in this order (left to right):

Start	1	2	3	4	5	6	7	8	EVEN	Stop

Message frame

The RTU message frame is defined by below:

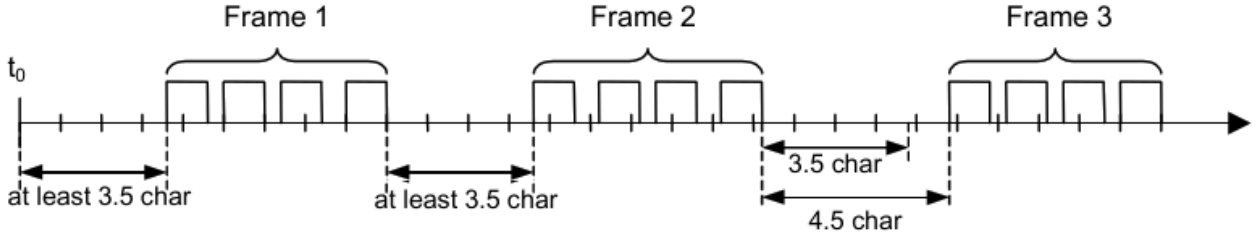
Slave ID	Function Code	Data	CRC	
1 byte	1 byte	0 up to 252 bytes*	2 bytes	
			CRC Low	CRC High

Note: * the maximum size of a modbus RTU frame is 256 bytes.

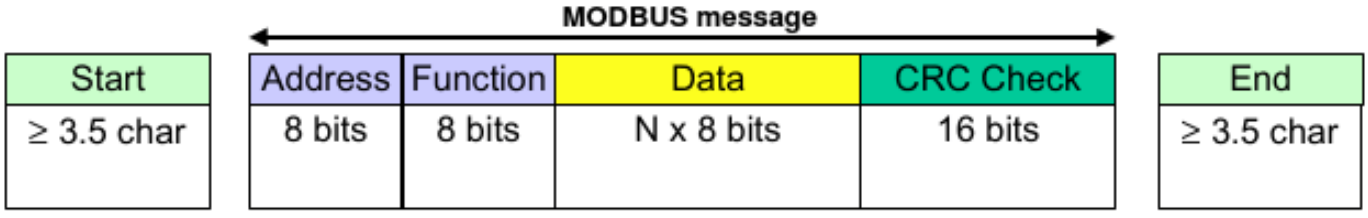
Modbus Message RTU Frame

A Modbus message is placed by the transmitting device into a frame that has a known beginning and ending points. This allows devices that receive a new frame to begin at the start of the message, and to know when the message is completed. Partial messages must be detected and errors must be set as a result.

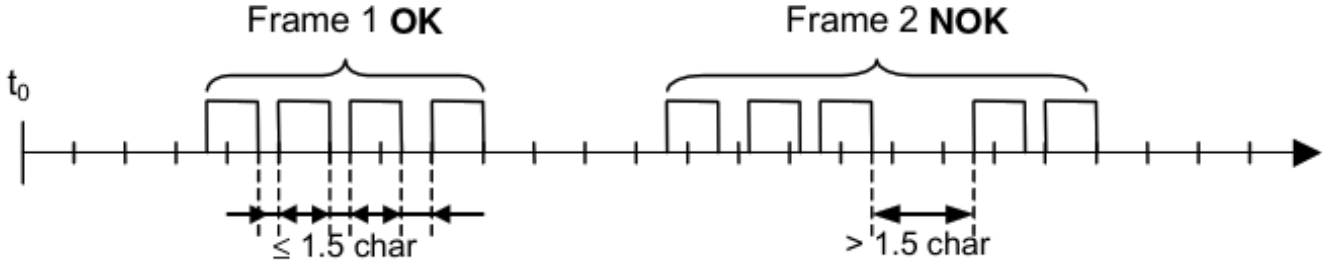
In RTU mode, message frames are separated by a silent interval of at least 3.5 character times. In the following sections, this time interval is called t3.5.



The entire message frame must be transmitted as a continuous stream of characters.



If a silent interval of more than 1.5-character times occurs between two characters, the message frame is declared incomplete and should be discarded by the receiver.



Data in Modbus Frame

1. ADDRESS: Address of slave 1–247
2. FUNCTION: Read or write function
3. DATA: Data that correspond to read or write function
4. ERROR CHECK: Data for checking the communication error

Function in Modbus Frame

Read Holding Registers (Code = 03): Read data of 16 bit register from slave. This function can read maximum 255 registers in the continuous address at one time. In the EMERSON driver, the maximum 24 register can be read:

Master (Query)
Slave address
Function (3)
Start address (Hi)
Start address (Lo)
No. of register (Hi)
No. of register (Lo)
Error check

Slave (Response)
Slave address
Function (3)
Data byte count
Data 1(Hi)
Data 1 (Lo)
Data 2 (Hi)
Data 2 (Lo)
•
•
•
Data N (Hi)
Data N (Lo)
Error check

Preset Single Register (Code = 06): Write single data to 16 bit register of slave.

Master (Query)
Slave address
Function (6)
Register address (Hi)
Register address (Lo)
Preset data (Hi)
Preset data (Lo)
Error check

Slave (Response)
Slave address
Function (6)
Register address (Hi)
Register address (Lo)
Preset data (Hi)
Preset data (Lo)
Error check

General information

Technical data are correct at the time of printing. Updates may occur, and should you need confirmation of a specific value, please contact Emerson clearly stating the information required.

Emerson cannot be held responsible for errors in capacities, dimensions, etc., stated herein. Products, specifications and data in this literature are subject to change without notice.

The information given herein is based on data and tests which Emerson believes to be reliable and which are in accordance with today's technical knowledge. It is intended for use by persons having the appropriate technical knowledge and skill, at their own discretion and risk. Our products are designed and adapted for fixed locations. For mobile applications, failures may occur.

The suitability for this has to be assured from the plant manufacturer, which may include making appropriate tests.

Note:

The components listed in this catalogue are not released for use with caustic, poisonous or flammable substances. Emerson cannot be held responsible for any damage caused by using these substances.

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Emerson (NYSE: EMR), headquartered in St. Louis, Missouri (USA), is a global technology and engineering company providing innovative solutions for customers in industrial, commercial, and residential markets. Our Emerson Automation Solutions business helps process, hybrid, and discrete manufacturers maximize production, protect personnel and the environment while optimizing their energy and operating costs. Our Emerson Commercial and Residential Solutions business helps ensure human comfort and health, protect food quality and safety, advance energy efficiency, and create sustainable infrastructure. For more information visit Emerson.com.

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