

HT4001 / H-401 Slave Upgrade

***Master / Slave
Communication
Upgrade***

***Field Service Bulletin
803230 - Revision 1***

Hypertherm
*The world leader in
plasma cutting technology*

***HT4001 / H-401 Slave
Upgrade***

Master / Slave Communication Upgrade

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**HYPERTHERM, Inc.
P.O. Box 5010
Hanover, New Hampshire 03755-5010
Tel.: (603) 643-3441
Fax: (603) 643-5352
<http://www.hypertherm.com>
[email:info@hypertherm.com](mailto:info@hypertherm.com)**

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Hypertherm Offices Worldwide:

Hypertherm, Inc.

**Etna Road, P.O. Box 5010
Hanover, NH 03755 USA
Tel.: (603) 643-3441 (Main Office)
Fax: (603) 643-5352 (All Departments)
Tel.: (800) 643-9878 (Technical Service)
Tel.: (800) 737-2978 (Customer Service)**

Hypertherm Plasmatechnik GmbH

**Technologiepark Hanau
Rodenbacher Chaussee 6
D-63457 Hanau-Wolfgang, Germany
Tel.: 49 6181 58 2100
Fax: 49 6181 58 2134**

European Technical Support Organization (ETSO)

**Technologiepark Hanau
Rodenbacher Chaussee 6
D-63457 Hanau-Wolfgang, Germany
Tel.: 49 6181 58 2100
Fax: 49 6181 58 2134**

Hypertherm Singapore Pte Ltd

**No. 19 Kaki Bukit Road 2
K.B. Warehouse Complex
Singapore 417847, Republic of Singapore
Tel.: 65 841 2489
Fax: 65 841 2490**

Hypertherm U.K.

**9 Berkeley Court • Manor Park
Runcorn, Cheshire, England WA7 1TQ
Tel.: 44 1928 579 074
Fax: 44 1928 579 604**

Hypertherm France

**10, Allée de l'Isara
F-95000 Cergy-Pontoise, France
Tel.: 33 1 34 24 03 05
Fax: 33 1 34 25 09 64**

Hypertherm Italy

**Via Stilicone 18
20154 Milan, Italy
Tel.: 39 2 34 53 22 11
Fax: 39 2 34 53 20 18**

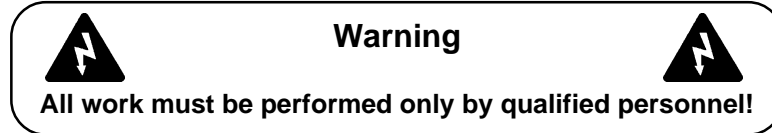
H-401 Slave Upgrade

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H-401 Slave Upgrade

INTRODUCTION



Purpose

This field service bulletin will enable a qualified electronics technician to upgrade the communication between the H-401 slave and the HT4001 master power supply.

General

The serial I/O board, located in the H-401 slave, has been identified as an area of communication difficulty between the HT4001 master power supply and the slave. This upgrade bypasses the serial I/O board to improve the master/slave communications.

Special Note: The kit listed below (128314) also includes components to upgrade the HT4001 power supply with a phase loss detection circuit. See field service bulletin 803070 for installation of the phase loss detection circuit.

Customer Required Tools

Phillips head screwdriver
pliers

128314 HT4001 Phase Loss Protection and H-401 Slave Upgrade Kit

Part No.	Description	Qty.
074006	Base: 1"x1" Adhesive Cable Tie	2
074179	Terminal: 22-18 Female Tee	2
129371	Harness: H-401 Upgrade	1
343003	Cable Tie	20
343005	Cable Tie	4
004652	Bracket: CH130 Cap Mounting	1
041564	PCB Assembly: Phase Loss Detection Circuit	1
108061	Standoff: 1/2" Long, Locking Circuit Board Support, Nylon	4
129323	Wire Group: Phase Loss Detection Circuit Output	1
081038	Firmware: Ht4001 II Rev. A	1
008197	Tool: AMP Pin/Socket Extracting	1
027338	Tool: All Purpose Chip Extracting	1
803070	Field Service Bulletin: Phase Loss Protection Upgrade	1
803230	Field Service Bulletin: H-401 Slave Upgrade	1
802930	Field Service Bulletin: H401/H601 Slave Calibration	1

