Reclosers

COOPER Power Systems

**Form 5 and Form 5/Triple-Single Recloser Controls
Fiber-Optic and RS-232 Accessories
Installation and Operation Instructions**

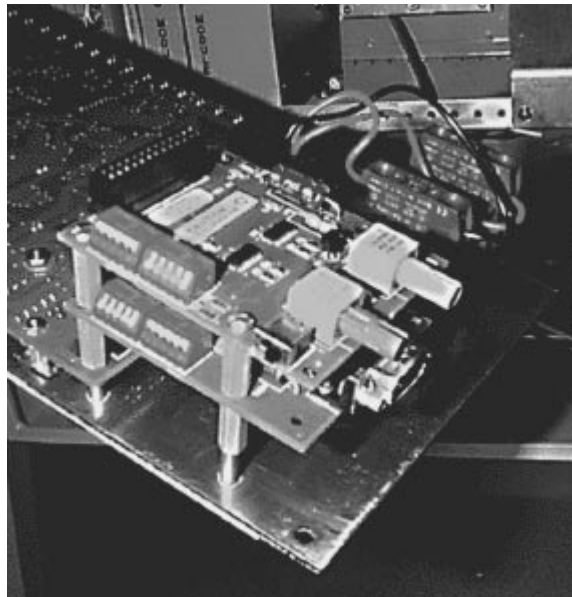**Applicable to Serial Numbers 3000 and above or beginning with CP57.**

**Figure 1.
Form 5 Fiber-Optic and RS-232 accessories installed on the back of the control operator panel.**

Contents

⚠ SAFETY FOR LIFE ⚠

Cooper Power Systems products meet or exceed all applicable industry standards relating to product safety. We actively promote safe practices in the use and maintenance of our products through our service literature, instructional training programs, and the continuous efforts of all Cooper Power Systems employees involved in product design, manufacture, marketing, and service.

We strongly urge that you always follow all locally approved safety procedures and safety instructions when working around high voltage lines and equipment and support our "Safety For Life" mission.

SAFETY INFORMATION

The instructions in this manual are not intended as a substitute for proper training or adequate experience in the safe operation of the equipment described. Only competent technicians who are familiar with this equipment should install, operate, and service it.

A competent technician has these qualifications:

- *Is thoroughly familiar with these instructions.*

- *Is trained in industry-accepted high- and low-voltage safe operating practices and procedures.*

- *Is trained and authorized to energize, de-energize, clear, and ground power distribution equipment.*

- *Is trained in the care and use of protective equipment such as flash clothing, safety glasses, face shield, hard hat, rubber gloves, hotstick, etc.*

Following is important safety information. For safe installation and operation of this equipment, be sure to read and understand all cautions and warnings.

Hazard Statement Definitions

This manual may contain four types of hazard statements:

⚠ **DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.**

⚠ **WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

⚠ **CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.**

CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in equipment damage only.

Safety Instructions

Following are general caution and warning statements that apply to this equipment. Additional statements, related to specific tasks and procedures, are located throughout the manual.

⚠ **DANGER:** Hazardous voltage. Contact with hazardous voltage will cause death or severe personal injury. Follow all locally approved safety procedures when working around high- and low-voltage lines and equipment. G103.3

⚠ **WARNING:** Before installing, operating, maintaining, or testing this equipment, carefully read and understand the contents of this manual. Improper operation, handling or maintenance can result in death, severe personal injury, and equipment damage. G101.0

⚠ **WARNING:** This equipment is not intended to protect human life. Follow all locally approved procedures and safety practices when installing or operating this equipment. Failure to comply can result in death, severe personal injury, and equipment damage. G102.1

⚠ **WARNING:** Power distribution equipment must be properly selected for the intended application. It must be installed and serviced by competent personnel who have been trained and understand proper safety procedures. These instructions are written for such personnel and are not a substitute for adequate training and experience in safety procedures. Failure to properly select, install, or maintain power distribution equipment can result in death, severe personal injury, and equipment damage. G122.2

PRODUCT INFORMATION

Introduction

Service Information S280-79-4 provides installation and operating instructions for the Kyle® Form 5 Fiber-optic and RS-232 accessories. These accessories provide a permanent communications link to the Form 5 control.

These accessories can be used on these Form 5 recloser controls:

- Form 5, Standard
- Form 5 UDP
- Form 5 DC NOVA
- Form 5/Triple-Single

For installation and operation of the Form 5 recloser control refer to the following manuals:

- *Service Information S280-79-10, Form 5, Form 5 UDP and DC NOVA Controls Installation and Operation Instructions*
- *Service Information S280-42-3, Form 5/Triple-Single and Form 5/Triple-Single UDP Controls Installation and Operation Instructions*

Read This Manual First

Read and understand the contents of this manual and follow all locally approve procedures and safety practices before installing and operating this equipment.

Additional Information

These instructions cannot cover all details or variations in the equipment, procedures, or process described, nor to provide directions for meeting every possible contingency during installation, operation, or maintenance. When additional information is desired to satisfy a problem not covered sufficiently for the user's purpose, contact your Cooper Power Systems representative.

