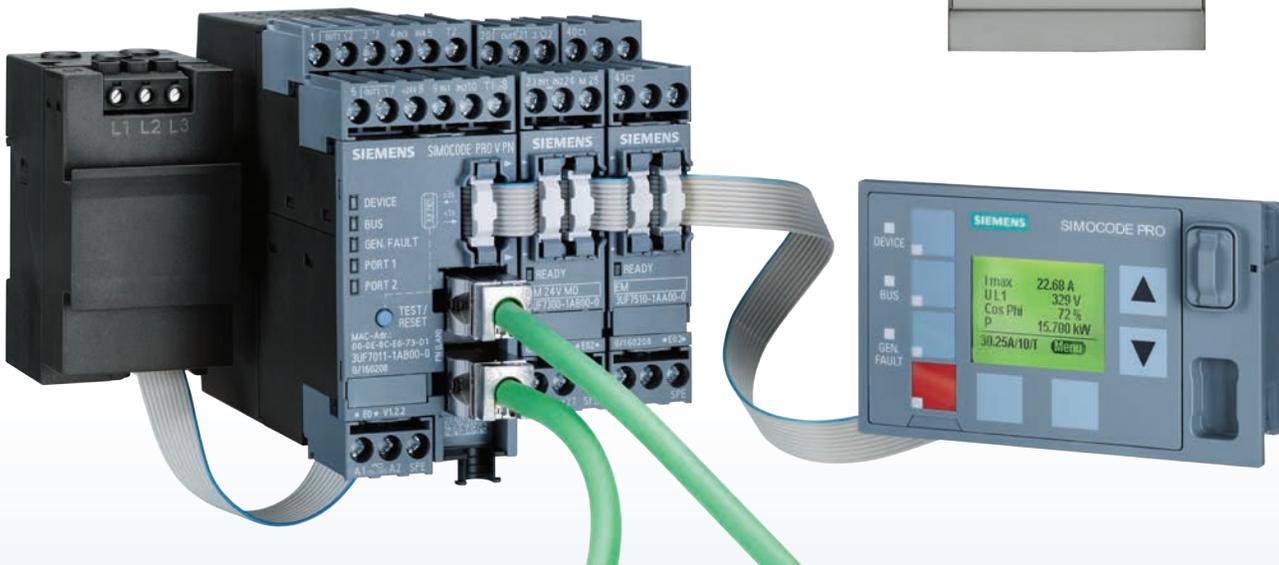


# SIEMENS

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Selection Guide

## SIMOCODE pro

Parameterization selection in COMPAS

[usa.siemens.com/mcc](http://usa.siemens.com/mcc)



# Introduction

This document is intended to define and demonstrate the necessary knowledge to select parameterization of SIMOCODE pro in a low-voltage motor control center (LV MCC). When configuring an LV MCC in COMPAS with the SIMOCODE pro overload relay, there are extra factors that need to be considered over a standard overload relay. The COMPAS configuration tool has several selections that allow for varied parameterization levels of the SIMOCODE pro overload.

SIMOCODE pro is a powerful device with a myriad of options. The following selections are aimed at providing a solid foundation for our customers. Monitoring and diagnostic parameters of the SIMOCODE pro are meant to be commissioned by the end user to suit their specific needs.

## Structure

The parameterization selections fall into three categories: Parameter Level, Network Mode Selector and Control Scheme (Local/Remote). Selection works by moving from Parameter Level to Network Mode Selector and then lastly to Control Scheme (Local/Remote). Below is a table of the selections and how they are linked together.

Parameter Level	Network Mode Selector	Control Scheme (Local/Remote)
Basic Checks	Network Connectivity Check	Device Configuration Check
Standard Parameter Blocks	Overload Relay w/ Remote I/O	Any/Maintained Network Bits
Standard Parameter Blocks	Network Bit	None/Maintained Bits
Standard Parameter Blocks	Network Bit	None/Momentary Bits
Standard Parameter Blocks	Network Bit	Momentary OP/Maintained Bits
Standard Parameter Blocks	Network Bit	Momentary OP/Momentary Bits
Standard Parameter Blocks	Network Bit	Maintained SS/Maintained Bits
Standard Parameter Blocks	Network Bit	Maintained SS/Momentary Bits
Standard Parameter Blocks	Network Bit	Momentary PB/Maintained Bits
Standard Parameter Blocks	Network Bit	Momentary PB/Momentary Bits
Standard Parameter Blocks	Operator Panel Button	Momentary OP/Maintained Bits
Standard Parameter Blocks	Operator Panel Button	Momentary OP/Momentary Bits
Standard Parameter Blocks	Selector Switch	Maintained SS/Maintained Bits
Standard Parameter Blocks	Selector Switch	Maintained SS/Momentary Bits
Standard Parameter Blocks	Selector Switch	Momentary PB/Maintained Bits
Standard Parameter Blocks	Selector Switch	Momentary PB/Momentary Bits
Custom Parameter Blocks	Custom with Consultation	Custom with Consultation

Each of these selections is explained in detail further in the document.

# Step One: Parameter Level

This is a general selection on the depth of parameterization as shipped. The three choices are:

## 1. BASIC CHECKS:

- a. Customer will perform the entire parameterization of the SIMOCODE pro overload.
- b. Customer will receive a SIMOCODE pro overload that has had a network connectivity check and device configuration check performed at manufacturing facility.
- c. Each device will have been parameterized with a network address and device configuration of the attached SIMOCODE components.
- d. This provides verification that all of the components and cabling for the SIMOCODE pro and communication network are functional upon shipment to the customer's site.

## 2. STANDARD PARAMETER BLOCKS:

- a. Customer will perform the commissioning parameterization of the SIMOCODE pro overload.
- b. In addition to the BASIC CHECKS, customer will receive a SIMOCODE pro overload that has had a STANDARD PARAMETER BLOCK check performed.
- c. Each device will have been parameterized with a network address, device configuration, network mode selector, and standard control scheme.
- d. This provides verification that all of the components and cabling for the control devices, SIMOCODE pro, and communication network are functional as a system upon shipment to the customer's site.

## 3. CUSTOM PARAMETER BLOCKS:

- a. Customer is requesting to consult with an LV MCC Systems Engineer for a fee to develop a customized solution. User will perform the commissioning parameterization of the SIMOCODE pro overload.
- b. In addition to the BASIC CHECKS, customer will receive a SIMOCODE pro overload that has had a CUSTOM PARAMETER BLOCK check performed.
- c. Each device will have been parameterized with a network address, device configuration, network mode selector, and custom control scheme.
- d. This provides verification that all of the components and cabling for the control devices, SIMOCODE pro, and communication network are functional as a system upon shipment to the customer's site.