H-401 Slave Upgrade

Components for the H-401 Slave Upgrade Only

Part No.	Description	Qty.
074006	Base: 1"x1" Adhesive Cable Tie	2
074179	Terminal: 22-18 Female Tee	2
129371	Harness: H-401 Upgrade	1
343003	Cable Tie	20
343005	Cable Tie	41
081038	Firmware: Ht4001 II Rev. A	1
008197	Tool:AMP Pin/Socket Extracting	1
027338	Tool:All Purpose Chip Extracting	1
803230	Field Service Bulletin: H-401 Slave Upgrade	1

H-401 Slave Upgrade

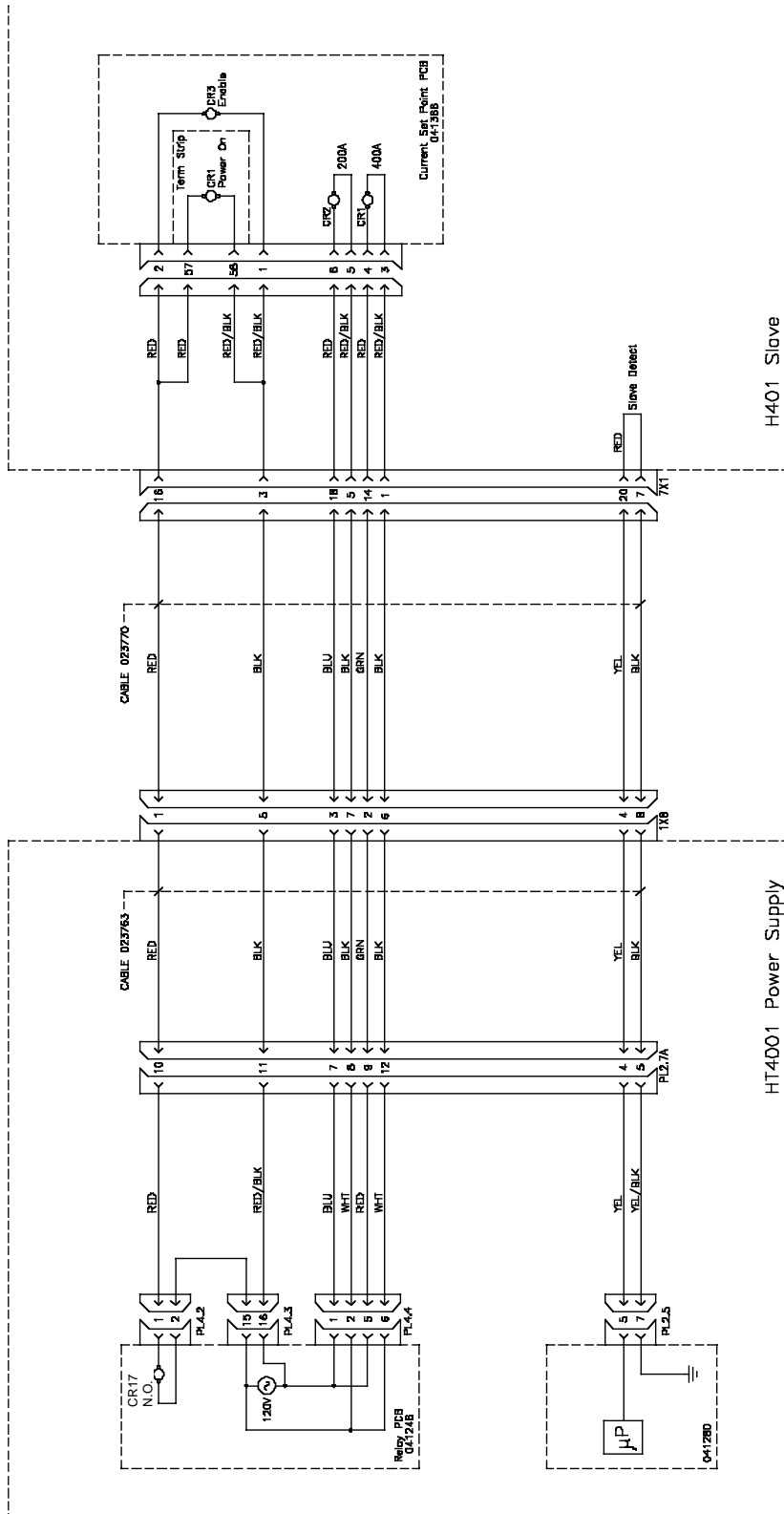


Figure 1 H-401 Slave Communication Upgrade Diagram

H-401 Slave Upgrade



WARNING



SHOCK HAZARD: Always turn off the power, unplug the cord and wait 5 minutes before removing any power supply cover. If the power supply is directly connected to a line disconnect switch, place switch in the OFF position. In the U.S., use a "lock-out / tag-out" procedure until the service or maintenance work is complete. In other countries, follow appropriate local or national safety procedures.