Acceptance and Initial Inspection

Each accessory is tested and inspected at the factory. It is in good condition when accepted by the freight carrier for shipment.

Upon receipt, inspect the accessory thoroughly for damage incurred during shipment. If damage is discovered, file a claim with the carrier immediately.

Handling and Storage

CAUTION: Equipment damage. Always wear a grounding wrist strap to control static electricity before handling circuit boards. Failure to use this strap may result in circuit board damage.   T253.1

The field kit includes a grounding wrist strap designed to control static electricity. Wear the strap when unpacking and during installation of the fiber-optic and RS-232 accessories.

Follow these instructions to attach wrist strap:

1. Unwrap the first two folds of the strap and place the exposed adhesive side firmly around your wrist.
2. Unroll the rest of the strap and peel the line from the copper foil at the opposite end.
3. Attach the copper foil end to a clean area of the grounded back panel inside the control.

IMPORTANT: The fiber-optic and RS-232 circuit boards should each be stored in a static-proof bag.

If the fiber-optic and RS-232 accessory boards are to be stored for a period of time, provide a clean, dry storage area. Handle carefully to avoid damage to the circuit boards.

Product Description

The Fiber-Optic and RS-232 communication accessories (Figure 2) provide a permanent link for two-way, real-time, serial communications with a remote terminal unit (RTU), telephone modem, or central computer. Temporary serial communication is made via the operator panel for limited communications.

A remote operator can reconfigure the control parameters and remotely open and close the recloser.

In addition, the Fiber-optic and RS-232 communication accessories allow an operator at a remote location to monitor the status of the Form 5 control and display data such as:

- Control programming settings
- Event recorder information
- Load profile
- Demand current metering
- Recloser duty monitor

For versatility in communication, operators have the option of the following installations:

- Single Fiber-Optic accessory
- Single RS-232 accessory
- Dual Fiber-Optic accessory
- Dual RS-232 accessory
- A Single RS-232 and a Single Fiber-Optic accessory

TABLE 1
Serial Communication Accessories

Accessory	Qty	Catalog Number
Single RS-232 Accessory		KME5-74-1
RS-232 Board	1	
Spacer	4	
Pan Head Sems Screws	2	
Dual RS-232 Accessory		KME5-74-2
RS-232 Board	2	
Spacer	8	
Pan Head Sems Screws	2	
Single Fiber-Optic Accessory		KME5-75-1
Fiber-Optic Board	1	
Spacer	4	
Pan Head Sems Screws	2	
Dual Fiber-Optic Accessory		KME5-75-2
Fiber-Optic Board	2	
Spacer	8	
Pan Head Sems Screws	2	

Communication Ports

The Form 5 control has three communication ports from the CPU module. Two of the three ports are user-accessible. Communication Port 1 is the operator panel LCD display where data is exchanged between the CPU and the operator panel. Though not-user-configurable, Port 1 allows for flexible modifications from the operator panel for custom designed applications.

Port 2 provides a dual communication interface for the user. This port includes a software switch for two external connections; the front port on the operator panel RS-232 DB-9 connector, or the fiber-optic/RS-232 communication accessories. The front port on the operator panel RS-232 communication Port 2 provides temporary local personal computer (PC) access when connected with a standard 9-pin cable. Local connection to the operator panel RS-232 connection takes precedence over the communication accessory. Disconnecting the operator panel RS-232 communication automatically re-enables the communication accessory configured to Port 2. Communication can then be reestablished to the Port 3 Communication Accessory.

Accessory Ports 2 and 3 are optional accessories that are added to the back of the operator panel and can be configured to either 2179 or DNP3.0 protocols. Port 3
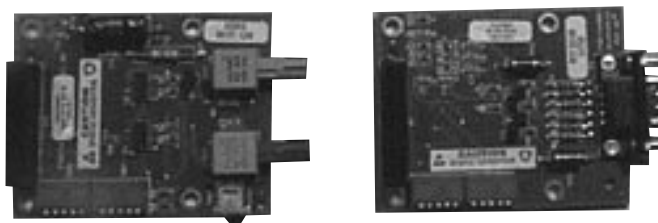

Figure 2.
Fiber-Optic (left) and RS-232 Communication Accessories.
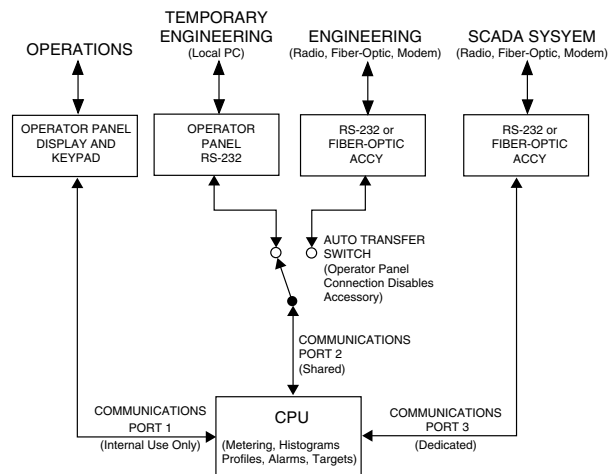

Figure 3.
Communication port configuration.

provides uninterrupted communication to the RS-232 or Fiber-Optic accessory, and is not affected by any other port or physical connection. Figure 3 illustrates the communication configuration for serial ports 1, 2, and 3.