## Step Two: Network Mode Selector

This is a specific selection as to how SIMOCODE pro is placed into remote control mode where operating signals are given over networked communication. The choices for this will vary depending on the PARAMETER LEVEL selection.

### 1. BASIC CHECKS:

- a. There is only the default choice of NETWORK CONNECTIVITY CHECK as the user is agreeing to perform the entire parameterization of the SIMOCODE pro.

### 2. STANDARD PARAMETER BLOCKS:

#### a. OVERLOAD RELAY W/ REMOTE I/O:

- i. Customer will receive a SIMOCODE pro parameterized to work as a basic electronic overload relay without motor control functionality.
- ii. There is no method to place the SIMOCODE pro into a remote operating mode.
- iii. All control decisions are made external to the SIMOCODE pro.
- iv. SIMOCODE pro inputs and outputs are available for use as networked communication I/O in place of traditional hardwired I/O.

#### b. NETWORK BIT:

- i. Customer will receive a SIMOCODE pro parameterized to work as an overload relay with motor controller functionality.
- ii. The method to place the SIMOCODE pro into a remote operating mode is achieved by sending a maintained network bit (Cyclic Receive Bit 0.5) over the networked communication.
- iii. Loss of the maintained network bit (Cyclic Receive Bit 0.5) sets SIMOCODE pro to local operating mode.

#### c. OPERATOR PANEL BUTTON:

- i. Customer will receive a SIMOCODE pro parameterized to work as an overload relay with motor controller functionality.
- ii. The method to place the SIMOCODE pro into a remote operating mode is achieved by toggling Button 1 on the SIMOCODE pro keypad.
- iii. A successive toggling of Button 1 on the SIMOCODE pro keypad will set the SIMOCODE pro to local operating mode.

#### d. SELECTOR SWITCH:

- i. Customer will receive a SIMOCODE pro parameterized to work as an overload relay with motor controller functionality.
- ii. The method to place the SIMOCODE pro into a remote operating mode is achieved by setting the HAND-OFF-AUTO maintained selector switch to the AUTO position.
- iii. Setting the HAND-OFF-AUTO maintained selector switch to the HAND or OFF positions will set the SIMOCODE pro to local operating mode.

### 3. CUSTOM PARAMETER BLOCKS:

- a. There is only the default choice of CUSTOM with CONSULTATION as the customer is requesting to consult with an LV MCC Systems Engineer for a fee.

## Step Three: Control Scheme (Local / Remote)

This is a specific selection as to the controls and network communication signals required for SIMOCODE pro to operate in the LOCAL and REMOTE control modes. The two are separated by a forward slash character with the local mode control appearing ahead of the slash and the Remote mode control appearing after the slash. The choices for this will vary depending on the Parameter Level and Network Mode Selector selections.

### 1. BASIC CHECKS:

- a. There is only the default choice of DEVICE CONFIGURATION CHECK as the customer is agreeing to perform the entire parameterization of the SIMOCODE pro.

### 2. STANDARD PARAMETER BLOCKS:

#### a. OVERLOAD RELAY W/ REMOTE I/O:

##### i. ANY/MAINTAINED NETWORK BITS (see Figure 1):

###### 1. ANY:

- a. Traditional control schemes may be used as the SIMOCODE pro is set for use as an overload, diagnostics and remote I/O device instead of a motor control management device.
- b. SIMOCODE pro Output 3 is configured as a normally closed overload contact to protect the motor.
- c. **Note:** Multiple speed motors require the use of two SIMOCODE pro devices like a traditional circuit would since the motor control management portion has been defeated.

###### 2. MAINTAINED NETWORK BITS:

- a. Continuous signal(s) may be sent over the network to energize SIMOCODE pro output(s).
- b. SIMOCODE pro Outputs (Basic Unit Output 1, Basic Unit Output 2) are tied to network signals (Cyclic Receive Bit 0.1, Cyclic Receive Bit 0.2) for use as remote relay outputs.
- c. SIMOCODE pro Inputs (Basic Unit Input 1, Basic Unit Input 2, Basic Unit Input 3, Basic Unit Input 4) are tied to network signals (Cyclic Send Bit 0.1, Cyclic Send Bit 0.2, Cyclic Send Bit 0.3, Cyclic Send Bit 0.4) for use as remote inputs.

