g

EntelliGuard ™ Power Circuit BreakerAccessories

Network Interlock for 800–2000 Ampere Circuit Breakers

Introduction

The Network Interlock provides a means of locking out a circuit breaker to coordinate its operation with other circuit breakers in the distribution network. When activated by the EntelliGuard Messenger™, the Network Interlock prevents the circuit breaker from closing. After the EntelliGuard Messenger issues a reset signal, the circuit breaker can be closed either remotely or locally. The Network Interlock accessory includes a manual reset lever to reset the device in the absence of a signal from the EntelliGuard Messenger.

The Network Interlock contains a microswitch to remotely indicate the state of the lockout and thus whether or not the circuit breaker can be closed. The Network Interlock kit (EGNTWKSFKIT) consists of the Network Interlock module (EGNTWKSFRPLC), mounting plate, trip paddle assembly, manual reset assembly, and hardware, as illustrated in Figure 1. The catalog information for the small frame Network Interlock kit and replacement module is listed in Table 1.

Note: The Network Interlock kit is for use with EntelliGuard™ circuit breakers installed in Entellisys™ Low Voltage Switchgear only.

Note: A Bell Alarm with Lockout and Network Interlock cannot be installed concurrently in a circuit breaker.

Description	Catalog Number	Voltage Rating 60 Hz, VAC	Inrush current A	Sealed current A
Complete Kit (NI Module+ Mounting)	EGNTWKSFKIT	120	6	1.43
NI Module	EGNTWKSFRPLC			

Table 1. Catalog numbers and electrical ratings.

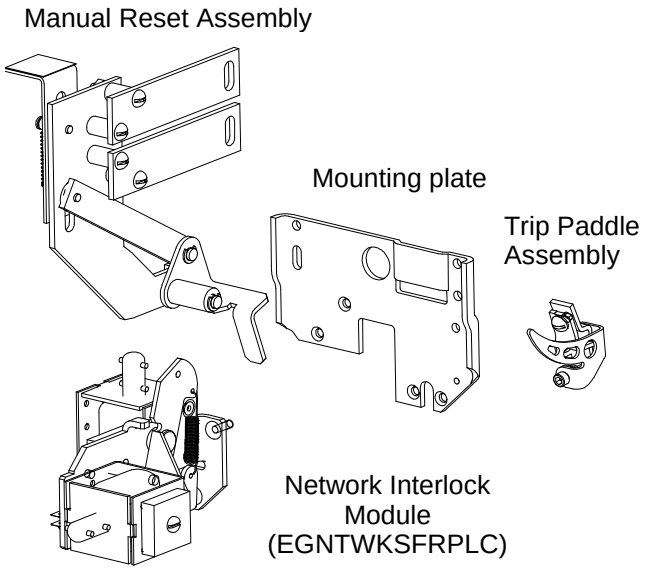

Figure 1. Network Interlock kit assembly (EGNTWKSFKIT).

Operation

The Network Interlock consists of a set solenoid, a reset solenoid, and a status switch. The device connections to the secondary disconnect are shown in Figure 2. When voltage is applied across the set solenoid, the device locks out the circuit breaker. Conversely, when voltage is applied to the reset solenoid or when the manual reset button is depressed, the Network Interlock allows the circuit breaker to re-close.

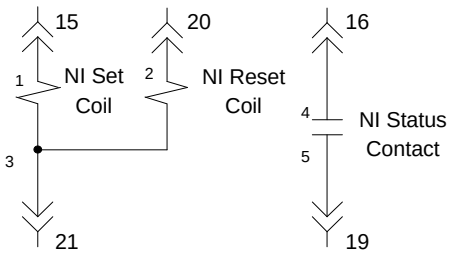

Figure 2. Network Interlock connections to secondary disconnect. (Contact shown in RESET state.)

WARNING: Before installing any accessories, turn the breaker OFF, disconnect it from all voltage sources, and discharge the closing springs.

AVERTISSEMENT: Tourner le disjoncteur à la position OFF, le débrancher de toute source de tension et décharger les ressorts de fermeture avant l'installation de tout accessoire.

Kit Installation Instructions

Use the following installation procedure for breakers that were not equipped with a Network Interlock accessory at the factory.