In a single fiber-optic or RS-232 installation, the appropriate accessory can be configured as either Port 2 or Port 3. In a dual fiber-optic or RS-232 installation, the accessory mounted closest to the operator panel should be configured as Port 3. The factory setting is to configure the accessory mounted closest to the operator panel as Port 3.

Two sets of transmit and receive LEDs on the operator panel indicate the communication status of the accessory boards. See Figure 4. The TX2 and RX2 LEDs illuminate when communicating with the operator panel RS-232 port or with either the fiber-optic or RS-232 accessory board configured as Port 2. The TX3 and RX3 LEDs illuminate when communicating with either the fiber-optic or RS-232 accessory board configured as Port 3.
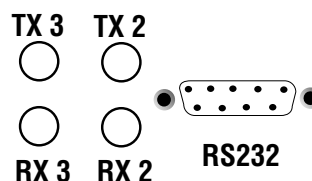

Figure 4.
Fiber-Optic/RS-232 receive and transmit LEDs and data port on the operator panel.

Communication Port Selection Dip Switches

The fiber-optic and RS-232 communication boards each have two banks of dip switches for Communication Port configuration. Port 3 is the primary communication port for single-accessory applications. In dual communication accessory applications, one accessory must be configured for Port 2 and the second accessory must be configured for Port 3.

Note: It is recommended that the accessory installed closest to the operator panel be configured as Port 3.

Figure 5 describes the configuration procedure.

For connection to Port 2
SW1: All CLOSED (down)
SW2: All OPEN (up)

For connection to Port 3
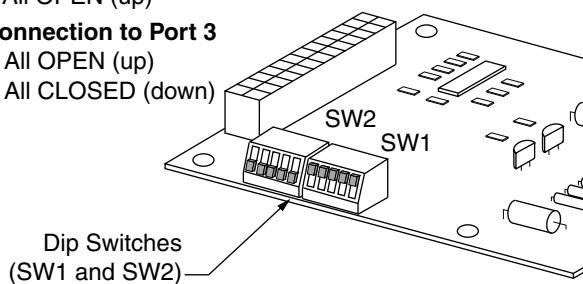SW1: All OPEN (up)
SW2: All CLOSED (down)

Figure 5.
Dip switches on both Fiber-Optic and RS-232 accessories direct communication to Port 2 or 3. (Configuration shown is for Port 3.)

Fiber-Optic Communication

The Fiber-Optic accessory board converts the Form 5 control output data from electrical pulses to light pulses and transmits the information through the "T" (transmit) terminal. The board also converts data received through the "R" (receive) terminal from light pulses back to electrical pulses for operation and programming of the Form 5 control.

The Fiber-Optic accessory contains 2 standard ST-type connectors ("T" and "R") for customer connection to a digital communications system via customer-furnished fiber-optic cables. See Figures 6 and 12. Fiber-optic cabling provides excellent electrical isolation and protects transmitted data from electrical interference.

On the Fiber-Optic accessory is a ECHO/NON-ECHO switch. In the ECHO mode, all data entering the receive terminal is re-sent (echoed) out the transmit terminal. ECHO mode is required when multiple controls are operated in a fiber-optic loop. NON-ECHO is recommended for most non-loop applications.
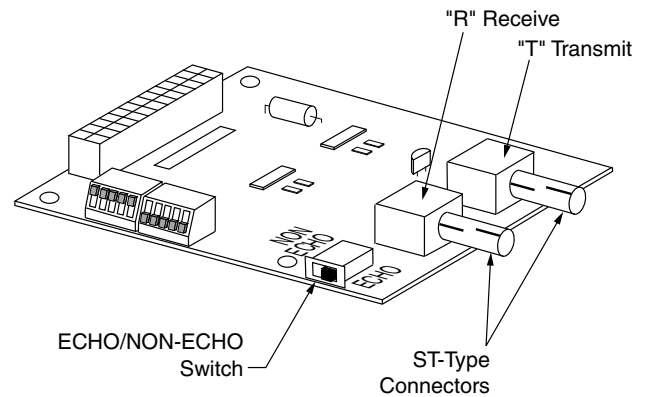

Figure 6.
Fiber-Optic communication accessory.

RS-232 Communication

The RS-232 accessory is a half duplex Data Terminal Equipment (DTE) device with a 9-pin male connector. Connection is made directly to a DCE device (radio or modem) through a customer-supplied RS-232 cable.

A NULL modem cable is required when connecting to another DTE device (i.e. laptop computer).

Pin 1 *CD: Carrier Detect.* "Handshaking" from an outside connection to the control; indicating the outside connection is active.

Pin 2 *RX: Receive Data*. Data from an outside connection is received by the control.

Pin 3 *TX: Transmit Data*. Data from the control is sent to an outside connection.

Pin 4 *DTR*: *Data Terminal Ready*. This pin is always biased high via a pull up resistor.

Pin 5 *SG*: *Signal Ground.*

Pin 7 *RTS: Request to Send.* "Handshaking" from the control to an outside connection; signaling the control has data available.