# Step Three: Control Scheme (Local / Remote) (continued)

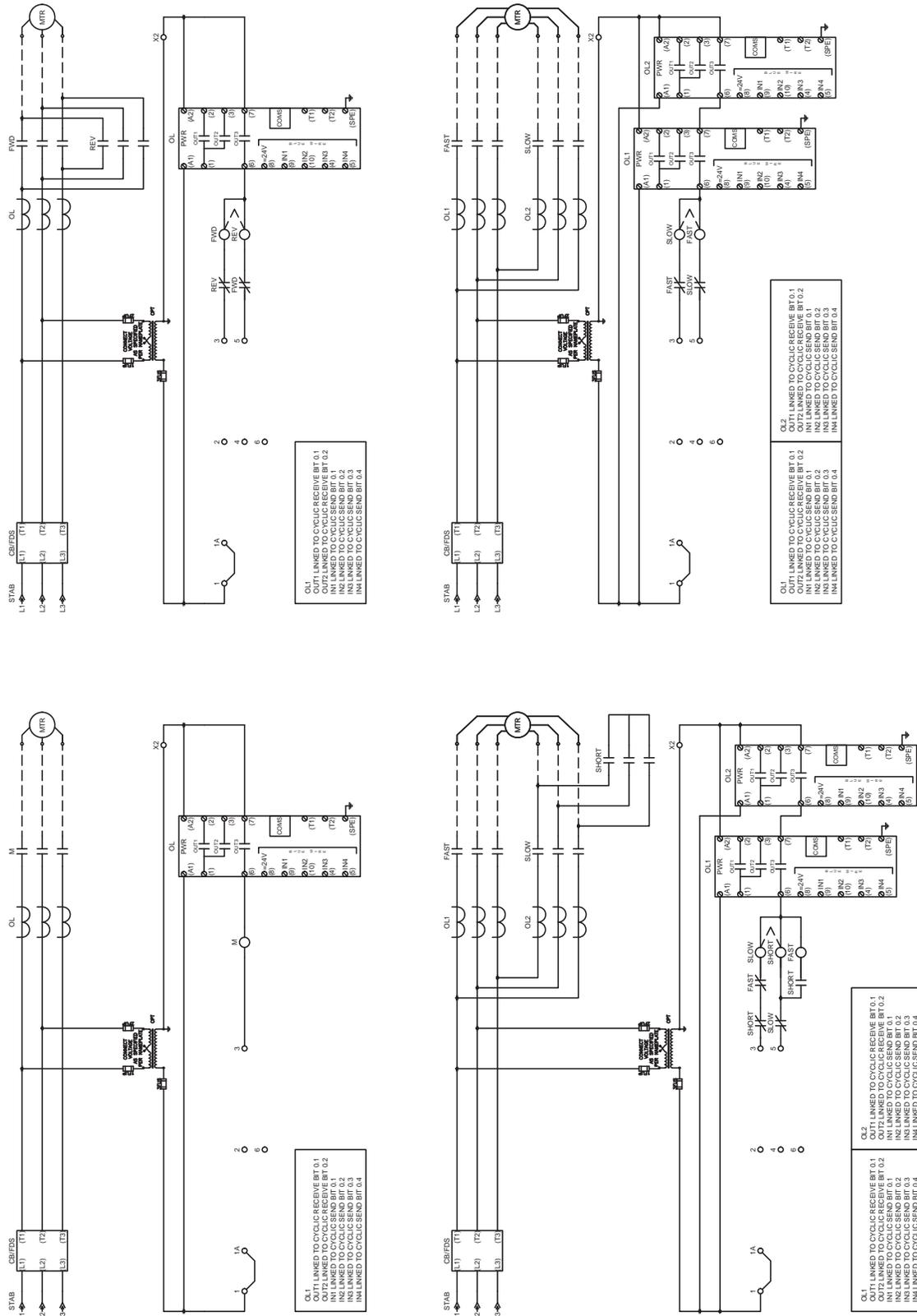


Figure 1

## Step Three: Control Scheme (Local / Remote) (continued)

b. NETWORK BIT:

i. NONE/MAINTAINED BITS (see Figure 2):

1. NONE:

- a. Local control commands are not parameterized.

2. MAINTAINED BITS:

- a. Remote control commands are continuous signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the continuous command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Loss of the continuous command signal will result in an OFF condition.

ii. NONE/MOMENTARY BITS (see Figure 2):

1. NONE:

- a. Local control commands are not parameterized.

2. MOMENTARY BITS:

- a. Remote control commands are brief signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the brief command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Motor stop will occur when the brief command signal (Cyclic Receive Bit 0.1) is present.

# Step Three: Control Scheme (Local / Remote) (continued)

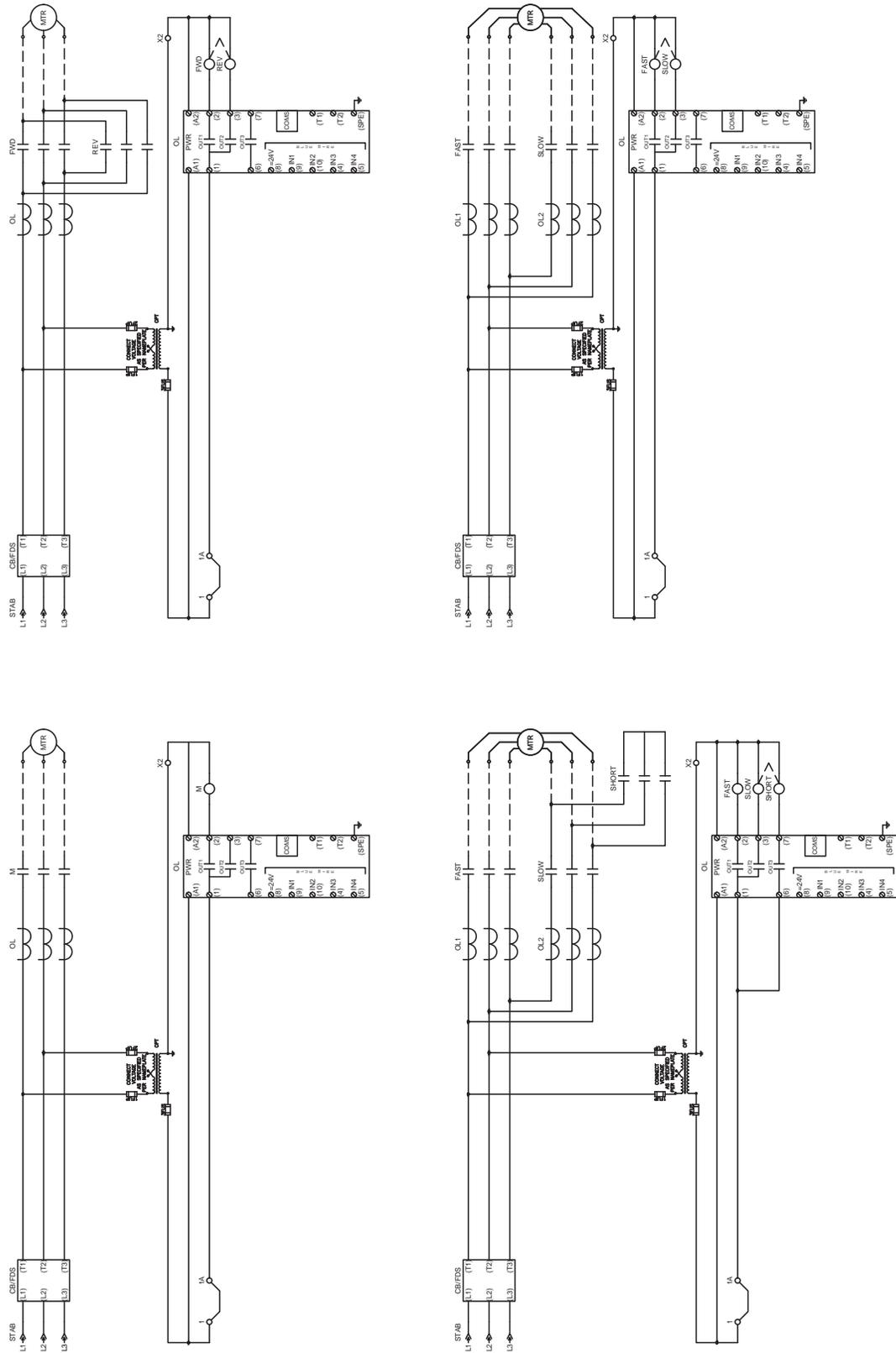


Figure 2

## Step Three: Control Scheme (Local / Remote) (continued)

### iii. MOMENTARY OP/MAINTAINED BITS (see Figure 3):

#### 1. MOMENTARY OP:

- a. Local control commands are brief presses of the Operator Panel buttons to engage the motor controller functionality.
- b. Motor start will occur when the required brief press of the Operator Panel button (Button 2, Button 3) is present.
- c. Motor stop will occur when the required brief press of the Operator Panel button (Button 4) is present.