1. Open the circuit breaker and remove it from the cubicle or substructure. Check to ensure the breaker closing springs are DISCHARGED. (See User's Guide DEH201 or Maintenance Manual DEH203 for detailed instructions.)
2. Carefully place the circuit breaker on a suitable working surface, resting on the primary disconnects, so that the bottom of the circuit breaker is accessible.
3. Locate the close coil on the underside of the breaker. Check for silicone insulation (RTV) on the two right-most screw terminals. If there is no insulation, bend the four wires and their terminals toward the close coil body. Cover all exposed metal of the terminals with silicone insulation (RTV).
4. Fasten the Network Interlock module to the accessory mounting plate using three sets of # 8-32 nuts, spring washers, and flat washers as shown in Figure 3
5. Assemble the trip paddle and paddle clamp over the circuit breaker trip shaft as shown in Figure 4. Secure the paddle clamp to the shaft using the #10-32 screw and spring washer provided.
6. Fasten the Shunt Trip accessory to the mounting plate beside the Network Interlock. See DEH203 or DEH168 for detailed instructions.
7. Assemble the accessory mounting plate to the circuit breaker bottom frame using four sets of #10-32 screws, spring washers, and flat washers as shown in Figure 5.
8. Ensure the Network Interlock is in the RESET state (shown in Figure 6) by manually rotating the reset lever counterclockwise. If the Network Interlock was SET, this operation will cause the set lever to retract (counterclockwise) away from the trip paddle.
9. With the breaker open, charge the breaker closing springs. Do not close the breaker. Adjust the gap between the Network Interlock set lever and trip paddle by rotating the socket-head adjusting screw as shown in Figure 6. The distance between the set lever and the trip paddle assembly must be between 0.06 and 0.09 inch.
10. Manually push the set lever toward the trip paddle, locking the Network Interlock into the SET position. Check to ensure that this operation causes the trip paddle to move.
11. Close the breaker by either depressing the close button or activating the close coil circuit. The breaker should not have closed since the Network Interlock was SET.
12. Assemble the manual reset using two sets of ¼ inch hex-head bolts, spring washers, and flat washers as shown in Figure 7.
13. Push the manual reset button. Check that the Network Interlock has returned to the RESET state, as shown in Figure 6.
14. Charge and close the breaker. The breaker should close properly since the Network Interlock is RESET.
15. Open the breaker. Connect six wires to the available terminals on the Network Interlock device using the crimp-on terminals provided. Connect two of the wires to the NC and COM terminals of the microswitch as shown in Figure 9.
16. Route the wires from the Network Interlock to the secondary disconnect as shown in Figure 8 and secure them with cable ties.
17. Using the spade terminals provided, connect a wire from the trip and reset solenoids to terminals 15 and 20 of the secondary disconnect, respectively. Connect the other two solenoid wires to terminal 21. Connect the two microswitch wires to terminals 16 and 19. Figure 10 shows the secondary disconnect terminal numbering.
18. Reset the Network Interlock by pushing the manual reset lever. The Network Interlock status circuit should be open. Close the breaker manually or electrically. The breaker should close properly.
19. Set the Network Interlock by applying 120 VAC across terminals 15 and 21 on the secondary disconnect. The breaker should trip open and the status circuit should change from open to closed.
20. Charge the breaker manually or electrically. Close the breaker. The breaker should trip open, discharging the closing springs.
21. Reset the Network Interlock by applying 120 VAC across terminals 20 and 21 on the secondary disconnect. The status circuit should change from closed to open.
22. Charge and close the breaker. The breaker should close properly.
23. Set the Network Interlock, and repeat Steps 18 through 22.

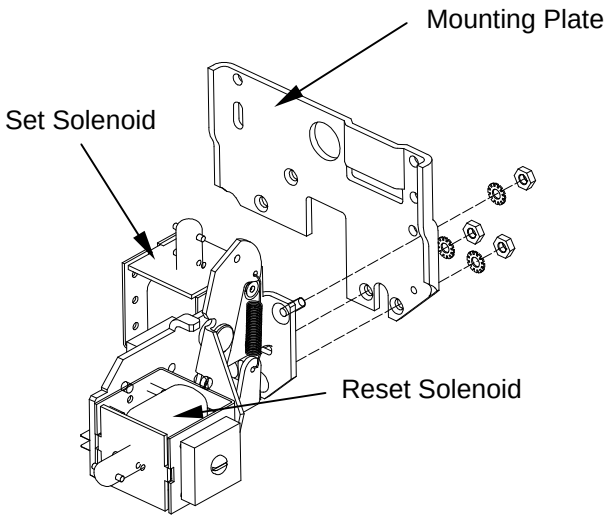

Figure 3. Fastening the Network Interlock module to the mounting plate.