Pin 8 *CTS: Clear to Send.* "Handshaking" from an outside connection to the control; indicating the outside connection is ready to receive data.

Note: When the RS-232 Communication option is first installed, the red RX LED will remain lit until a proper cable is connected to a DTE or DCE device and 12 V is detected.

FIELD INSTALLATION

CAUTION: Control damage. De-energize both ac and dc power prior to removing or installing any internal connections or circuit boards in the control. Failure to comply can result in damage to the control.   T241.1

Removing the Operator Panel

1. Bypass the recloser. Follow all locally approved procedures for removing the recloser from service.

2. Disconnect all ac and dc power from the control.

CAUTION: Equipment damage. Always wear a grounding wrist strap to control static electricity before handling circuit boards. Failure to use this strap may result in circuit board damage.   T253.1

3. Remove the four screws that secure the operator panel to the mounting rails of the control cabinet. See Figure 8.

4. Carefully turn the operator panel over and locate the four spacers at the bottom of the panel. See Figure 9.
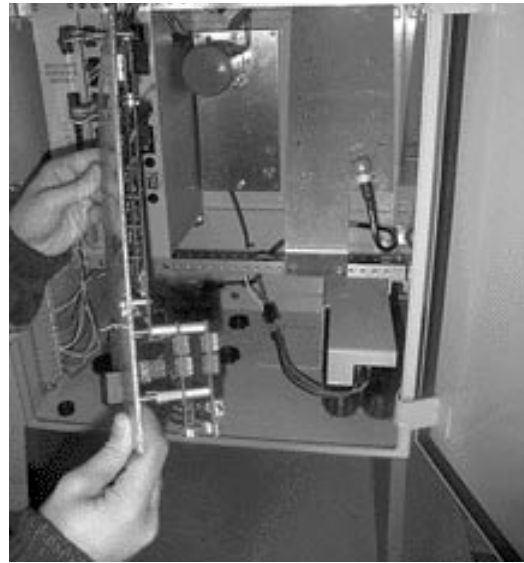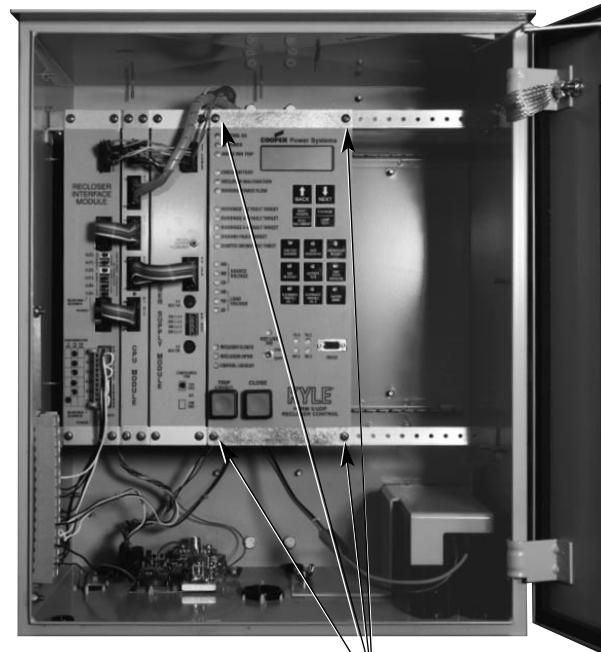

Figure 7.
The Fiber-Optic and RS-232 accessories are mounted on back of the operator panel.

Remove four mounting screws from the operator panel.

Figure 8.
Form 5 operator panel. Communication accessory mounts in lower corner of the back side of the panel.

Single Communication Accessory Installation

CAUTION: Equipment damage. Always wear a grounding wrist strap to control static electricity before handling circuit boards. Failure to use this strap may result in circuit board damage. T253.1

Refer to Figure 9 and follow these instructions to install a single communication accessory.

1. Remove the two sems screws at the bottom of the Operator Panel printed circuit board (PCB).

   Note: A sems screw is a one-piece screw and lock-washer assembly.

   Note: Place these screws aside; they will be used to secure one side of the accessory.

2. Insert two spacers, from the appropriate accessory kit, through the PCB and screw into the spacers mounted to the operator panel.

3. Screw the other two spacers into the remaining spacers mounted on the operator panel.

4. Carefully remove the appropriate communication accessory (fiber-optic or RS-232) from its static-proof bag.

   Note: For single communication accessory applications, it is recommended that the accessory be configured as Port 3 for uninterrupted communication.

5. Configure the accessory dip switches for Communication Port 3 as shown in Figure 5.

6. Place the circuit board, with component-side up, over the four spacers.

7. Secure the accessory with the kit-provided sems screws and the screws previously removed from the operator panel PCB. See Figure 9.

Fiber-Optic Accessory

8. Connect one cable to the "T" transmit terminal on the fiber-optic circuit board.

9. Connect one cable to the "R" receive terminal on the fiber-optic circuit board.

10. Set the ECHO/NON-ECHO switch to NON-ECHO.

Note: An optional Fiber-Optic–to–RS-232 converter is available for interfacing with a RTU, modem, or personal computer with RS-232 connection. See the **FIBER-OPTIC–TO–RS-232 CONVERTER** section of this manual.