H-401 SLAVE UPGRADE

1. Disconnect the power.
2. Remove the side and top panels of the H-401 power supply.
3. Find the slave I/O cable that is connected to the serial I/O PCB.
4. Remove the cable from the serial I/O PCB.
5. Remove the serial I/O harness (029910).

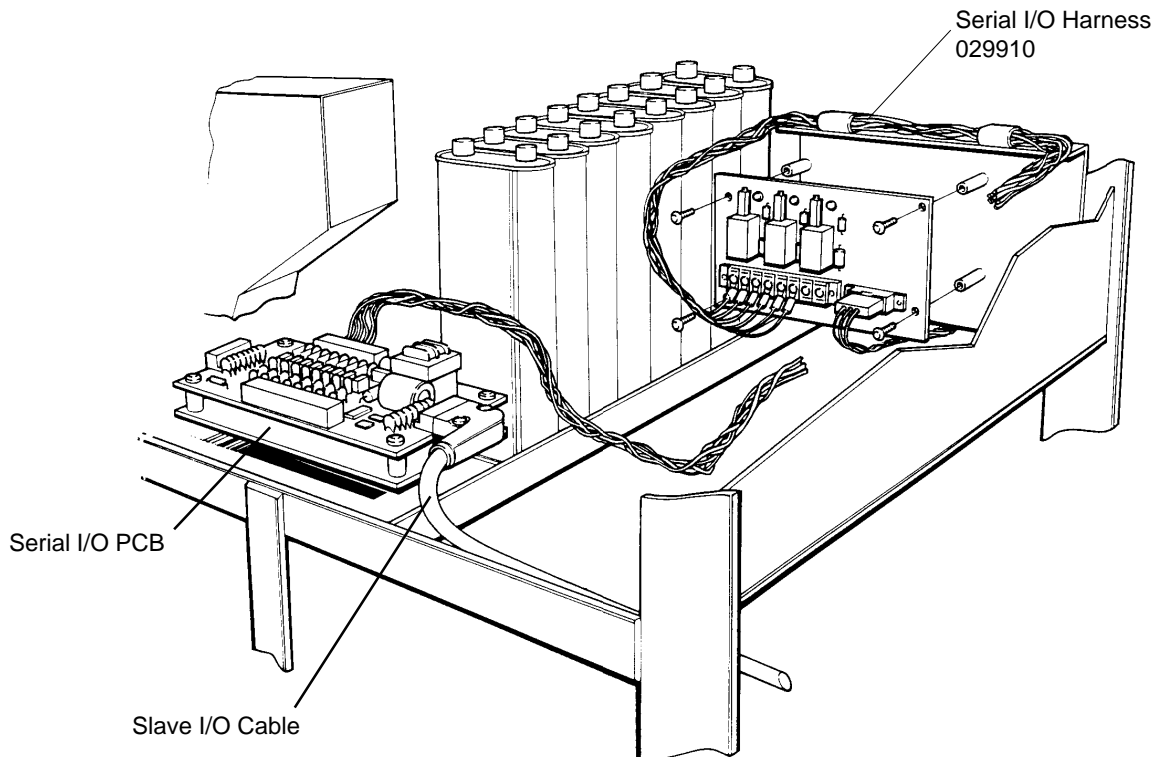


Figure 2 Inside of the H-401 Power Supply

H-401 Slave Upgrade

6. Attach DB25 connector end of the 129371 harness to the DB25 connector end of the slave I/O cable.
7. Connect fork terminals from 129371 harness to the current setpoint PCB and the H-401 terminal strip as indicated in the figures below.

