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EntelliGuard ™ Power Circuit Breaker Accessories

Network Interlock for 3200-5000 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. When 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 (EGNTWKLFKIT) consists of the Network Interlock module (EGNTWKLFRPLC), mounting bracket, trip paddle, manual reset assembly, and hardware, as illustrated in Figure 1. The catalog information for large 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)	EGNTWKLFKIT	120	6	1.43
NI Module	EGNTWKLFRPLC			

Table 1. Catalog numbers and electrical ratings

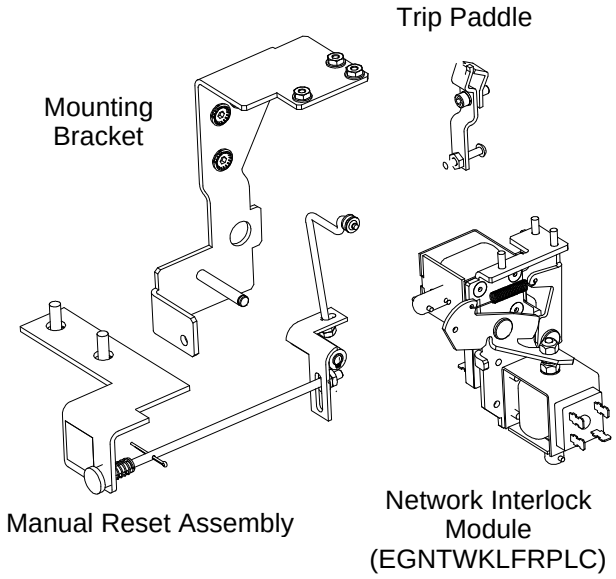

Figure 1. Network Interlock kit assembly (EGNTWKLFKIT)

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 knob is pulled, the Network Interlock allows the circuit breaker to re - close.

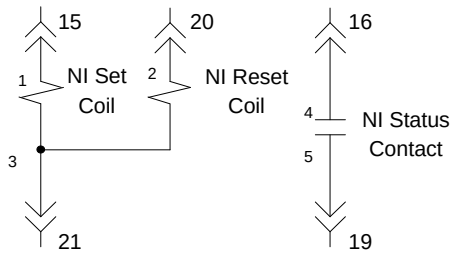

Figure 2. Network Interlock connections to secondary disconnect. (Contact shown in RESET state.)

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 DEH202 or Maintenance Manual DEH204 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. Assemble the trip paddle over the circuit breaker trip shaft as shown in Figure 3. Secure the trip paddle to the trip shaft using the # 10-32 screw and spring washer provided. Install the # 8-32 adjusting screw and nut as shown in Figure 3.
4. Assemble the Network Interlock mounting bracket to the circuit breaker frame using two sets of 3/8-inch countersunk bolts and washers as shown in Figure 4.
5. Fasten the Network Interlock module to the mounting bracket using three sets of # 8-32 nuts, spring washers, and flat washers as shown in Figure 5.
6. Ensure the Network Interlock is in the RESET state (shown in Figure 7) 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 set lever and the trip paddle by rotating the adjusting screw as shown in Figure 7. The distance between the set lever and the trip paddle must be between 0.06 and 0.09 inch.
8. Manually push the set lever toward paddle, locking the Network Interlock into the SET position (shown in Figure 6). Check to ensure that this operation causes the trip paddle to move.
9. 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.
10. Fasten the manual reset assembly bracket to the breaker frame using two sets of 1/4-inch hex-head bolts and lock washers as shown in Figure **5**.
11. Assemble the two reset rods as shown in Figure **5** and Figure 6. Fasten the top end of the vertical rod to the reset lever with two flat washers and one push nut as shown Figure 6.
12. Pull the manual reset knob shown in Figure 5. Check that the Network Interlock has returned to the RESET state, as shown in Figure 7.
13. Charge and close the breaker. The breaker should close properly since the Network Interlock is RESET.
14. 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.
15. Route the wires from the Network Interlock to the secondary disconnect as shown in Figure 8 and secure them with cable ties.
16. 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 numbering scheme.
17. Reset the Network Interlock by pulling the manual reset knob. The Network Interlock status circuit should be open. Close the breaker manually or electrically. The breaker should close properly.
18. 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.
19. Charge the breaker manually or electrically. Close the breaker. The breaker should trip open, discharging the closing springs.
20. 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.
21. Charge and close the breaker. The breaker should close properly.
22. Set the Network Interlock, and repeat Steps 17 through 21 five times.