11. If Fiber-Optic–to–RS-232 converter part number KME4-163 is used, set the DCE/DTE switch. See Figure 10.

    • For connecting to a modem, switch to DTE.

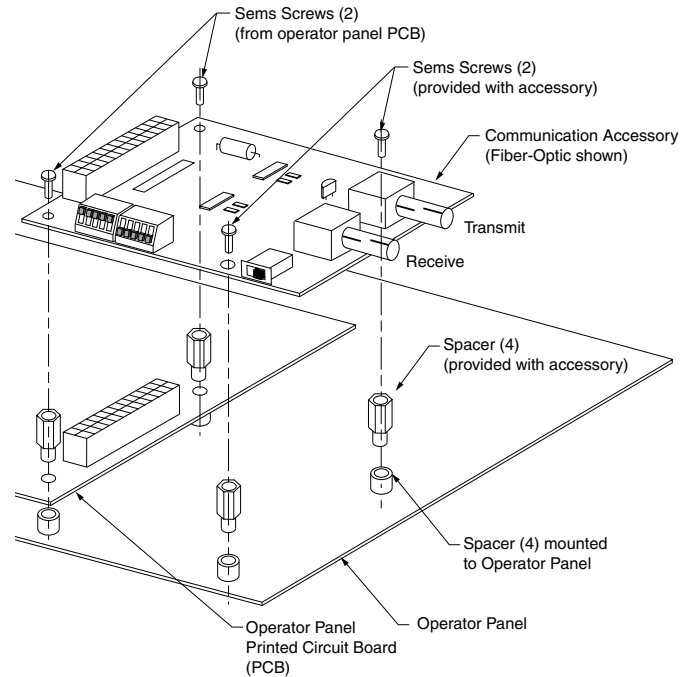   • For connecting to a computer, switch to DCE.

Figure 9.
Single Communication accessory installation.

RS-232 Accessory

12. Connect the RS-232 cable (customer-supplied) to the RS-232 connector on the accessory circuit board.

13. Place the operator panel over the mounting rail and secure with the four panel mounting screws. See Figure 8.

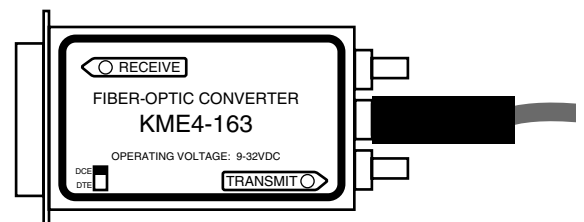14. Make connections to the SCADA communications equipment. See Figure 13.

Figure 10.
Fiber-Optic converter DCE/DTE switch in DCE position.

Dual Communication Accessory Installation

> **CAUTION:** Equipment damage. Always wear a grounding wrist strap to control static electricity before handling circuit boards. Failure to use this strap may result in circuit board damage. T253.1

Refer to Figure 11 and follow these instructions to install two communication accessories.

1. Remove the two sems screws at the bottom of the Operator Panel printed circuit board (PCB).

    Note: A sems screw is a one-piece screw and lock-washer assembly.

    Note: Place these screws aside; they will be used to secure one side of the accessory.

2. Insert two spacers, from the appropriate accessory kit, through the PCB and screw into the spacers mounted to the operator panel.

3. Screw the other two spacers into the remaining spacers mounted on the operator panel.

4. Carefully remove the appropriate communication accessory (fiber-optic or RS-232) from its static-proof bag.

    Note: It is recommended that the communication accessory mounted closest to the operator panel be configured as Port 3.

    Note: If a combination of a fiber-optic and RS-232 accessories is required, mount the fiber-optic circuit board closest to the operator panel and configure as Port 3.

5. Configure the accessory dip switches for Port 3 communication as shown in Figure 5.

6. Place the circuit board, with component-side up, over the spacers.

7. Screw four spacers, from the appropriate accessory kit, to the spacers that support the first communication accessory board.

8. Carefully remove the appropriate communication accessory (fiber-optic or RS-232) from its static-proof bag.

9. Configure the accessory dip switches for Port 2 configuration as shown in Figure 5.

10. Place the circuit board, with component-side up, over the spacers.

11. Secure the accessory with the kit-provided sems screws and the screws previously removed from the operator panel PCB. See Figure 11.