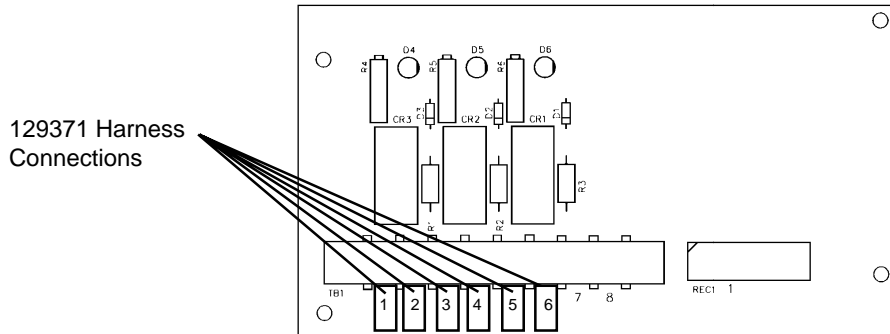


Figure 3 Current Setpoint PCB Connections to 129371 Harness

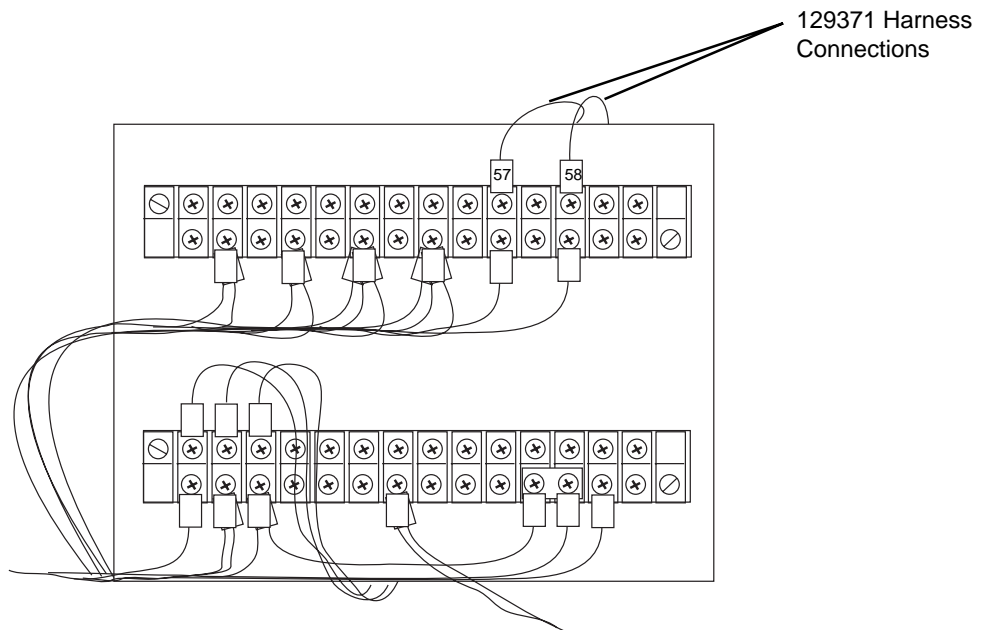


Figure 4 H-401 Terminal Strip Connections to 129371 Harness

HT4001 POWER SUPPLY UPGRADE

1. Disconnect the power.
2. Remove the front cover of the HT4001 power supply.
3. Locate the control board.

Install 081038 Firmware into Control Board

Remove the 081019 Firmware and install the 081038 firmware into the control board. If necessary, see Field Service Bulletin 803070 for details of this installation.

Remove Pins from PL2.7 on Control Board

1. Find REC7 on the Control Board - See Fig. 5.
2. Remove the connector that is plugged into REC7. This connector should be labeled PL2.7.
3. Using the pin extracting tool (008197) remove pins 1, 2, 3 and 6 from PL2.7.
4. Use electrical tape to protect these extracted pins.