#### 2. MAINTAINED BITS:

- a. Remote control commands are continuous signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the continuous command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Loss of the continuous command signal will result in an off condition.

### iv. MOMENTARY OP/MOMENTARY BITS (see Figure 3):

#### 1. MOMENTARY OP:

- a. Local control commands are brief presses of the Operator Panel buttons to engage the motor controller functionality.
- b. Motor start will occur when the required brief press of the Operator Panel button (Button 2, Button 3) is present.
- c. Motor stop will occur when the required brief press of the Operator Panel button (Button 4) is present.

#### 2. MOMENTARY BITS:

- a. Remote control commands are brief signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the brief command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Motor stop will occur when the brief command signal (Cyclic Receive Bit 0.1) is present.

# Step Three: Control Scheme (Local / Remote) (continued)

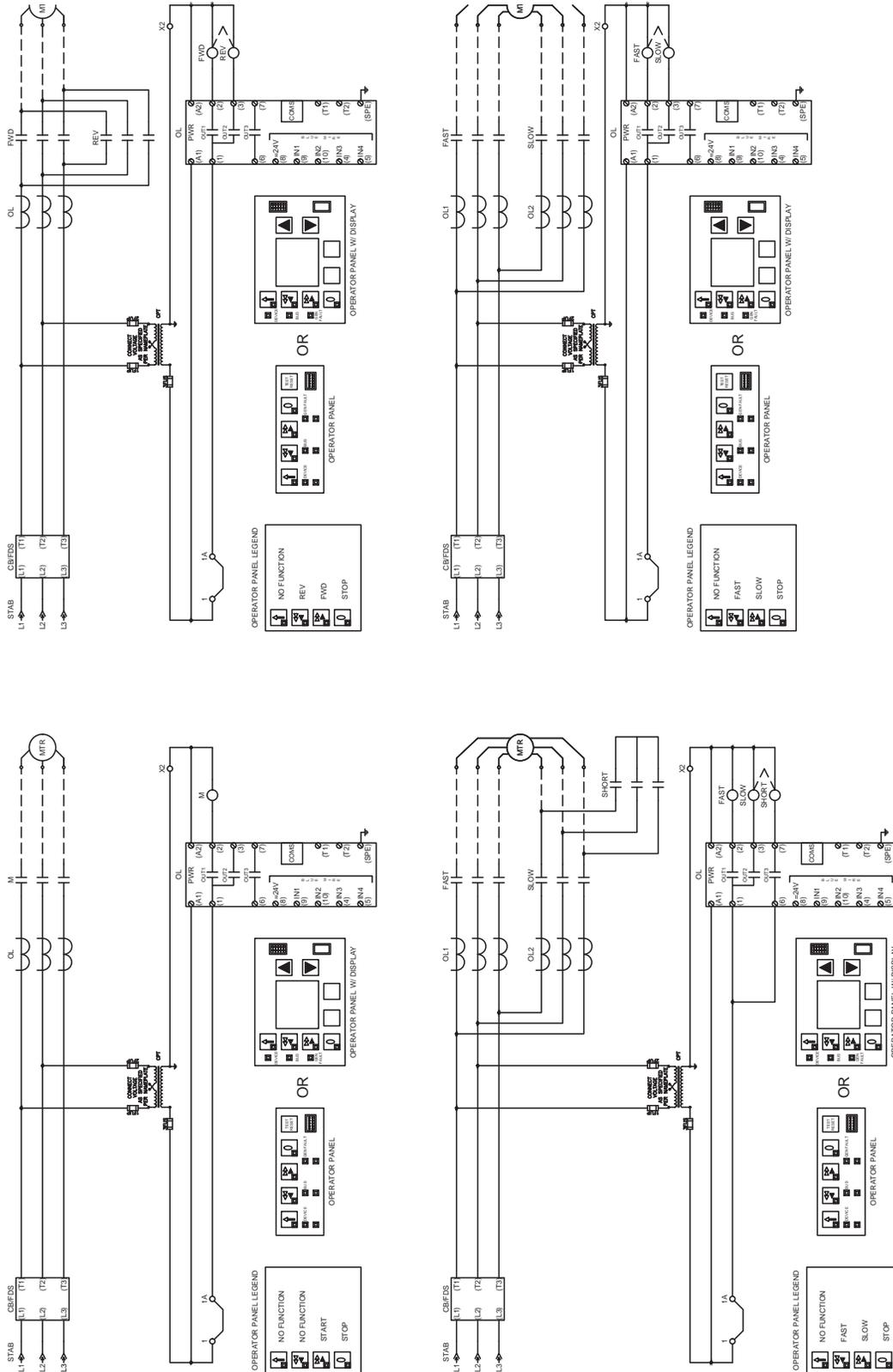


Figure 3

## Step Three: Control Scheme (Local / Remote) (continued)

### v. MAINTAINED SELECTOR SWITCH (SS)/MAINTAINED BITS (see Figure 4):

#### 1. MAINTAINED SS:

- a. Local control commands are continuous positioning of the selector switch to engage the motor controller functionality.
- b. Motor start will occur when the required continuous positioning of the selector switch (ON, FWD, REV, SLOW, FAST) is present.
- c. Motor stop will occur when the required continuous positioning of the selector switch (OFF) is present.

#### 2. MAINTAINED BITS:

- a. Remote control commands are continuous signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the continuous command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Loss of the continuous command signal will result in an OFF condition.

### vi. MAINTAINED SS/MOMENTARY BITS (see Figure 4):

#### 1. MAINTAINED SS:

- a. Local control commands are continuous positioning of the selector switch to engage the motor controller functionality.
- b. Motor start will occur when the required continuous positioning of the selector switch (ON, FWD, REV, SLOW, FAST) is present.
- c. Motor stop will occur when the required continuous positioning of the selector switch (OFF) is present.

