

SECTION 6: TROUBLESHOOTING AND MAINTENANCE

6-1 LEVEL OF REPAIR

This manual is written based on the assumption that only unit-level troubleshooting will be performed. If the cause of a malfunction is traced to a Breaker Interface Module, the device should be replaced. The malfunctioning device should be returned to Cutler-Hammer.

6-2 TROUBLESHOOTING

Refer to Table 6.1 for troubleshooting guidelines.

6-3 REPLACEMENT

Follow these procedural steps to replace the Breaker Interface Module.

- Step 1:** Turn off control power at the main disconnect or isolation switch of the control power supply. If the switch is not located in view from the Breaker Interface Module, lock it out to guard against other personnel accidentally turning it on.
- Step 2:** Verify that all power sources wired to the Breaker Interface Module are deenergized. These may also be present on the relay and input/output terminal block.
- Step 3:** Before disconnecting any wires from the unit, make sure they are individually identified to assure that reconnection can be correctly performed. Make a sketch to help with the task of terminal and wire identification.
- Step 4:** If an optional ribbon cable connects with the Communications Port, carefully disconnect it.
- Step 5:** Remove wires by loosening or removing the screw terminal where there is a wire connection.



CAUTION

SUPPORT THE BREAKER INTERFACE MODULE FROM THE FRONT SIDE WHEN THE SCREWS ARE

LOOSENED OR REMOVED IN STEP 6. WITHOUT SUCH SUPPORT, THE UNIT COULD FALL OR THE PANEL COULD BE DAMAGED.

- Step 6:** Remove the 6 mounting screws holding the unit against the door or panel. These are accessed from the rear of the unit.
- Step 7:** Carefully lay the screws aside for later use.
- Step 8:** Mount the replacement unit. Read paragraph 5-2.2 before attempting this.
- Step 9:** Reverse the procedure just outlined in Steps 4 through 6.
- Step 10:** Using the sketch mentioned in Step 3, replace each wire at the correct terminal. Be sure that each is firmly tightened. Remove temporary shorts on incoming current transformers.
- Step 11:** Restore control power. Refer to paragraphs 5-4.2 entitled "Initial Power Application."

6-4 MAINTENANCE AND CARE

The Breaker Interface Module is designed to be a self contained and maintenance free device.

The Breaker Interface Module should be stored in an environment that does not exceed the storage temperature range of -30°C to +85°C. The environment should also be free of excess humidity. Store the device in its original packing material.

6-5 RETURN PROCEDURE

The Troubleshooting Guide (Table 6.1) is intended for service personnel to identify whether a problem being observed is external or internal to the device. If a problem is determined to be internal, the device should be returned to the factory for replacement. To have a Breaker Interface Module returned, contact your local Cutler-Hammer authorized distributor.

6-6 TECHNICAL ASSISTANCE

For information, technical assistance or referral to a local authorized distributor, contact the Advanced Product Support Center at 1-800-809-2772.

Table 6.1 Troubleshooting Guide (Continued on next page)

Symptom	Probable Cause	Possible Solution(s)	Reference
All Operator Panel LEDs are off	Control Power is deficient or absent	Verify Control Power is connected properly	Section 5-4.2
	DIP switches are set incorrectly	Verify DIP switch settings	Section 2-3.1, Table 5.1
	Unit is malfunctioning	Replace the unit	Section 6-3
Operational LED is not blinking green	Unit is malfunctioning	Replace the unit	Section 6-3
	DIP switches are set incorrectly	Verify DIP switch settings	Section 2-3.1, Table 5.1
Displays are not showing valid messages	DIP switches are set incorrectly	Verify DIP switch settings	Section 2-3.1, Table 5.1
"NO DEVICES FOUND" is displayed after "LEARN" was performed	Break in the Subnetwork Communications Wiring	Ensure subnetwork wiring is correct	Figure 1-2
	Devices on subnetwork are out of BIM address range	Use OPTIMizer to reprogram OPTIM breaker address	I.B. 29C892, Section 3-5
		Change the Digitrip 810/910 Address with the front panel controls	I.L. 29-888 Digitrip 810 Trip Unit or I.L. 29-889 Digitrip 910 Trip Unit
		Reset the IQ Energy Sentinel Address by changing the DIP switches on the front of the unit	I.L. 17537, F Frame Energy Sentinel I.L. 17538, J Frame Energy Sentinel I.L. 17539, K Frame Energy Sentinel I.L. 17540, Univ. Energy Sentinel Internal I.L. 17541, Univ. Energy Sentinel External
Some devices on subnetwork were not found by BIM	Break in subnetwork communications wiring to those devices	Ensure subnetwork wiring to those devices is correct	Figure 1-2
	Device on subnetwork is at a different BAUD Rate	Use OPTIMizer to reprogram OPTIM BAUD Rates	I.B. 29C892, Section 3-5
	Note: IQ Energy Sentinels operate at 9600 BAUD ONLY	Change Digitrip 810/910 BAUD Rate with front panel controls	I.L. 29-888 Digitrip 810 Trip Unit or I.L. 29-889 Digitrip 910 Trip Unit
	Devices on subnetwork are out of BIM address range	Use OPTIMizer to reprogram OPTIM breaker addresses	I.B. 29C892, Section 3-5
		Change the Digitrip 810/910 Address with the front panel controls	I.L. 29-888 Digitrip 810 Trip Unit or I.L. 29-889 Digitrip 910 Trip Unit
		Reset the IQ Energy Sentinel Address by changing the DIP switches on the front of the unit	I.L. 17537, F Frame Energy Sentinel I.L. 17538, J Frame Energy Sentinel I.L. 17539, K Frame Energy Sentinel I.L. 17540, Univ. Energy Sentinel Internal I.L. 17541, Univ. Energy Sentinel External