Fiber-Optic Accessory

12. Connect one cable to the "T" transmit terminal on the fiber-optic circuit board.

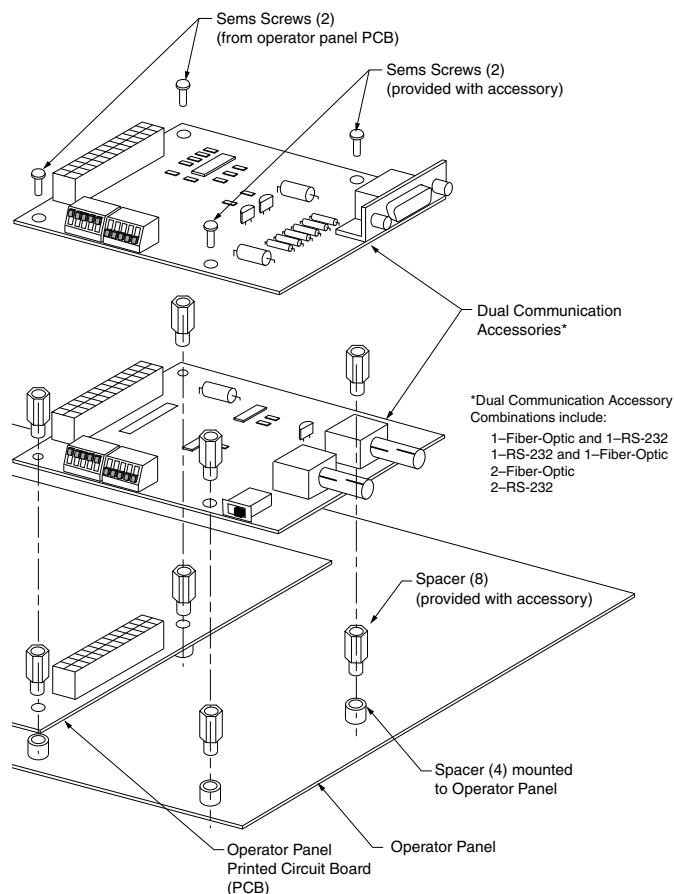13. Connect one cable to the "R" receive terminal on the fiber-optic circuit board.

Figure 11.
Dual Communication accessory installation.

14. Set the ECHO/NON-ECHO switch to NON-ECHO.

    Note: An optional Fiber-Optic–to–RS-232 converter is available for interfacing with a RTU, modem, or personal computer with RS-232 connection. See the Fiber-Optic–to–RS-232 Converter section of this manual.

15. If Fiber-Optic–to–RS-232 converter part number KME4-163 is used, set the DCE/DTE switch.

    - For connecting to a modem, switch to DTE.
    - For connecting to a computer, switch to DCE.

RS-232 Accessory

16. Connect the RS-232 cable (included in the RS-232 communication accessory) to the RS-232 connector on the accessory circuit board.

17. Place the operator panel over the mounting rail and secure with the four panel-mounting screws. See Figure 8.

18. Make connections to the SCADA communications equipment. See Figure 13.

FIBER-OPTIC–TO–RS-232 CONVERTER

Direct fiber-optic connection to a radio, RTU, or modem may not be possible in certain applications. The Fiber-Optic–to–RS-232 Converter (KME4-163) provides a conversion of the fiber-optic connections to an RS-232 connection at a radio, modem, or RTU unit. See Figure 13.

The converter has a 25-pin RS-232 connector on one end and a pair of ST-type connectors on the other end. One ST-connector is for transmitting data and the other for receiving. The RS-232 connector is adaptable directly to a 25 pin serial port.

Note: For a device that has a 9-pin serial port, a standard DB-25 male to DB-9 female adapter must be used. This adapter can be obtained at a local computer store.

The Fiber-Optic–to–RS-232 Converter has three distinctive features. It has a metal enclosure and two LEDs marked TRANSMIT and RECEIVE. The LEDs blink while the device is transmitting or receiving data as a visual indication that the Form 5 control is communicating. A selector switch can change the converter to either a DTE or a DCE device.

The converter is used as a Data Terminal Equipment device when it is connected to a modem and set to the DTE position. The converter is used as a Data Communications Equipment device when it is connected to a computer and set to the DCE position. The selector switch allows the converter to be custom-fitted to specific applications.

Converter Power Supply Requirements

A 9-32 Vdc power supply is required to operate the fiber-optic–to–RS-232 converter's electronic circuitry. A power jack is located on the converter. To convert the input voltage to 9 Vdc, a power supply adapter is required. The adapter options available are:

- 120 Vac to 9 Vdc power supply adapter.
- 240 Vac to 9 Vdc power supply adapter.

The power supply adapter accessory is a cable that plugs into the converter at one end and has non-terminated wires that connect to a 9-volt battery, or a dc power supply at a remote terminal unit. See Figure 12.

The Power Supply adapter rectifies and steps down the input voltage (120 Vac or 240 Vac) to a 9 Vdc output. This cable is used in areas where a 120 Vac power outlet is readily available.