#### 2. MOMENTARY BITS:

- a. Remote control commands are brief signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the brief command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Motor stop will occur when the brief command signal (Cyclic Receive Bit 0.1) is present.

# Step Three: Control Scheme (Local / Remote) (continued)

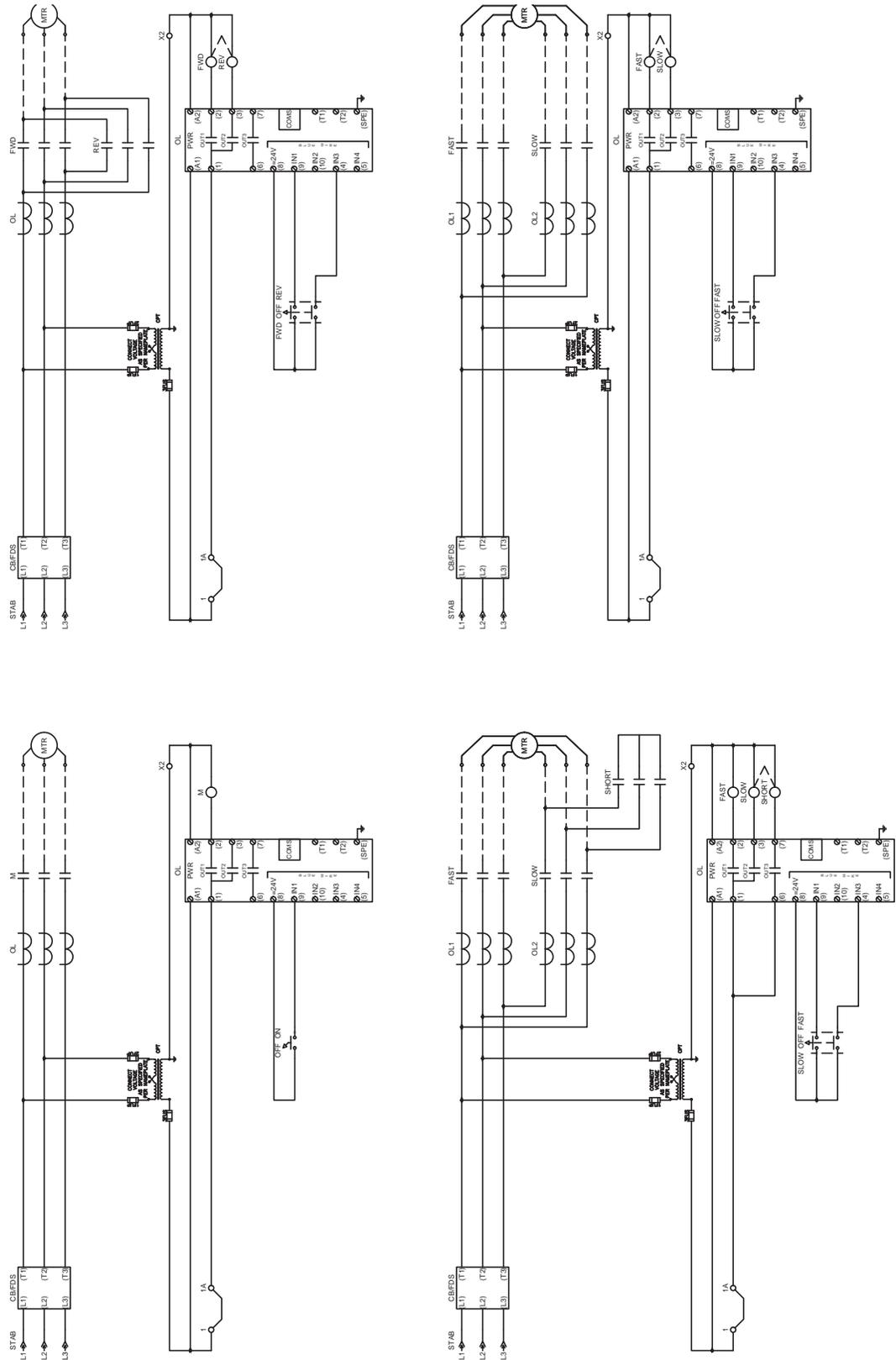


Figure 4

## Step Three: Control Scheme (Local / Remote) (continued)

### vii. MOMENTARY PB/MAINTAINED BITS (see Figure 5):

#### 1. MOMENTARY PB:

- a. Local control commands are brief presses of the pushbuttons to engage the motor controller functionality.
- b. Motor start will occur when the a brief press of the appropriate pushbutton (START, FWD, REV, SLOW, FAST) is present.
- c. Motor stop will occur when the brief press of the appropriate pushbutton (STOP) is present.

#### 2. MAINTAINED BITS:

- a. Remote control commands are continuous signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the continuous command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Loss of the continuous command signal will result in an OFF condition.

### viii. MOMENTARY PB/MOMENTARY BITS (see Figure 5):

#### 1. MOMENTARY PB:

- a. Local control commands are brief presses of the pushbuttons to engage the motor controller functionality.
- b. Motor start will occur when the a brief press of the appropriate pushbutton (START, FWD, REV, SLOW, FAST) is present.
- c. Motor stop will occur when the required brief press of the appropriate pushbutton (STOP) is present.

#### 2. MOMENTARY BITS:

- a. Remote control commands are brief signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the brief command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Motor stop will occur when the brief command signal (Cyclic Receive Bit 0.1) is present.