Table 6.1 Troubleshooting Guide (Continued from previous page)

Symptom	Probable Cause	Possible Solution(s)	Reference
NO RESPONSE LED is on solid or blinking	One or more subnetwork devices are not responding	Ensure subnetwork wiring to that device is correct. Verify the unit is powered and operational	Figure 1-2
Alarm LED is on solid, Alarm relay is energized	One or more of the subnetwork devices is in an alarm mode	Use ALARMS menu to determine the source of the alarm. Acknowledge or delete the alarm	Section 4-4.6
High Load LED is on solid, High Load relay is energized	One or more of the subnetwork devices is in high load	Use ALARMS menu to determine the source of the alarm. Acknowledge or delete the alarm	Section 4-4.6
Master Network Communications is not occurring	PONI Communications module is not installed	Install a PONI Communications Module	Section 2-5, Figure 2-4
	PONI Communications module does not have power applied	Apply power to PONI using DIP switch	Section 2-3.1, Table 5.1
	PONI Communications module is configured improperly. Wrong address or baud rate	Configure PONI to match communications method for existing network	I.L. 17547, IPONI I.L. 17361, BPONI I.L. 17203, Modem PONI I.L. 17202, RS-232 PONI
	PONI failure	Replace the PONI	Section 2-5, Figure 2-4
Cannot capture harmonic information from device on subnetwork	Harmonics are not supported for that device. Digitrip 810 and Digitrip OPTIM 750 devices do not support harmonics	Analyze harmonics on breakers that support harmonic capture	Section 4-5
User does not know the password	Requires technical assistance	Contact Advanced Product Support Center	Section 6-6
"REJECTED" message is displayed after setpoints were programmed	Communications error	Retry the Download Operation	Section 4-4.4

APPENDIX A - INSTRUCTIONAL REFERENCES

A list of instructional references is provided in Table A.1 to identify instructional documents that could be of assistance.

Table A.1 Instructional References (continued on next page)

DOCUMENT DESCRIPTION	DOCUMENT NUMBER
Circuit Breakers	
Series C̄ L-Frame Frame Book	IL 29-120L
Series C̄ N-Frame Frame Book	IL 29-120N
Series C̄ R-Frame Frame Book	IL 29-120R
Series C̄ R-Frame Supplement	IL 29C713
SPB Systems Pow-R Breaker Supplement	IL 29849
DSII/DSLII Breaker Supplement	IL 8700C39
Digitrip OPTIM Trip Unit System	
OPTIM Trip Unit System Overview	IB 29C890
OPTIM Trip Units	IB 29C891
OPTIMizer Hand Held Programmer	IB 29C892
Breaker Interface Module	IB 29C893
Digitrip RMS Trip Units	
Digitrip RMS 810	IL 29-888
Digitrip RMS 910	IL 29-889
Digitrip OPTIM Wiring Diagrams	
Series C̄ L-Frame Wiring	IL 29C894
Series C̄ N-Frame Wiring	IL 29C894
Series C̄ R-Frame Wiring	IL 29C714
SPB Systems Pow-R Wiring	IL 15545
DSII/DSLII Wiring	IL 1A33600
Energy Monitoring Devices	
IQ Energy Sentinel	
Series C̄ F-Frame	IL 17537
Series C̄ J-Frame	IL 17538
Series C̄ K-Frame	IL 17539
Universal IQ Energy Sentinel	
Internal	IL 17540
External	IL 17541
Communication Devices	
Communications Module (PONI)	
INCOM PONI	IL 17547
RS-232 PONI	IL 17202
Modem PONI	IL 17203
Buffered PONI	IL 17361
CONI	IL 17436
IMPACC Wiring Spec.	IL 17513