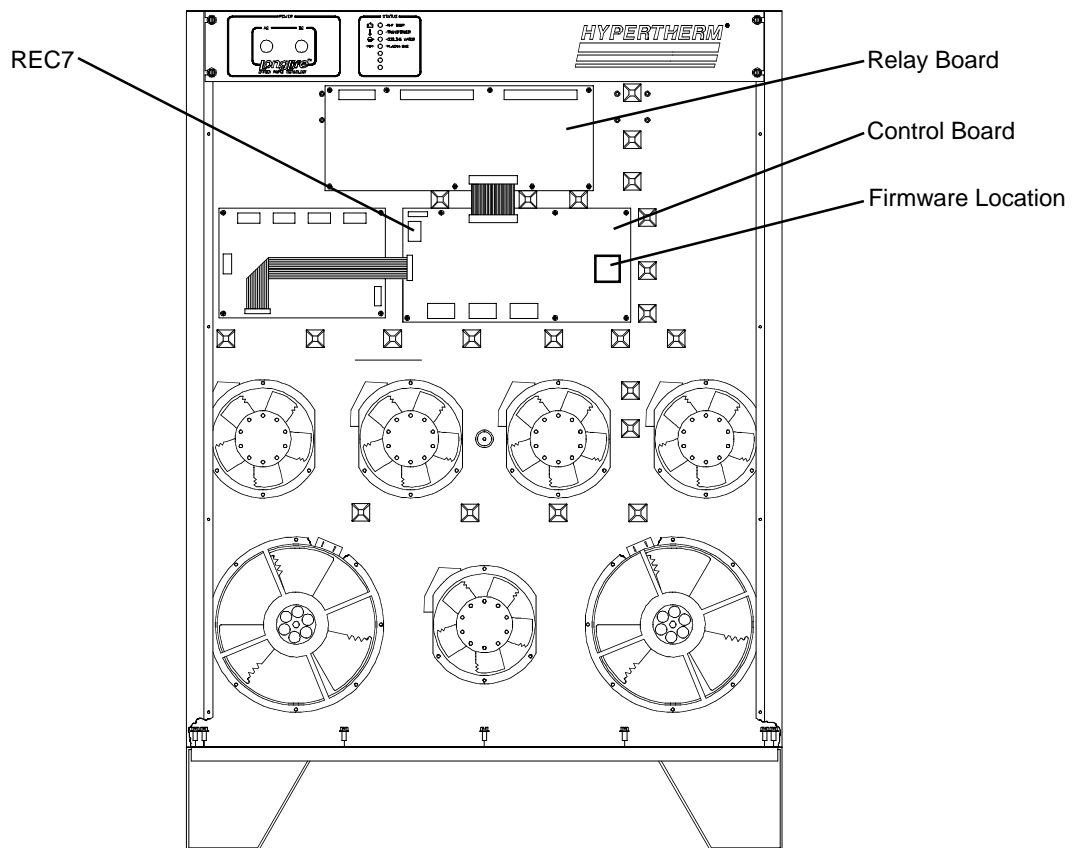


Figure 5 HT4001 Front Panel

H-401 Slave Upgrade

Remove Resistor R106 from Relay Board

Remove (cut out) R106

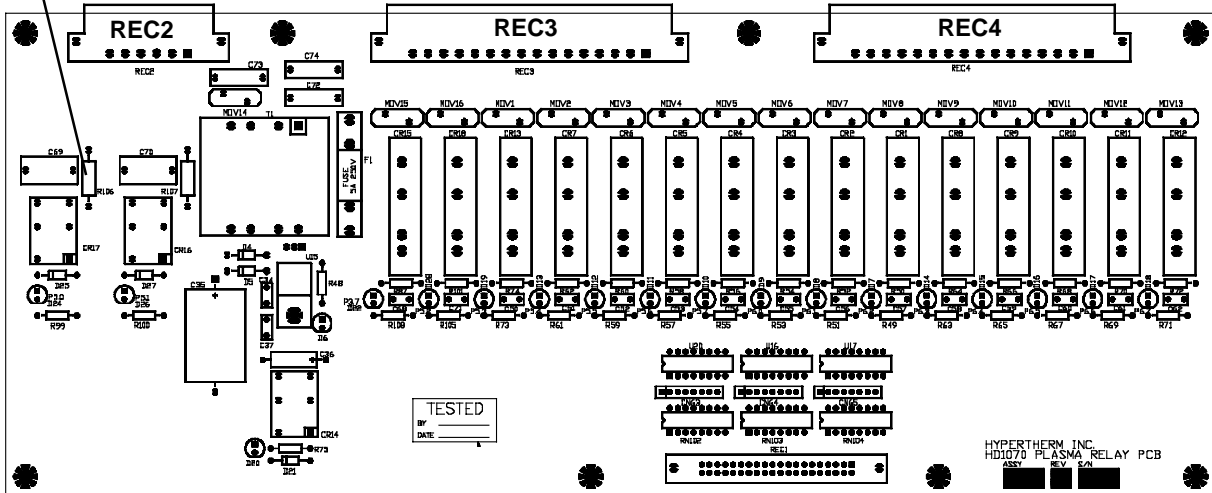


Figure 6 Relay Board

Remove Pins from PL4.4 on Relay Board

1. Find REC4 on the Relay Board - See Fig. 6.
2. Remove the connector that is plugged into REC4. This connector should be labeled PL4.4.
3. Using the pin extracting tool (008197) remove pins 1, 2, 5 and 6 from PL4.4.
4. Use electrical tape to protect these extracted pins.

