SlideDriver™ 50VF
Modbus Controlled VFD Replacement Kit (MX4210, MX4211)

The following instructions are intended to assist the user in the installation of post 2012 manufactured VFDs for use on the SlideDriver™ 50VF, StrongArmCrash, or HydraSwing. Post 2020 VFDs are controlled via RS-485 serial connection and STC software **h4.61 or later** which was not used with pre-2020 VFDs**.** Please read all assembly instructions before installing the kit.

REQUIRED TOOLS
- Wire Strippers
- Wire Cutters
- Small Flat Blade Screw Driver
- Phillips Screw Driver
- Torx Screw Driver - T20
- Laptop with START to load STC software*

*New VFDs require STC software to be **h4.61 or later**

PARTS
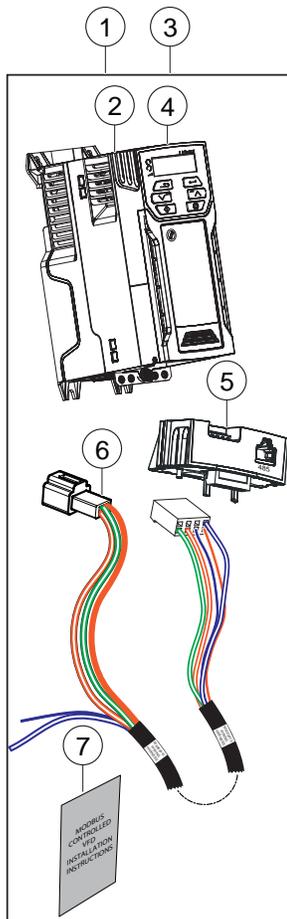Verify that all parts are accounted for. See Figure 1 and Table 1.

Figure 1. Modbus Controlled VFD Replacement Kit

Table 1. Modbus Controlled VFD Replacement

Item No.	Part No.	Description	QTY.	Remarks
1	MX4210	VFD, C200, 230VAC, Modbus Prog	1	Includes items 2, 5-7
2	MX4207	VFD, C200, 230VAC, 1&3PH, 2HP	1	
3	MX4211	VFD, C200, 460VAC, Modbus Prog	1	Includes items 4, 5-7
4	MX4208	VFD, C200, 460VAC, 3PH, 2HP	1	
5	MX4209	Adapter, AI-485 C200 VFD	1	
6	MX002413	Harness, VFD Modbus, 22"	1	
7	MX4416	Instructions, Modbus Controlled VFD Replacement	1	

WORK SAFELY!
Only a **qualified service technician** with proper training should perform this installation. Follow all shop safety rules when performing this installation.

PREPARATION
1. Make sure gate operator is turned off and moving components are idle.
2. Unlock and lift control box cover using key, if necessary.

VFD REMOVAL (PRE-2012, POST-2012)
1. Remove wired connections to VFD:
   - Control Harness
   - Ground
   - Input Power
   - Motor Leads
   - Transformer
   - Signal Common (Pre-2012)
2. Use a Phillips head screwdriver to remove four VFD back panel mounting screws. See Figure 6.
3. Remove VFD from control box.

REMOVE EXISTING VFD (PRE-2012 AND POST-2012)

> **NOTICE**
>
> Steps 1-3 are specific to Pre-2012 VFD replacement and installation.

> **NOTICE**
>
> Step 4 is specific to Post-2012 VFD replacement and installation if not already performed.

1. Use wire cutters to remove gray wire, and jacketed wire harness housing red and black control wires from 12-pin STC connector, and remove opposite ends from Power Supply Board. See Figure 2.