# Step Three: Control Scheme (Local / Remote) (continued)

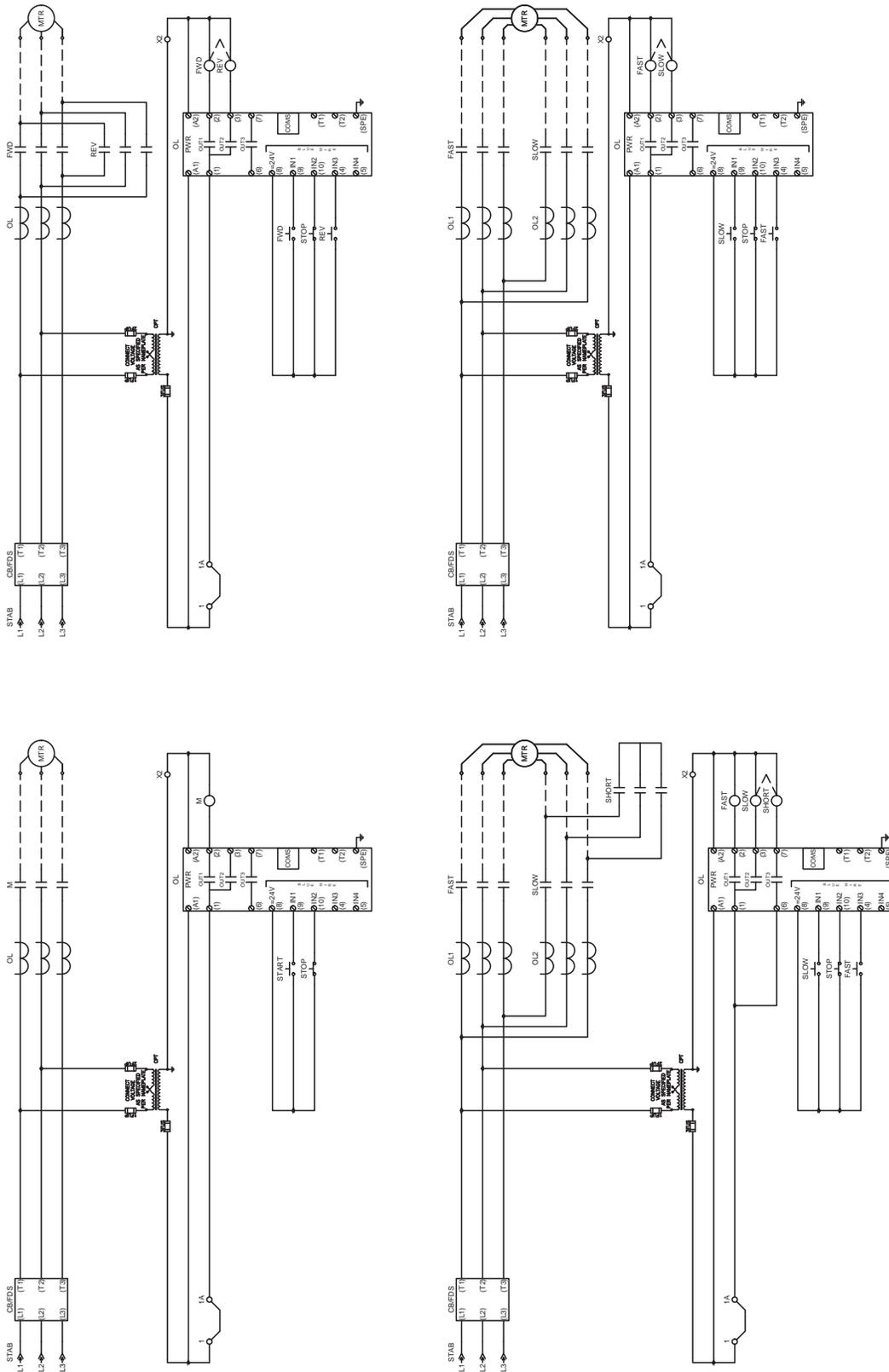


Figure 5

## Step Three: Control Scheme (Local / Remote) (continued)

### c. OPERATOR PANEL BUTTON:

#### i. MOMENTARY OP/MAINTAINED BITS (see Figure 6):

##### 1. MOMENTARY OP:

- a. Local control commands are brief presses of the operator panel buttons to engage the motor controller functionality.
- b. Motor start will occur when the required brief press of the operator panel button (Button 2, Button 3) is present.
- c. Motor stop will occur when the required brief press of the operator panel button (Button 4) is present.

##### 2. MAINTAINED BITS:

- a. Remote control commands are continuous signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the continuous command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Loss of the continuous command signal will result in an OFF condition.

#### ii. MOMENTARY OP/MOMENTARY BITS (see Figure 6):

##### 1. MOMENTARY OP:

- a. Local control commands are brief presses of the operator panel buttons to engage the motor controller functionality.
- b. Motor start will occur when the required brief press of the operatorpanel button (Button 2, Button 3) is present.
- c. Motor stop will occur when the required brief press of the operator panel button (Button 4) is present.

##### 2. MOMENTARY BITS:

- a. Remote control commands are brief signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the brief command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Motor stop will occur when the brief command signal (Cyclic Receive Bit 0.1) is present.