For information on ordering a Fiber-Optic–to–RS-232 converter and the 9 Vdc power supply adapter, contact your Cooper Power Systems representative.
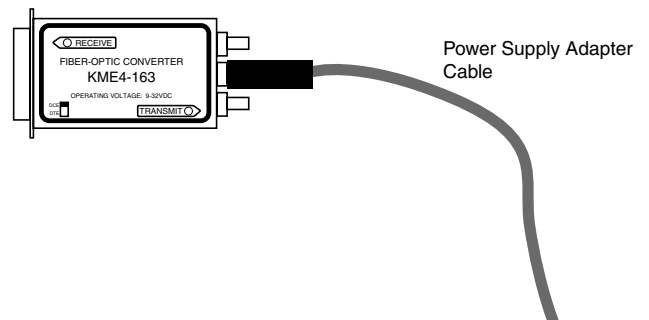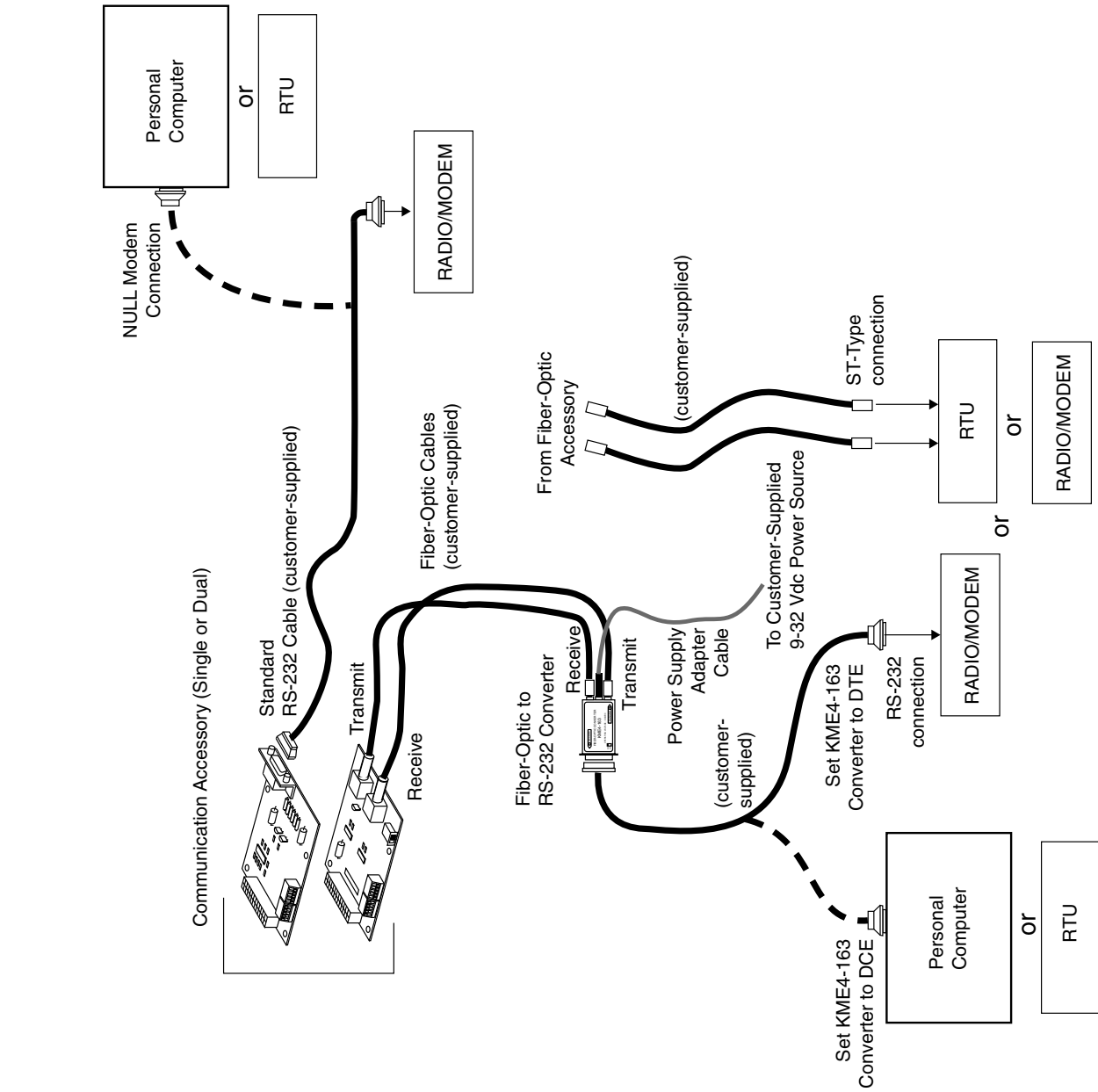

Figure 12.
Optional Fiber-Optic–to–RS-232 Converter shown with a 9 Vdc power supply adapter accessory.

Figure 13.
Fiber-Optic and RS-232 Communication accessory connections.

FIBER-OPTIC CABLE SPECIFICATIONS

Construction

Multi-mode glass fiber-optic cable suitable for direct burial and/or outdoor use.

Specifications

1. Operating Temp. Range: -40°C to +65°C

2. Strength Member: KEVLAR®

   Note: The strength member cannot be steel or any other conductive material as electrical isolation will be lost.

3. Inner Jacket: PVC

4. Outer Jacket: Polyethylene

5. Optical window: 850 nanometers (nm)

6. Core size: 62.5 microns (μm)

   Note: Other core sizes are allowable; however, they will affect the output power of the optical transmitter. See Maximum Cable Lengths section.

7. Attenuation at 850 nm: 3.5 dB/km

   Note: Cables with different attenuations are acceptable; however, maximum allowable cable length will be affected. See **Maximum Cable Lengths** section for an example of how to calculate maximum permissible cable length.

Cable Terminations

"ST" style connectors must be used to mate with the fiber-optic circuit board and the KME4-163 fiber-optic to RS-232 converter.