Table A.1 Instructional References (continued from previous page)

DOCUMENT DESCRIPTION	DOCUMENT NUMBER
Accessories	
Potential Transformer Module (L and N-Frame)	29C126
Ground Fault Indicator	1259C14G01
Digitrip OPTIM Time-Current Curves	
Series C L-Frame Curves	
I ² t Long & Short Delay Phase	SC-6323-96
I ² t Long & Flat Short Delay Phase	SC-6324-96
I ⁴ t Long & Flat Short Delay Phase	SC-6325-96
600A Instantaneous & Override Phase	SC-6326-96
400A Instantaneous & Override Phase	SC-6327-96
250A Instantaneous & Override Phase	SC-6328-96
125A Instantaneous & Override Phase	SC-6329-96
Ground Fault Protection	SC-6330-96
Series C N-Frame Curves	
I ² t Long & Short Delay Phase	SC-6331-96
I ² t Long & Flat Short Delay Phase	SC-6332-96
I ⁴ t Long & Flat Short Delay Phase	SC-6333-96
Instantaneous & Override Phase	SC-6334-96
Ground Fault Protection	SC-6335-96
Series C R-Frame Curves	
1600/2000A I ² t Long & Short Delay Phase	SC-6336-96
1600/2000A I ² t Long & Flat Short Delay Phase	SC-6337-96
1600/2000A I ⁴ t Long & Flat Short Delay Phase	SC-6338-96
2500A I ² t Long & Short Delay Phase	SC-6339-96
2500A I ² t Long & Flat Short Delay Phase	SC-6340-96
2500A I ⁴ t Long & Flat Short Delay Phase	SC-6341-96
1600A Instantaneous & Override Phase	SC-6342-96
2000A Instantaneous & Override Phase	SC-6343-96
2500A Instantaneous & Override Phase	SC-6344-96
1600A Ground Fault Protection	SC-6345-96
2000A Ground Fault Protection	SC-6346-96
2500A Ground Fault Protection	SC-6347-96
SPB Systems Pow-R Curves	
400-1200A I ² t Long & Short Delay Phase	SC-6348-96
400-1200A I ² t Long & Flat Short Delay Phase	SC-6349-96
400-1200A I ⁴ t Long & Flat Short Delay Phase	SC-6350-96
1600-3000A I ² t Long & Short Delay Phase	SC-6351-96
1600-3000A I ² t Long & Flat Short Delay Phase	SC-6352-96
1600-3000A I ⁴ t Long & Flat Short Delay Phase	SC-6353-96
4000-5000A I ² t Long & Short Delay Phase	SC-6354-96
4000-5000A I ² t Long & Flat Short Delay Phase	SC-6355-96
4000-5000A I ⁴ t Long & Flat Short Delay Phase	SC-6356-96
400-1200A Instantaneous & Override Phase	SC-6357-96
1600-3000A Instantaneous & Override Phase	SC-6358-96
4000-5000A Instantaneous & Override Phase	SC-6359-96
Ground Fault Protection	SC-6360-96
DSII/DSLII Curves	
400-1200A I ² t Long & Short Delay Phase	SC-6275-95
400-1200A I ² t Long & Flat Short Delay Phase	SC-6276-95
400-1200A I ⁴ t Long & Flat Short Delay Phase	SC-6277-95
1600-5000A I ² t Long & Short Delay Phase	SC-6278-95
1600-5000A I ² t Long & Flat Short Delay Phase	SC-6279-95
1600-5000A I ⁴ t Long & Flat Short Delay Phase	SC-6280-95
400-1200A Instantaneous & Override Phase	SC-6281-96
1600-5000A Instantaneous & Override Phase	SC-6282-96
Ground Fault Protection	SC-6283-96

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