# Step Three: Control Scheme (Local / Remote) (continued)

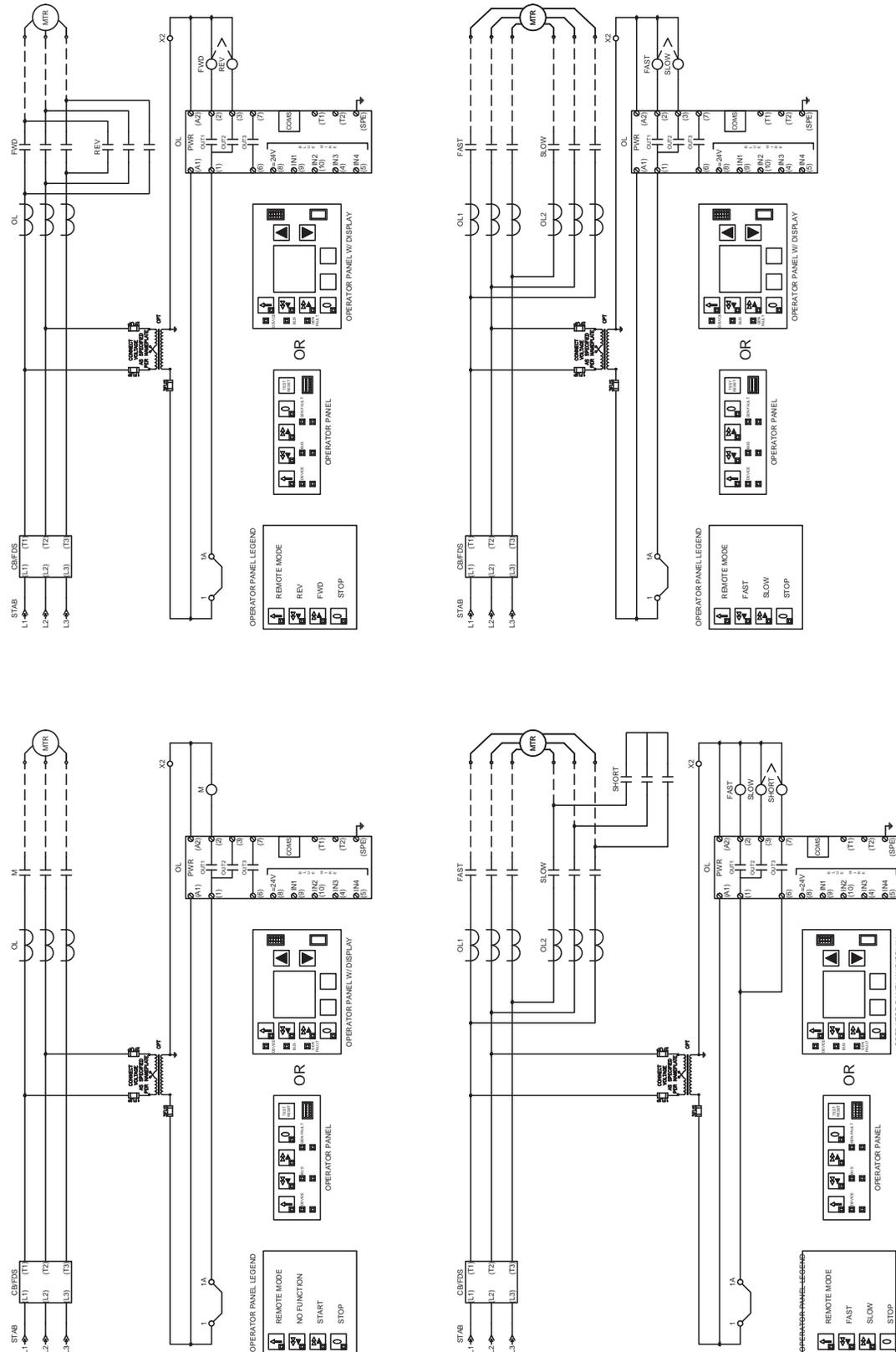


Figure 6

## Step Three: Control Scheme (Local / Remote) (continued)

### d. SELECTOR SWITCH:

#### i. MAINTAINED SS/MAINTAINED BITS (see Figure 7):

##### 1. MAINTAINED SS:

- a. Local control commands are continuous positioning of the selector switch to engage the motor controller functionality.
- b. Motor start will occur when the required continuous positioning of the selector switch (HAND, FWD, REV, FAST, SLOW) is present.
- c. Motor stop will occur when the required continuous positioning of the selector switch (OFF) is present.

##### 2. MAINTAINED BITS:

- a. Remote control commands are continuous signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the continuous command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Loss of the continuous command signal will result in an OFF condition.

#### ii MAINTAINED SS/MOMENTARY BITS (see Figure 7):

##### 1. MAINTAINED SS:

- a. Local control commands are continuous positioning of the selector switch to engage the motor controller functionality.
- b. Motor start will occur when the required continuous positioning of the selector switch (HAND, FWD, REV, FAST, SLOW) is present.
- c. Motor stop will occur when the required continuous positioning of the selector switch (OFF) is present.

##### 2. MOMENTARY BITS:

- a. Remote control commands are brief signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the brief command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Motor stop will occur when the brief command signal (Cyclic Receive Bit 0.1) is present.

