



**APPLICATION**

NCS and NCSC Series Control Stations are for use as pilot devices in control circuits of magnetic motor starters which function to start, stop, and reverse electric motors and are not intended for direct control of motor loads. The pilot lights serve to visually indicate that the desired function is being performed. They are suitable for use in NEMA 3, 4X and 12, as well as in damp, wet or corrosive locations -- indoors or outdoors.

NCS (dead end) and NCSC (through feed) Control Stations are available with 1/2- and 3/4 inch hub sizes in both 1 or 2 device, and 3 or 4 device body styles. Refer to Crouse-Hinds 4000 Series Catalogs for a complete listing of NCS and NCSC Control Stations.

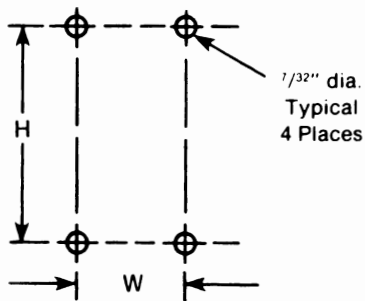
**INSTALLATION**

**WARNING**

Be sure that electrical power is OFF before starting installation or maintenance.

- Loosen the captive screws in the enclosure cover, then carefully lift off the cover and set it aside to prevent damage to the gasket or devices. Do not remove the control devices from the cover.
- Select a mounting location that will provide suitable strength and rigidity for supporting all contained wiring and controls. Enclosure body has four (4) 7/32" diameter holes located at each inside corner for surface mounting. Use #10 size hardware to securely mount enclosure in the desired location.

**MOUNTING DIMENSIONS**

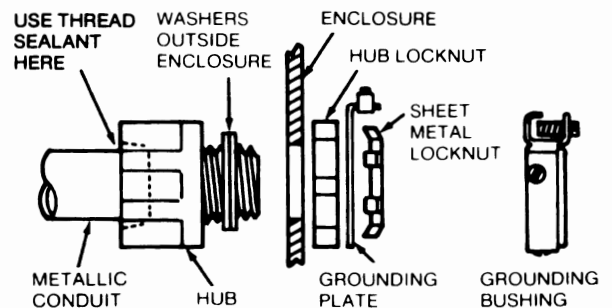


CONTROL STATION	Mounting Dimensions (In.)	
	H	W
1 and 2 device. 4" x 7" enclosure	6-3 8	2-15 16
3 device. 4" x 9" enclosure	8-5 8	2-15 16
4 device. 4" x 11" enclosure	10-7 8	2-15 16

- Install conduit in the factory installed entrance hubs of the enclosure.
- Bonding and Grounding Requirements:

Bonding and grounding of the conduit and equipment is required by the National Electrical Code\*. When more than one conduit enters the enclosure, ground continuity between conduits must be maintained through proper bonding. A grounding conductor, if used, must be connected to the conduit bonding system. Use Crouse-Hinds type GB or GP bonding fittings, and install per wiring procedures shown. Use wire type and size as required by NEC and any other applicable standards.

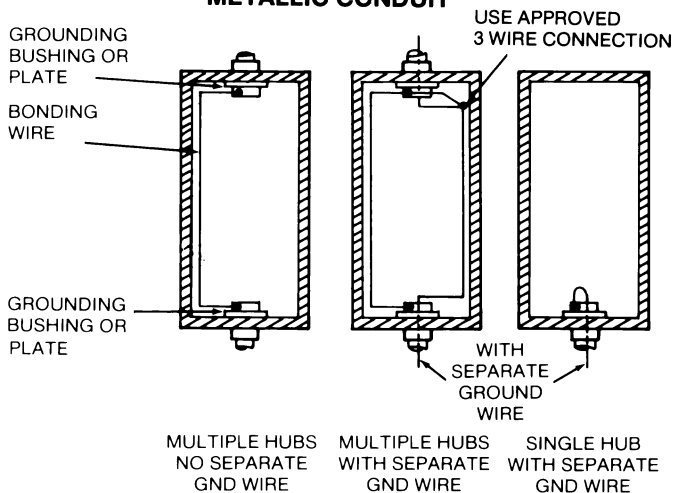
Conduit Size	Grounding Plate Cat. No.	Grounding Bushing Cat. No.	Hub Cat. No.
1/2"	GP1	GB1041	NHUB1
3/4"	GP2	GB1042	NHUB2



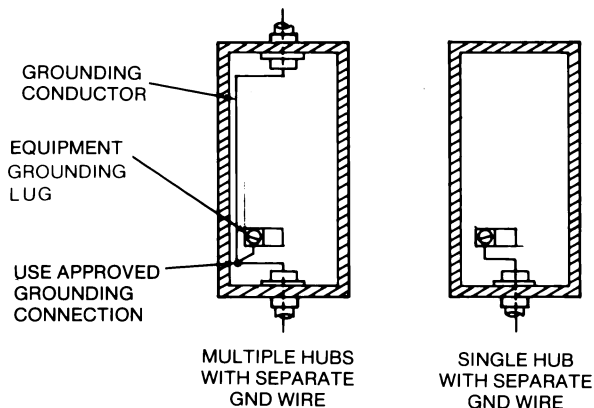
\* National Electrical Code is a Registered Trademark of the National Fire Protection Association

# GROUND WIRING PROCEDURES

## METALLIC CONDUIT



## NON-METALLIC CONDUIT



- Pull necessary control wires. Provide sufficient length for connections to be made in a manner which will comply with all applicable codes and standards.
- Make the electrical connections utilizing the wiring pattern established for your system. Table 1 lists the field wiring diagrams of the control devices installed in NCS and NCSC control stations. Unit is ready for wiring to devices mounted in the cover. It is not necessary to remove any device from cover for field wiring.