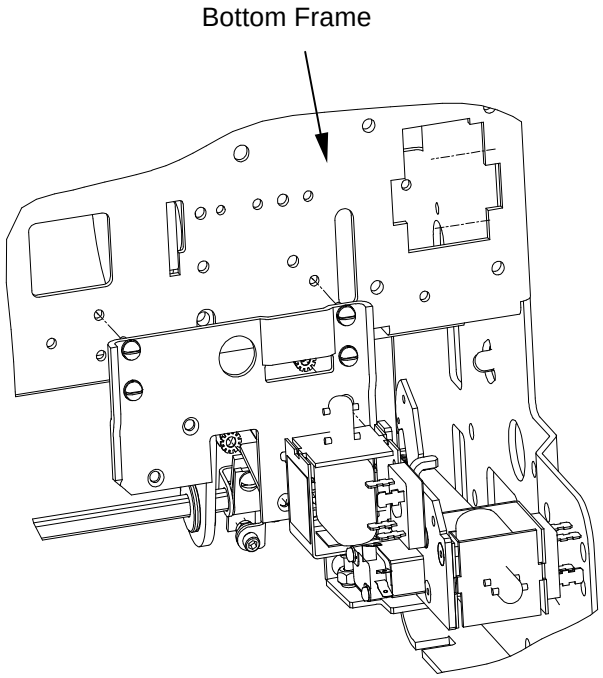

Figure 5. Mounting the Network Interlock assembly to the circuit breaker bottom frame. (Shunt Trip omitted for clarity.)

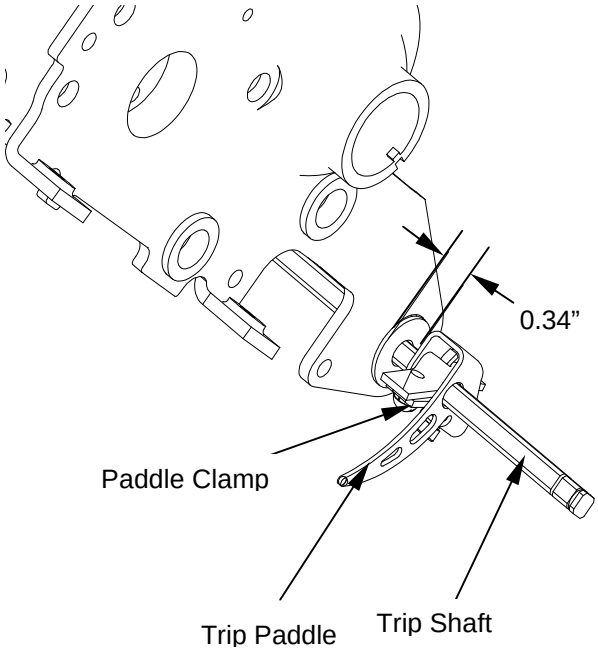

Figure 4. Mounting the trip paddle assembly on the trip shaft.

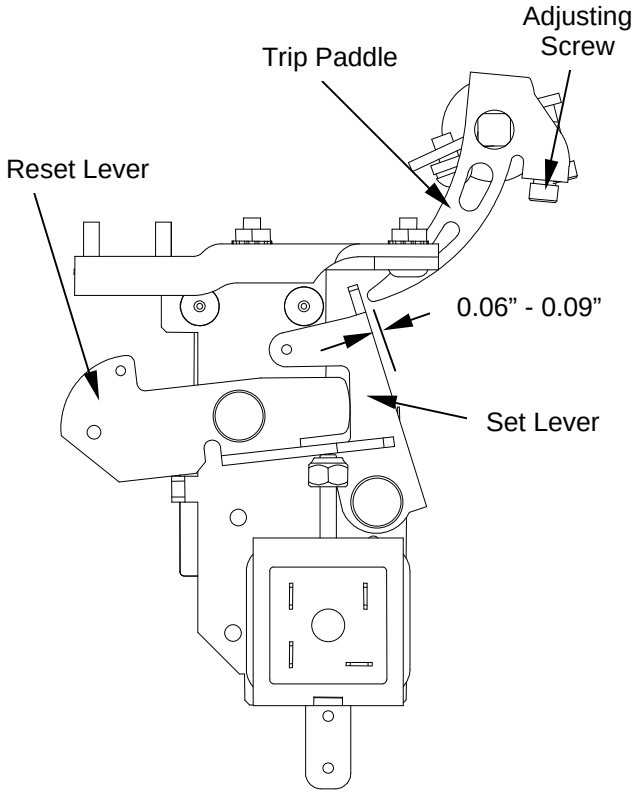

Figure 6. Trip paddle and set lever gap calibration. (Breaker charged. NI module shown in RESET position.)