# Step Three: Control Scheme (Local / Remote) (continued)

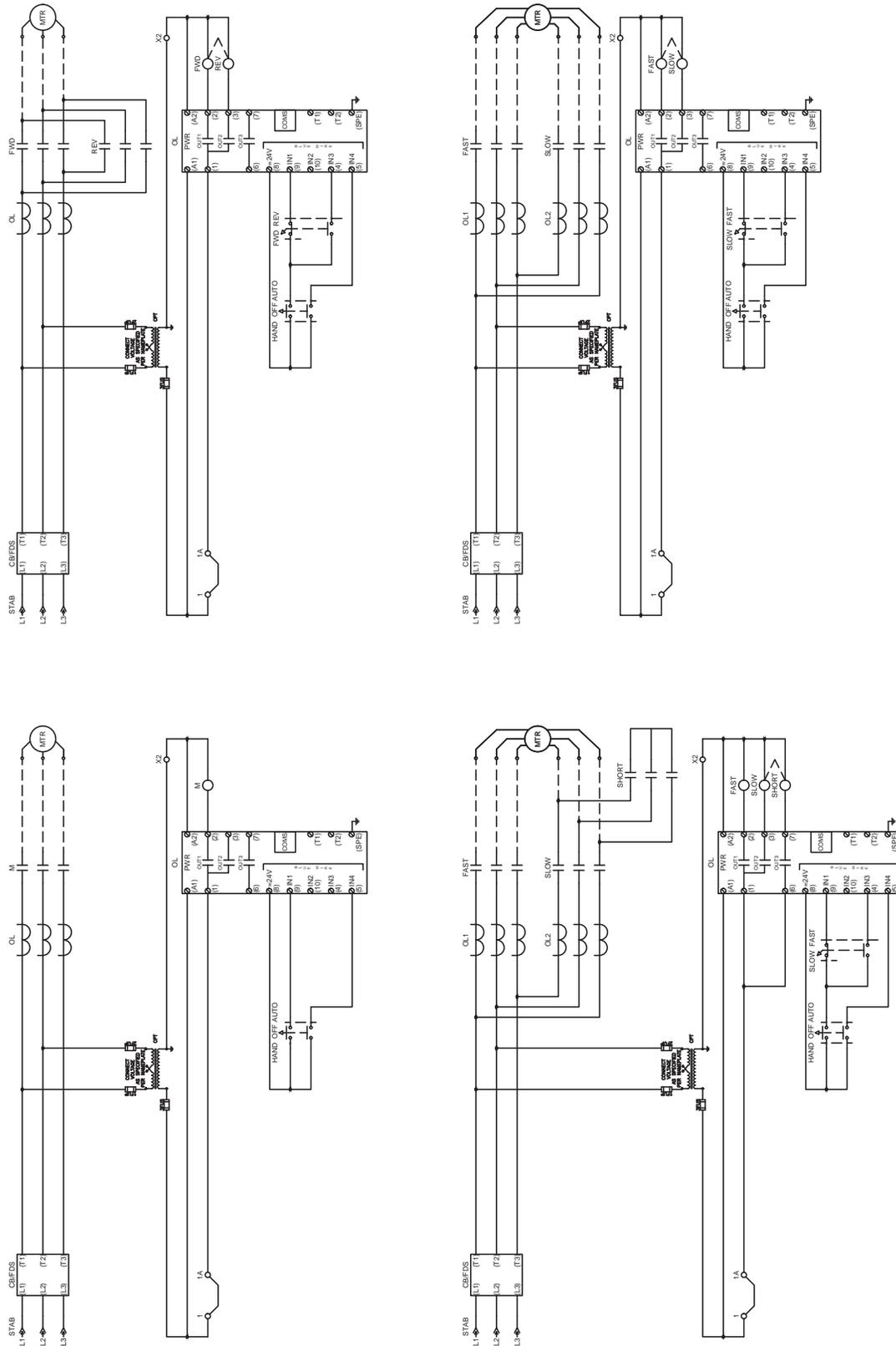


Figure 7

## Step Three: Control Scheme (Local / Remote) (continued)

### iii. MOMENTARY PB/MAINTAINED BITS (see Figure 8):

#### 1. MOMENTARY PB:

- a. Local control commands are brief presses of the pushbuttons to engage the motor controller functionality.
- b. Motor start will occur when the brief press of the appropriate pushbutton (START, FWD, REV, SLOW, FAST) is present.
- c. Motor stop will occur when the brief press of the appropriate pushbutton (STOP) is present.

#### 2. MAINTAINED BITS:

- a. Remote control commands are continuous signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the continuous command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Loss of the continuous command signal will result in an OFF condition.

### iv. MOMENTARY PB/MOMENTARY BITS (see Figure 8):

#### 1. MOMENTARY PB:

- a. Local control commands are brief presses of the pushbuttons to engage the motor controller functionality.
- b. Motor start will occur when the brief press of the appropriate pushbutton (START, FWD, REV, SLOW, FAST) is present.
- c. Motor stop will occur when the brief press of the appropriate pushbutton (STOP) is present.

#### 2. MOMENTARY BITS:

- a. Remote control commands are brief signals sent over the network to engage the motor controller functionality.
- b. Motor start will occur when the brief command signal (Cyclic Receive Bit 0.2, Cyclic Receive Bit 0.0) is present.
- c. Motor stop will occur when the brief command signal (Cyclic Receive Bit 0.1) is present.

3. When choosing CUSTOM PARAMETER BLOCKS, there is only the default choice of CUSTOM with CONSULTATION as the customer is requesting to consult with an LV MCC Systems Engineer.

# Step Three: Control Scheme (Local / Remote) (continued)

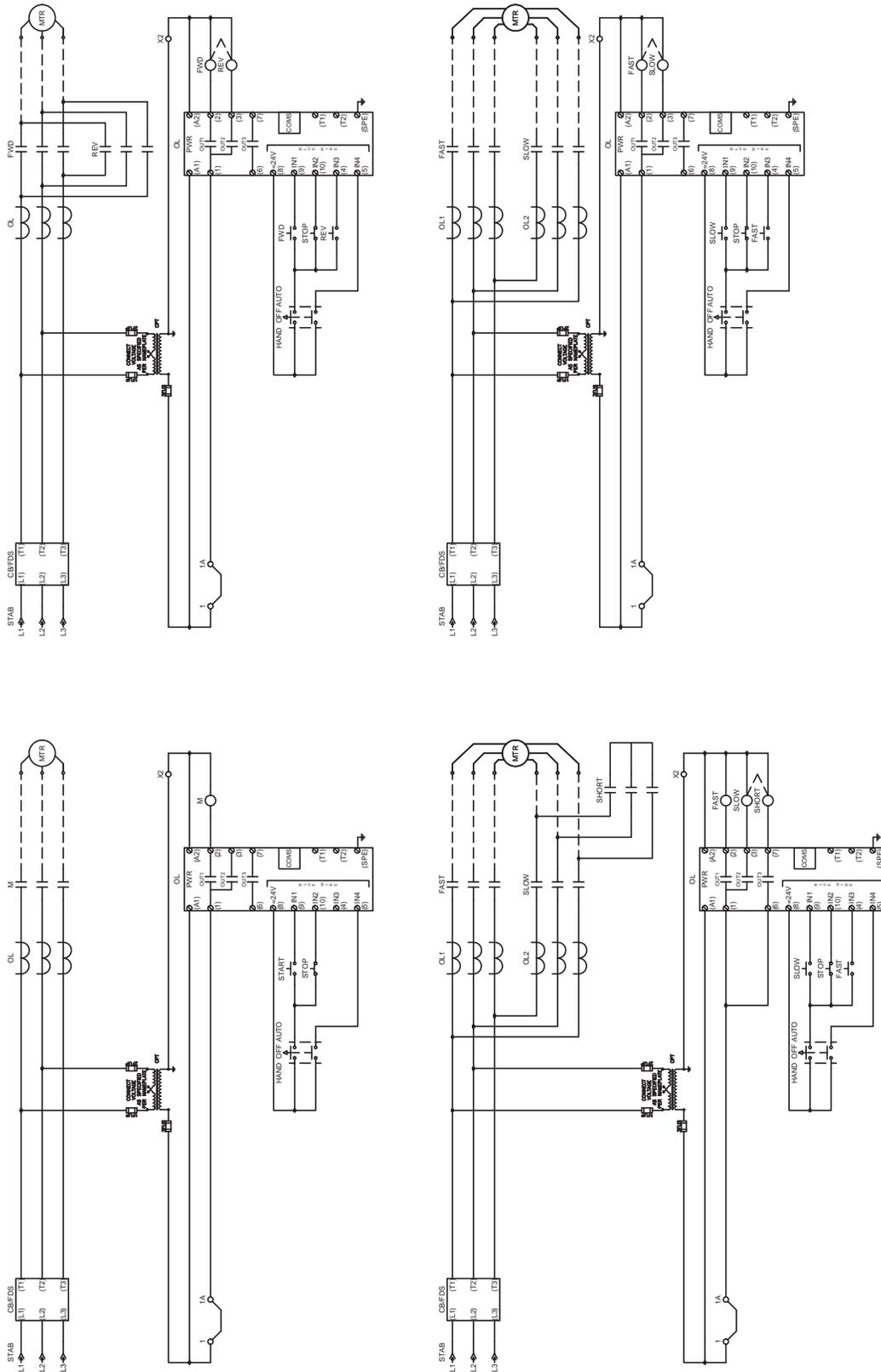


Figure 8

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