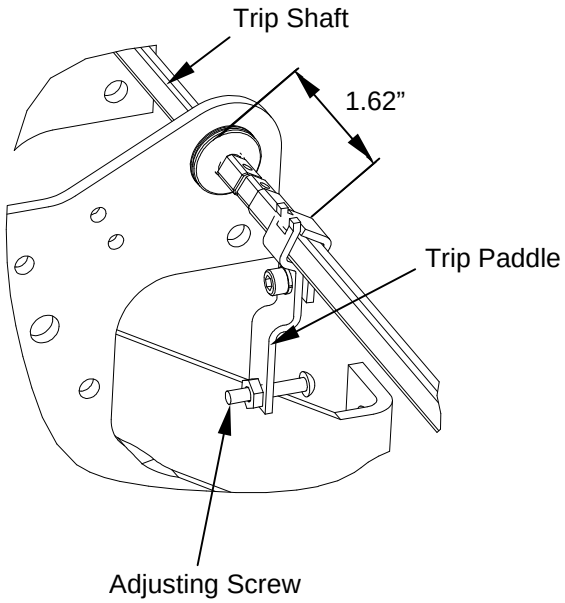

Figure 3. Mounting the trip paddle assembly on the trip shaft

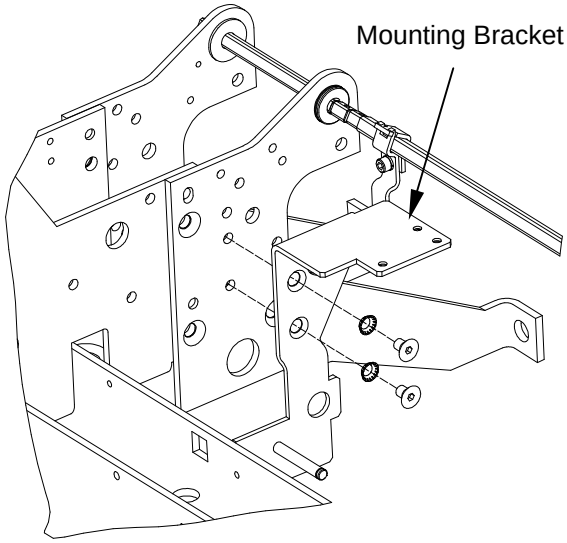

Figure 4. Mounting bracket assembly

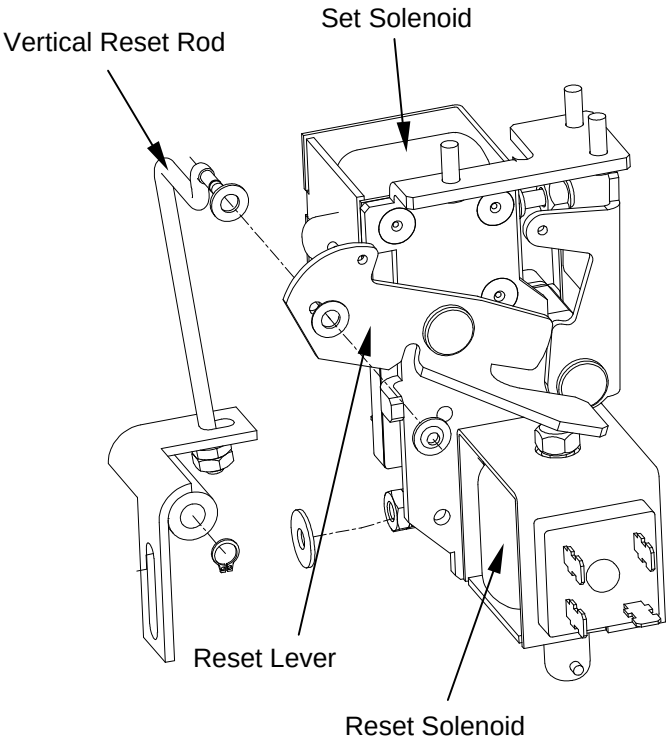

Figure 6. Manual reset assembly interface with Network Interlock module