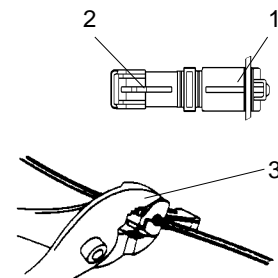
Connect Female Terminals (074179) to Wires in PL4.3 on Relay Board

1. Find REC3 on the Relay Board - See Fig. 6.
2. Find wires going to pins 15 and 16 on the connector going to REC3. This connector should be labeled PL4.3.
3. Using pliers, attach a female tee tap (074179) to each of these 2 wires - See Figure below.

To attach a tee tap connector to a wire:

Do not strip wire.

1. Place wire in open channel.
2. Fold connector body until metal element contacts wire.
3. Crimp connector closed with pliers. There will be an audible click to indicate closure.



H-401 Slave Upgrade

Installing Harness 129371

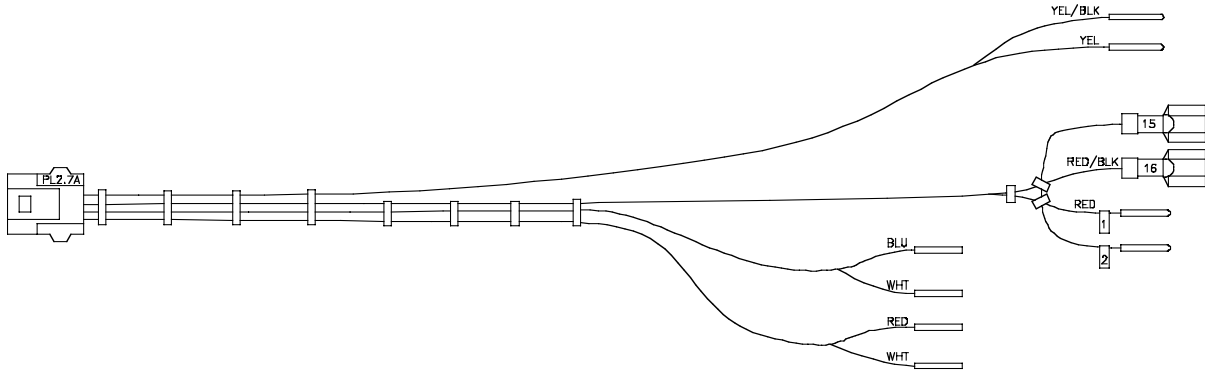


Figure 7 129371 Harness

1. Take 129371 harness from the kit and plug the connector end (PL2.7A) into the PL2.7 connector that was plugged into control board REC7 location. See Fig. 5.
2. Insert the following pins from the 129371 harness into the appropriate plug:

Wire Color	To Plug	Pin	PCB
yellow	PL2.5 (REC5)	5	control
yellow/black	PL2.4 (REC4)	12	control
blue	PL4.4 (REC4)	1	relay
white	PL4.4 (REC4)	2	relay
red	PL4.4 (REC4)	5	relay
white	PL4.4 (REC4)	6	relay
red (labeled 1)	PL4.2 (REC2)	1	relay
red (labeled 2)	PL4.2 (REC2)	2	relay

3. Insert the male terminal labeled 15 from the 129371 harness into the female terminal that was installed on wire 15 plug PL4.3 on the relay board (see page 8).
4. Insert the male terminal labeled 16 from the 129371 harness into the female terminal that was installed on wire 16 plug PL4.3 on the relay board (see page 8).

H-401 Slave Upgrade

Installation of the H-401 slave upgrade is complete. See instruction manuals 803070 to install the phase-loss protection circuit, and 802930 to calibrate the H-401 slave before resuming normal operations.



WARNING



Install all power supply covers before operating the HT4001 or H-401 systems.

See also the HT4001 instruction manual 802000 (or 802470 for 200V power supplies) for complete installation, operation, maintenance and parts list information for the HT4001 system.

Note: For future reference, if ordering replacement firmware, control boards or relay boards note these new part numbers:

Description	Old Part Number	New Part Number
Firmware	081019	081038
Control Board	041368	041588
Relay Board	041246	041589