Maximum Cable Lengths

1. The maximum cable length depends on the output power of the transmitter, the input power level that the receiver can detect as well as the attenuation of the fiber-optic cable.

2. The Form 5 control uses ST-type fiber-optic connectors. The output power of the transmitter is dependent on the fiber-optic core size.

Fiber Core Size	Output Power P(dBm)*
50.0 μm	-20.5
62.5 μm	-16.0
100.0 μm	-10.5
200.0 μm	- 5.5

   *P (dBm) = 10 log (PμW/1000)

3. Input power level detection: . . . . -24.0 dBm

   Note: Regardless of fiber core size

4. Cable length calculation example:

   Typical 62.5 μm fiber cable attenuation: . . . 3.5 dB/km

   Transmitter, Output Power: . . . . -16.0 dBm

   Receiver, Input Level: . . . . -24.0 dBm

   Safety Margin: . . . .-1.5 dBm

   Budget for Cable:
   . . . . -24.0 dBm - (-16.0 dBm) - (-1.5 dBm) = -6.5 dBm

   Max. Cable Length = $\dfrac{-6.5 \text{ dBm}}{-3.5 \text{ dB/km}}$ = 1.86 km

FORM 5 CONTROL PROGRAMMING SETUP

Proper operation of the Form 5 control Fiber-Optic and RS-232 accessories requires programming the Communication Port information using the Form 5 interface software. Refer to *Service Information S280-79-2 Form 5 Recloser Control Interface Software User's Guide* for information on connection and programming with a personal computer.

Fiber-Optic Accessory

If the Fiber-Optic accessory is used alone or with the RS-232 accessory, configure it for Port 3 communication.

Customer-supplied fiber-optic cables must have ST-Type connectors to transmit and receive data. Refer to the **FIBER-OPTIC CABLE SPECIFICATIONS** section of this manual.

1. Connect one cable to the "T" transmit terminal on the fiber-optic circuit board.

2. Connect one cable to the "R" receive terminal on the fiber-optic circuit board.

3. Be sure the ECHO/NON-ECHO switch on the fiber-optic board is set to NON-ECHO.

4. From the operator panel, access LCD Display Communication Port 2 (Screen 38), or Port 3 (Screen 39). Note the settings.

5. Open the interface software as described in *Service Information S280-79-2*.

6. Select: SETUP/COMMUNICATION

7. Into the "PC Port Configuration" screen, enter the settings that appeared in Screen 38 or 39 on the operator LCD Display.

   Example:

Protocol:	2179
Serial Port:	COM1
Speed:	9600
PC Address:	1
Control Port Address:	1

8. Click on "Advanced" and select "NORMAL".

RS-232 Accessory

If no Fiber-Optic accessory is installed, the RS-232 accessory should be configured as Port 3. If a dual communication installation was made using a Fiber-Optic accessory, the RS-232 accessory is configured as Communication Port 2.

1. From the operator panel, access LCD Display Communication Port 3 (Screen 39) or Port 2 (Screen 38). Note the settings.

2. Open the interface software as described in *Service Information S280-79-2*.

3. Select: SETUP/COMMUNICATION

4. Into the "PC Port Configuration" screen, enter the settings that appeared in Screen 39 or 38 on the operator LCD Display

   Example:

Protocol:	2179
Serial Port:	COM1
Speed:	9600
PC Address:	1
Control Port Address:	1

5. Click on "Advanced" and select "Normal".

Communication Protocols

Three protocols are available for the Form 5 control and are factory-configurable to communication Ports 2 and 3.

The protocols are:

- Cooper Power Systems 2179
- DNP3.0, Level 3
- S-Comm Protocol accessory

Protocol DNP3.0 includes "Unsolicited Report by Exception" functionality and Protocol 2179 includes 2-bit status functionality.

Complete documentation for Cooper Power Systems communication protocols are:

- *Reference Data R280-90-12, Serial Communication Protocol 2179*
- *Reference Data R280-90-13, Communication Point Database for Protocol 2179*
- *Reference Date R280-90-14, Communication Point Database for Protocol DNP3.0*

For additional information on digital communications with a Form 5 recloser control, contact your Cooper Power Systems representative or local SCADA manufacturer.

SERVICE INFORMATION

CAUTION: This equipment requires routine inspection and maintenance to ensure proper operation. If it is not maintained it can fail to operate properly. Improper operation can cause equipment damage and possible personal injury. G105.1

Replacement Kits

Replacement kits for the Kyle® Form 5 Control are available through the factory Service Department. To order these kits, refer to the Replacement Parts price list for catalog numbers and pricing. Contact your Cooper Power Systems representative for additional information and ordering procedures.

Factory-Authorized Service Centers

Factory-authorized service centers are located throughout the continental United States to provide maintenance, repair and testing services for Kyle® controls and reclosers. For further information, contact your Cooper Power Systems representative.

Factory Maintenance Classes

The factory service department offers a basic testing and troubleshooting course for the Form 5 Microprocessor-Based Electronic Recloser Control and Reclosers. This course, taught by experienced service technicians, is held at the factory's in-house training facility. For additional information, contact your Cooper Power Systems representative.

SAFETY
FOR LIFE

COOPER Power Systems