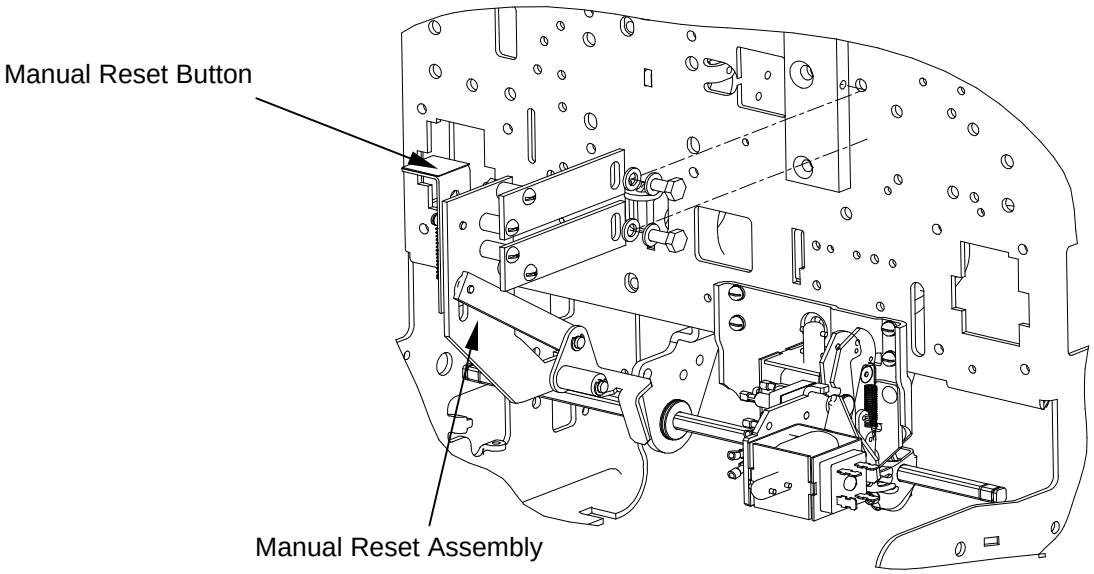

Figure 7. Mounting the manual reset assembly

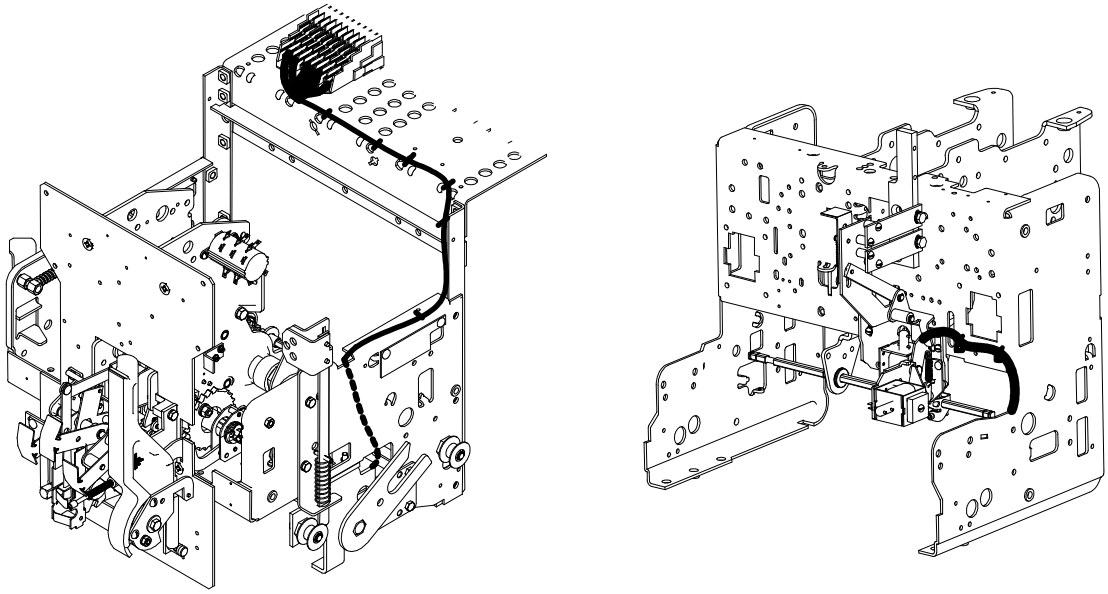

Figure 8. Wire routing from the Network Interlock to the secondary disconnect. Left – side view. Right – bottom view.