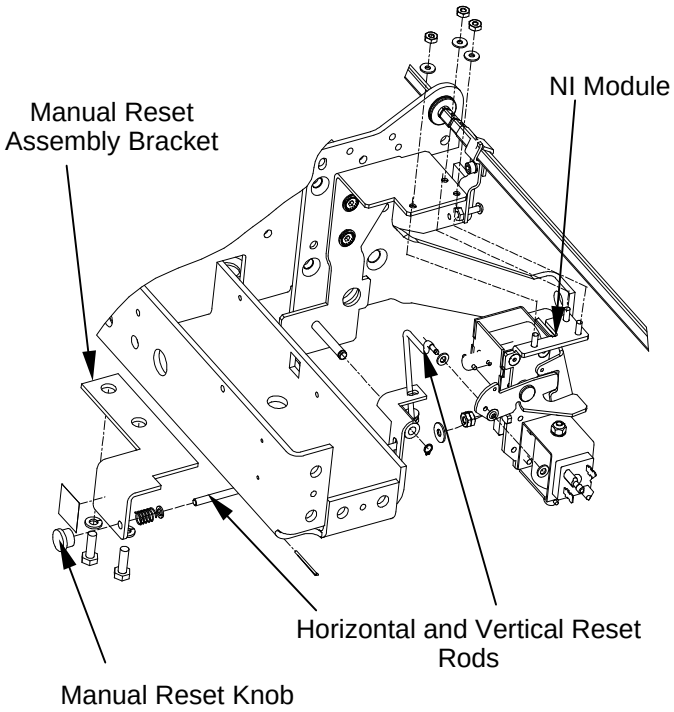

Figure 5. Network Interlock module and manual reset mounting

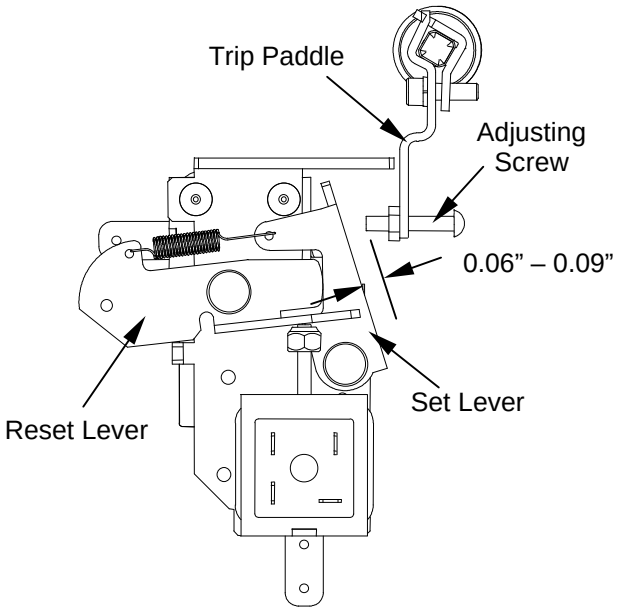

Figure 7. Trip paddle and set lever gap calibration. (Breaker charged. NI module shown in RESET position.)