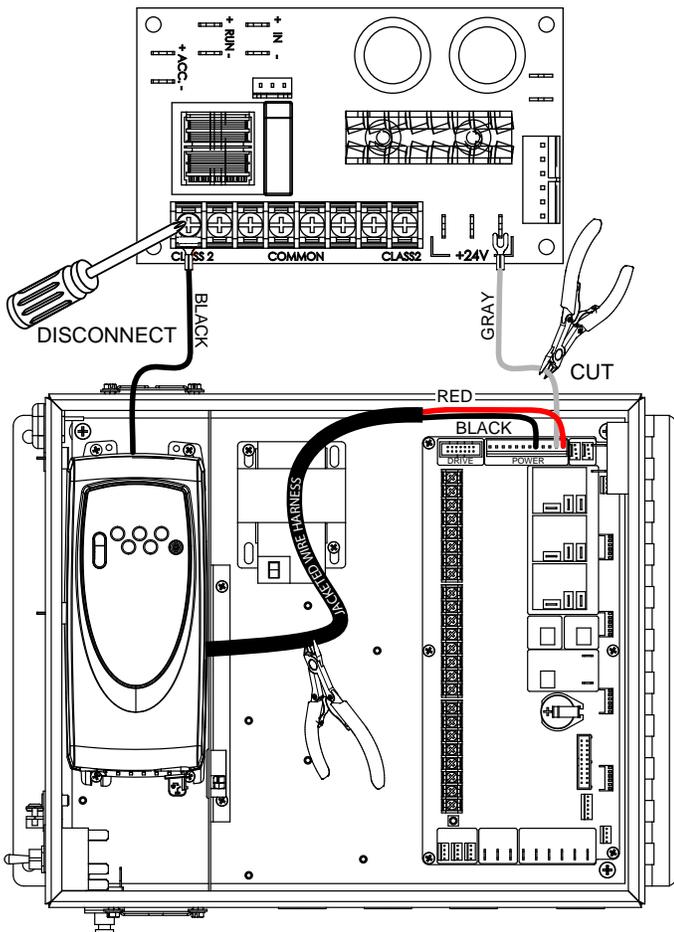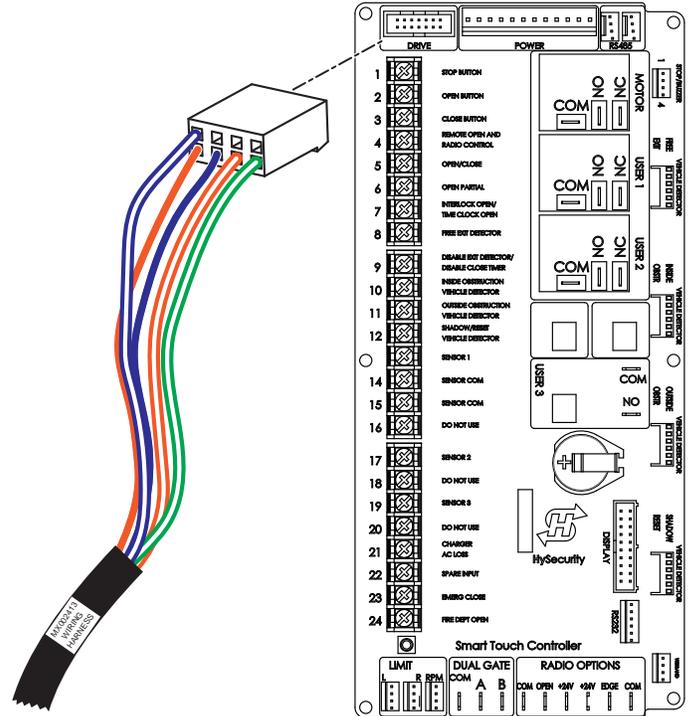2. Disconnect black wire from Power Supply Board common terminal. See Figure 2.

Figure 2. Disconnect Gray, Red, and Black Wires

3. Connect new wiring harness (MX002413) to STC board top DRIVE connection. Route opposite end to the VFD side of the control box through the center air dam. See Figure 3.

CONTROL HARNESS
ROUTED THROUGH
CENTER AIR DAM

Figure 3. MX002413 Wiring Harness to STC Board DRIVE Connection

4. If necessary, remove a portion of outer insulation from an existing control wiring harness (MX002413) for easier connection.

> ⚠ **CAUTION**
>
> **DO NOT** oversize or undersize wire stripper. Damage to individual wires may result in decreased diameters, strength, flexibility, and conductivity; and increased wiring breaking due to bending.

REMOVE TERMINAL COVER

See Figure 4 for reference.