Switch units for pushbutton station and selector switches use momentary contact pushbuttons. Selector switches are cam actuated by a maintained contact selector mechanism to operate in the sequences shown in Field Wiring Diagrams following.

Pilot lights are furnished with pigtail leads for field connections by use of wire nuts.

### CAUTION

Make sure that the cover gasket and body flanges are free of any foreign substances before mating to ensure proper gasket sealing.

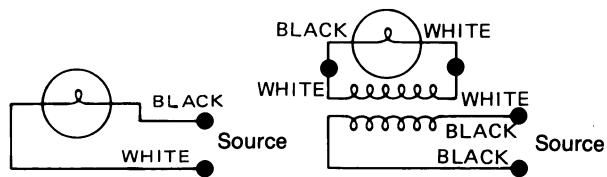
- Place cover on body and securely tighten the captive cover screws. DO NOT exceed 35 in. lbs. of torque.
- The installation is complete and electrical power source may be turned ON.

Table 1. Field Wiring Diagrams

NPB Pushbutton (momentary)		NSW Selector Switches					
1 Circuit Universal	2 Circuit Universal	Cat. No. Unit	Panel Position (Front)	Contact Arrangement Position 1	Position 2	Position 3	
		NSW 11211	Two Position Two Circuit		A1	A2	
		NSW 12221	Two Position Four Circuit		A1	A2	
		NSW 11311	Three Position Two Circuit		A1	A2	
		NSW 12321	Three Position Four Circuit		A1	A2	
		NSW 12322	Three Position Four Circuit		A1	A2	

**NOTE**  
For three-position selector switches with suffix S634, Position 3 is momentary contact with spring return to Position 2. For three-position selector switches with suffix S635, Position 1 is momentary contact with spring return to Position 2.

## N2PL Pilot Lights



Nominal 120V

Nominal 220, 440, 550V

Transformer Volts

Primary Voltage Range

—  
220/110  
440/110  
550/110

120V, 50-60 Hz  
220-240V, 50-60 Hz  
440-480V, 50-60 Hz  
550-600V, 50-60 Hz

Lamp: Sylvania 120MB, 3 Watt

## MAINTENANCE

### WARNING

Always disconnect primary power source before opening enclosure for inspection or service.

- Regular inspection should be made. A schedule for maintenance check should be determined by the environment and frequency of use. It is recommended that it should be at least once a year.
- Perform visual, electrical, and mechanical checks on all components on a regular basis.
  - Visually check for undue heating evidenced by discoloration of wires or other components, damaged or worn parts, or leakage evidenced by water or corrosion in the interior.
  - Electrically check to make sure that all connections are clean and tight, and that contacts in the components make or break as required.
  - Mechanically check that all parts are properly assembled, and operating mechanisms move freely.

## PILOT LIGHT, PUSHBUTTON, OR SELECTOR SWITCH DEVICE REPLACEMENT

### WARNING

Be sure that electrical power is OFF before replacing the lamp, or opening enclosure.

Install replacement (or additional) pilot light, pushbutton, or selector switch devices following installation information supplied with each device. The following lists the Crouse-Hinds replacement catalog number.

### Pilot Light Device w/Jewel

Pilot Light	Primary Power Source Voltage Range	Transformer Volts
N2PL10†	120V, 50-60 Hz	—
N2PL20†	220-240V, 50-60 Hz	220/110
N2PL40†	440-480V, 50-60 Hz	440/110
N2PL50†	550-600V, 50-60 Hz	550/110

†Specify Jewel Color for each Pilot Light

Color	Symbol	Color	Symbol
Red	J1	Opal	J8
Green	J3	Clear	J10
Amber	J6	Blue	J11

## NPB Pushbuttons - Momentary Contact

Color of Operator	1 Circuit		2 Circuit	
	Contact Symbol	Catalog Number	Contact Symbol	Catalog Number
Natural		NPB1111		NPB1211
Red		NPB1111R		NPB1211R
Green		NPB1111G		NPB1211G

## NSW Selector Switches

Style	Position			Cat #
	1	2	3	
Two Position Two Circuit	A1 A2			NSW11211
Two Position Four Circuit	A1 A2 B1 B2			NSW12221
Three Position Two Circuit	A1 A2			NSW11311
Three Position Four Circuit	A1 A2 B1 B2			NSW12321
Three Position Four Circuit	A1 A2 B1 B2			NSW12322

### Pilot Light Lamp Only

Sylvania 120 MB, 3 Watt

Replacement of the pilot light lamp is easily made by turning off electrical power then unscrewing the jewel assembly. It is not necessary to remove the enclosure cover.

## ELECTRICAL RATINGS

Pilot Lights: 120-600 VAC

Selector Switches:

Pushbutton Stations: Heavy duty, 600 VAC maximum, A600

---

*All statements, technical information and recommendations contained herein are based on information and tests we believe to be reliable. The accuracy or completeness thereof are not guaranteed. In accordance with Crouse-Hinds "Terms and Conditions of Sale", and since conditions of use are outside our control, the purchaser should determine the suitability of the product for his intended use and assumes all risk and liability whatsoever in connection therewith.*

---



**CROUSE-HINDS  
ELECTRICAL  
CONSTRUCTION  
MATERIALS**

**Division of Cooper Industries, Inc. • Syracuse, New York 13221 • USA**

© 1985, Cooper Industries, Inc.

IF648 9 85  
Supersedes 11 84 Issue