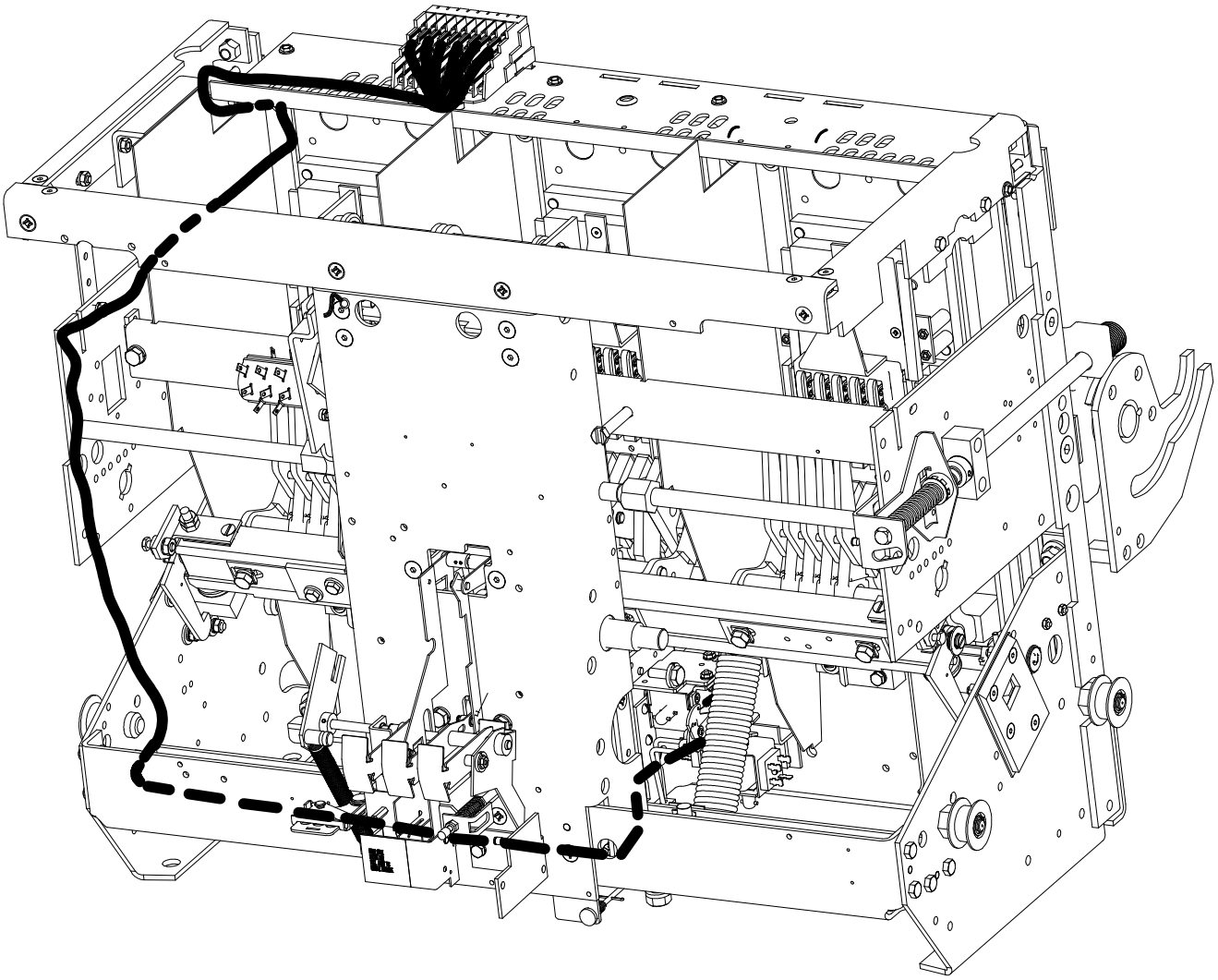

Figure 8. Wire routing from the Network Interlock to the secondary disconnect

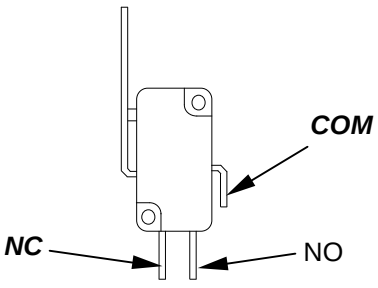

Figure 9. Microswitch terminals.

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 Instructions

Removing the Network Interlock Module

Use the following procedure, illustrated in Figure 5 and Figure 6 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 push nut and washer from the top of the manual reset rod and slide the rod out of the reset lever as shown in Figure 6.
3. Remove the Network Interlock module from the mounting plate by removing the three nuts and washers, as shown in Figure 5.

Installing the Network Interlock Module

Use the following procedure to install the Network Interlock module as a replacement, as illustrated in Figure 5 and Figure 6.

1. Open the circuit breaker and remove it from the cubicle or substructure. Check to ensure the breaker closing springs are DISCHARGED. (See DEH202 or DEH204 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 mounting bracket using three sets of # 8-32 nuts, spring washers, and flat washers as shown in Figure 5.
4. Ensure the Network Interlock is in the RESET state (shown in Figure 7) by manually rotating the reset lever counterclockwise. If the Network Interlock was SET, this operation will cause the set lever to retract away from the trip paddle.
5. With the breaker open, charge the breaker closing springs. Do not close the breaker. Adjust the gap between the Network Interlock set lever and paddle by rotating the adjusting screw as shown in Figure 7. The distance between the set lever and the trip paddle must be between 0.06 and 0.09 inch.
6. Manually push the set lever toward paddle, locking the Network Interlock into the SET position. Check to ensure that this operation causes the trip paddle to move.
7. 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.
8. Fasten the top end of the vertical manual reset rod to the reset lever with the push nut shown in Figure 6.
9. Pull the manual reset knob. Check that the Network Interlock has returned to the RESET state, as shown in Figure 7.
10. Charge and close the breaker. The breaker should close properly since the Network Interlock is RESET.
11. Open the breaker. Connect six wires to the available terminals on the Network Interlock device. Connect two of the wires to the NC and COM terminals of the microswitch as shown in Figure 9.
12. Reset the Network Interlock by pulling the manual reset knob. The Network Interlock status circuit should be open. Close the breaker manually or electrically. The breaker should close properly.
13. 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.
14. Charge the breaker manually or electrically. Close the breaker. The breaker should trip open, discharging the closing springs.
15. 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.
16. Charge and close the breaker. The breaker should close properly.
17. Set the Network Interlock, and repeat Steps 12 through 16.

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.

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