1. Use a flat bladed screwdriver to turn the terminal cover locking clip counterclockwise.
2. Slide the terminal cover down.
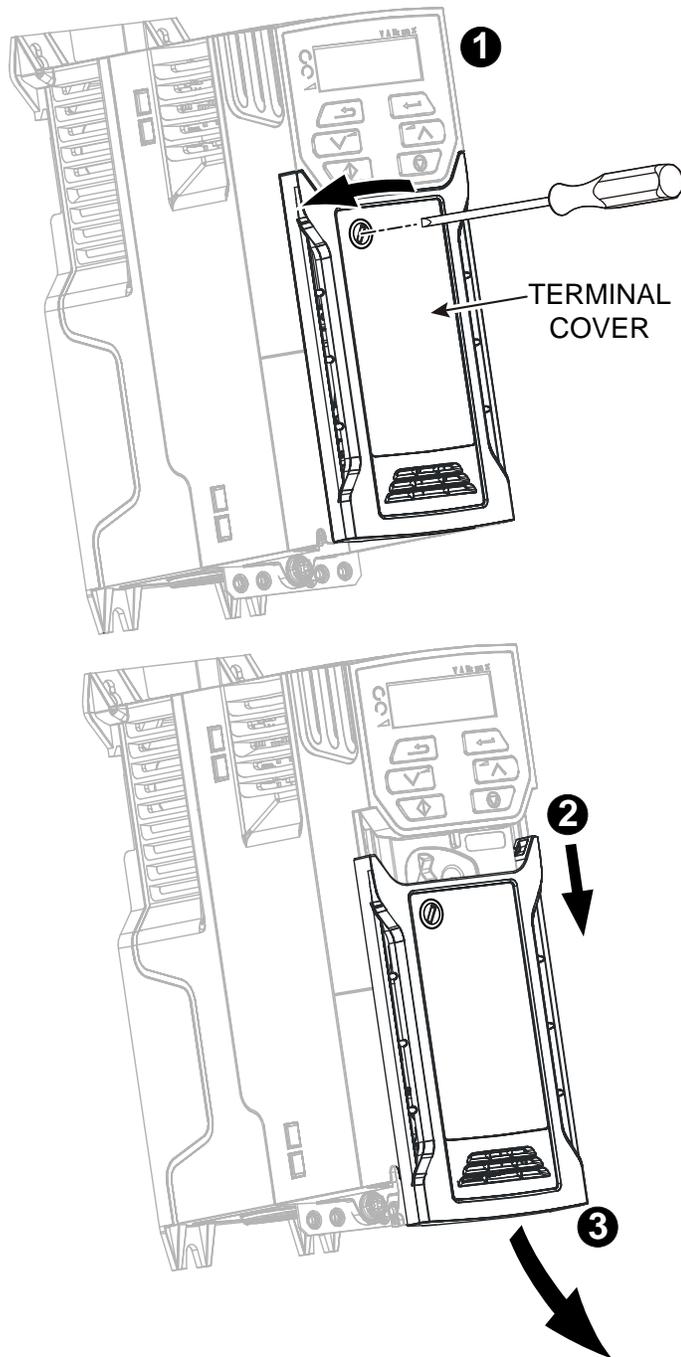3. Remove the terminal cover and set aside.

Figure 4. Remove VFD Terminal Cover

ENSURE AI-485 MODBUS ADAPTOR IS CONNECTED TO VFD

See Figure 5 for reference.