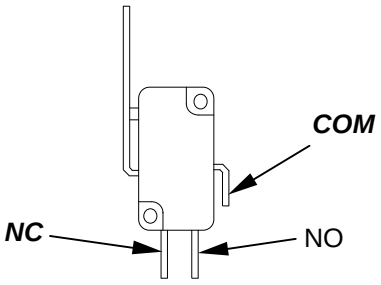

Figure 9. Microswitch terminals.

9	8	7	6	5	4	3	2	1
18	17	**16**	**15**	14	13	12	11	10
27	26	25	24	23	22	**21**	**20**	**19**
36	35	34	33	32	31	30	29	28

Figure 10. Terminal numbering scheme of the secondary disconnect, as seen from the front of the circuit breaker.

WARNING: Before installing any accessories, turn the breaker OFF, disconnect it from all voltage sources, and discharge the closing springs.

AVERTISSEMENT: Tourner le disjoncteur à la position OFF, le débrancher de toute source de tension et décharger les ressorts de fermeture avant l'installation de tout accessoire.

Module Replacement

Removing the Network Interlock Module

Use the following procedure, illustrated in Figure 7, to remove the Network Interlock module.

1. Disconnect the six wires from the Network Interlock module. Label each wire as it is removed. Cut wire ties as necessary.
2. Remove the manual reset assembly by removing the two hex-head screws as shown in Figure 7.
3. Remove the accessory mounting plate as shown in Figure 5.
4. Remove the Network Interlock module from the mounting plate by removing the three sets of nuts and washers, as shown in Figure 3.

Installing the Network Interlock Module

Use the following procedure to install the Network Interlock module as a replacement, as illustrated in Figure 5.

1. Open the circuit breaker and remove it from the cubicle or substructure. Check to ensure the breaker closing springs are DISCHARGED. (See DEH201 or DEH203 for detailed instructions.)
2. Carefully place the circuit breaker on a suitable working surface, resting on the primary disconnects, so that the bottom of the circuit breaker is accessible.
3. Fasten the Network Interlock module to the accessory mounting plate using three sets of # 8-32 nuts, spring washers, and flat washers as shown in Figure 3
4. Fasten the Shunt Trip accessory to the mounting plate beside the Network Interlock. See DEH203 or DEH168 for detailed instructions.
5. Assemble the accessory mounting plate to the circuit breaker frame using four sets of # 10-32 screws, spring washers, and flat washers as shown in Figure 5.
6. Ensure the Network Interlock is in the RESET state (shown in Figure 6) by manually rotating the reset lever counterclockwise. If the Network Interlock was SET, this operation will cause the set lever to retract (counterclockwise) away from the trip paddle.
7. With the breaker open, charge the breaker closing springs. Do not close the breaker. Adjust the gap between the Network Interlock set lever and trip paddle by rotating the socket-head adjusting screw as shown in Figure 6. The distance between the set lever and the trip paddle must be between 0.06 and 0.09 inch.
8. Connect the six wires to their corresponding terminals on the Network Interlock device.
9. Reset the Network Interlock by pushing the manual reset button. The Network Interlock status circuit should be open. Close the breaker manually or electrically. The breaker should close properly.
10. Set the Network Interlock by applying 120 VAC across terminals 15 and 21 on the secondary disconnect. The breaker should trip open and the status circuit should change from open to close.
11. Charge the breaker manually or electrically. Close the breaker. The breaker should trip open, discharging the closing springs.
12. Reset the Network Interlock by applying 120 VAC across terminals 20 and 21 on the secondary disconnect. The status circuit should change from closed to open.
13. Charge and close the breaker. The breaker should close properly.
14. Set the Network Interlock, and repeat Steps 9 through 13.

These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, the matter should be referred to the GE Company.

g

GE Consumer and Industrial

General Electric Company
41 Woodford Avenue, Plainville, CT 06062

DEH41119 R02 1005