1. If necessary, to install adapter identify the two plastic fingers on the underside of the AI-485 Modbus Adaptor (MX4209). Insert the two plastic fingers into the corresponding slots in the spring-loaded sliding cover on the VFD top.
2. Hold AI-485 Modbus Adaptor and push the spring loaded protective cover towards the VFD back to expose connector blocks.
3. Press AI-485 Modbus Adaptor downwards until the adaptor connector plugs into the VFD drive connection.
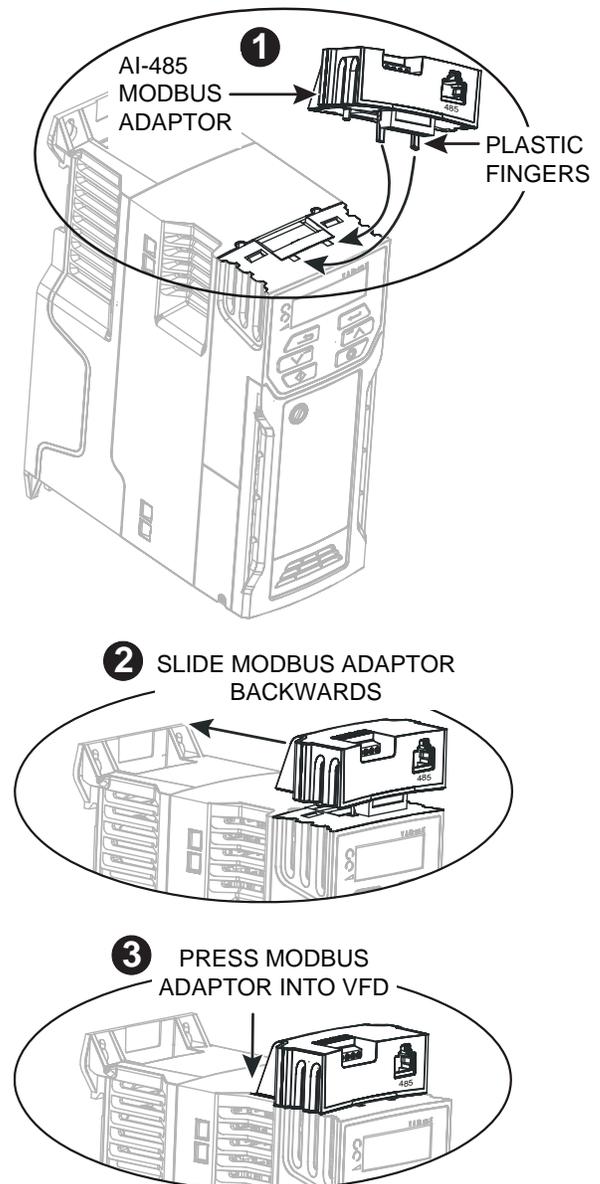

Figure 5. Connect AI-485 ModBus Adaptor to VFD

MOUNTING VFD TO CONTROL BOX

1. Use a Phillips head screwdriver and four phillips head screws to secure new VFD to back panel. See Figure 6.

> ### NOTICE
> Two phillips head screws behind Modbus Adapter may be kept loose if not accessible during mounting.

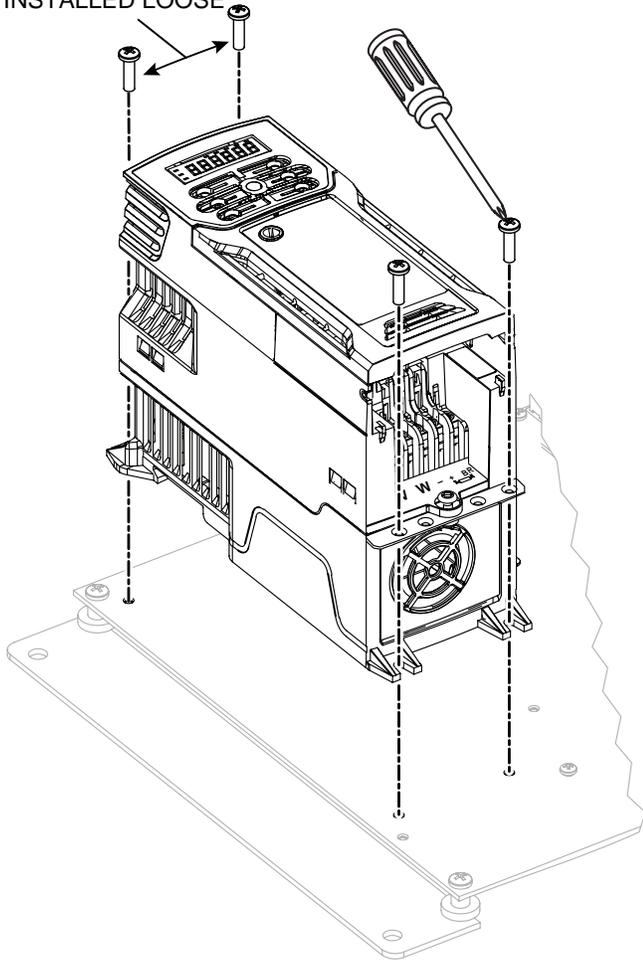PHILLIPS HEAD SCREWS
INSTALLED LOOSE

Figure 6. Mounting VFD to Control Box

WIRING CONNECTIONS TO NEW VFD

1. Plug RJ-45 connector from control wiring harness (MX002413) into AI-485 Modbus Adapter. See Figure 7.

2. Connect remaining control harness wires to the terminal strip below the VFD control panel. See Figure 7.

   - Bue/White to Terminal 1
   - Blue to Terminal 11
   - Resistor Leads to Terminal 9 and Terminal 11

RJ-45 CONNECTOR TO
MODBUS ADAPTOR

BLUE/WHITE   BLUE
TO T-1   TO T-11

RESISTOR LEAD
TO T-9 and T-11

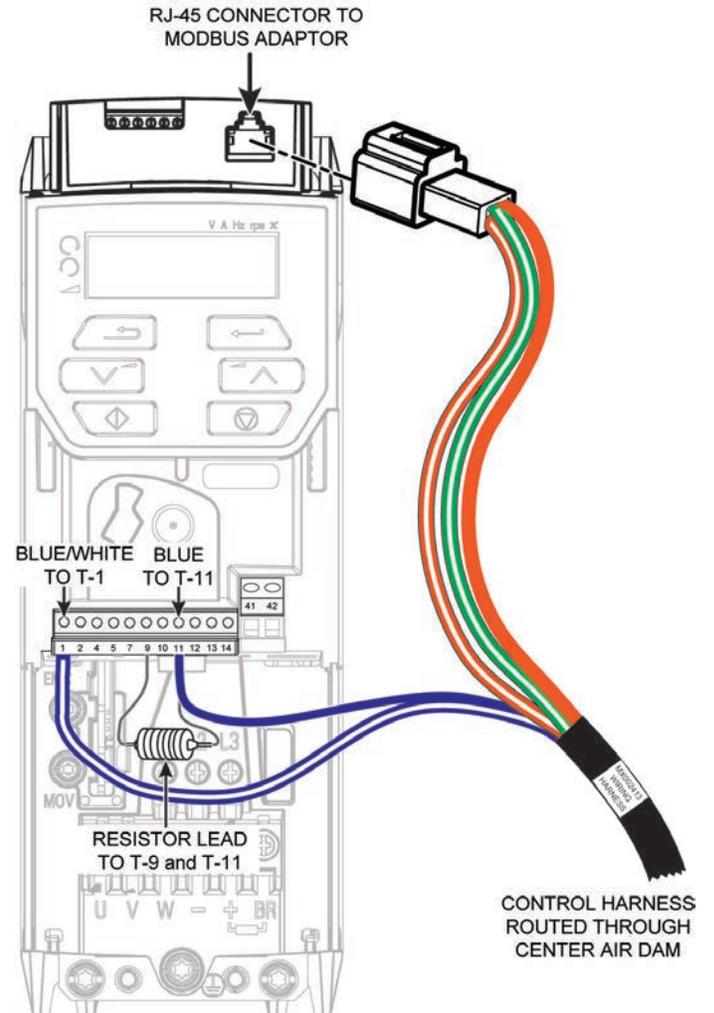CONTROL HARNESS
ROUTED THROUGH
CENTER AIR DAM

Figure 7. Connect Control Harness Wires to VFD

3. Connect the black Motor Lead wires to terminals U, V, W as follows and shown in Figure 8.
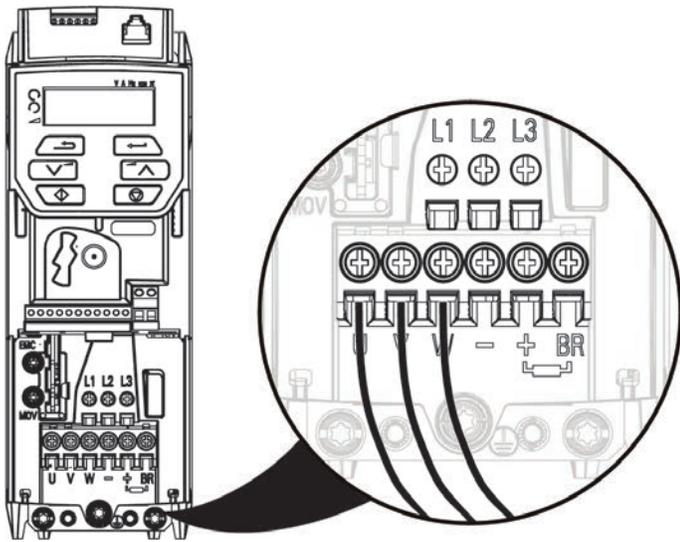

Figure 8. Connect Motor Wires to VFD

4. Connect black Input Power wires to terminals L1 and L3. Terminal L2 is only used if VFD is used in the 3Ø setting. See Figure 9.

5. Connect the Transformer wires to L1 and L3 as follows and shown in Figure 9 (SlideDriver and HydraSwing only).

   ■ Orange to L1 for 240VAC
   ■ Red to L1 for 208VAC
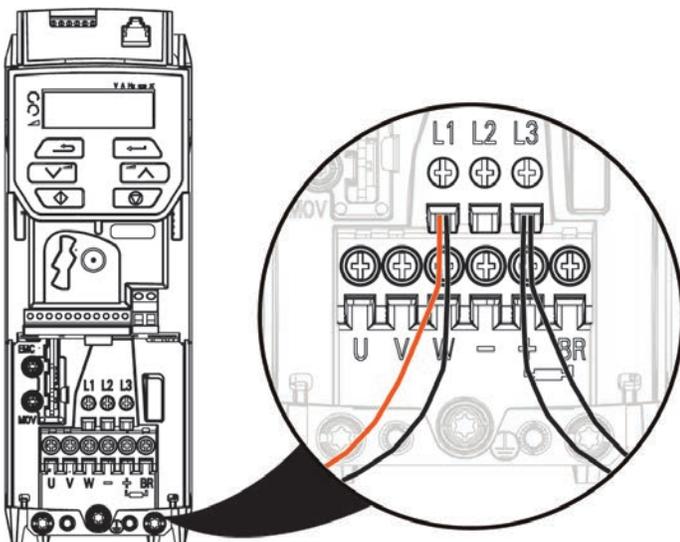   ■ Blue to L1 for 480VAC
   ■ Black to L3

Figure 9. Connect Input Power and Transformer Wires to VFD

6. Use Torx driver to connect ground wire to ground terminal strip and grounding point. See Figure 10.
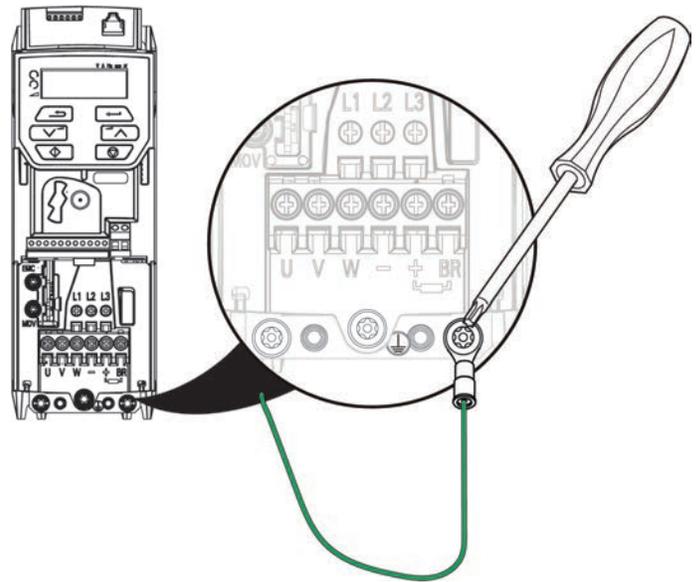

Figure 10. Connect Ground Wire to VFD Terminal Strip

7. Reinstall the VFD terminal cover and secure with a flat bladed screwdriver.

8. Ensure STC software is h4.55 or later.

9. Settings need to be programmed if updating to STC software. For example: BY to 1, SP to 2 for 2 fps, or 3 for 3fps.

10. Contact technical support if VFD does not display **READY**, STC shows a fault, or does not run.

Contact Information:

Visit https://support.hysecurity.com/hc/en-us for installation manuals, replacement part instructions, part diagrams and more. Qualified HySecurity distributors are experienced and trained to assist in resolving installation problems. For the name of a qualified distributor near you, call HySecurity at 800-321-9947. *Before contacting your distributor or HySecurity Technical Support, obtain the serial number of your operator.