NEO–DYN®

801P5 SMART SWITCH™

INSTALLATION AND
OPERATION MANUAL

ITT Industries
Engineered for life

PN 610–0002   Rev D

ECO 71349

Important Information

The product warranty applicable to this ITT Neo-Dyn® instrument is as stated on page 41 of this manual.

Should any after-delivery problems arise, please contact ITT Neo-Dyn's Customer Service using the information above. Our normal business hours are weekdays, 7:00 am to 3:30 pm, Pacific Time.

Before installing the Smart-Switch™, become familiar with the installation instructions in Chapter 2.

WARNING **Indicates a hazard which can cause severe personal injury, death, or substantial property damage if the warning is ignored.**

CAUTION Indicates a hazard which will or can cause minor personal injury or property damage if the caution is ignored.

NOTE Indicates additional information about a particular item necessary to the operation of the unit.

TABLE OF CONTENTS

TABLE OF CONTENTS

PAGE

CHAPTER

1

INTRODUCTION

The Neo-Dyn® 801P5 Smart-Switch™ is a solid-state pressure switch designed for a wide range of applications in pneumatic and hydraulic systems up to 3,000 psig. Pressure indication, switch status and operational status are continually displayed on the front panel. The unit can be configured to display pressure readings in a variety of formats.

The Smart-Switch™ can be configured on-site, using the front panel keypad and 4 digit display, or remotely via the optional RS-232 connection. The 4-20 mA output option offers remote monitoring capabilities.

A built-in password security system prevents unauthorized adjustments. When locked, pressure can be monitored and set points may be viewed, but no adjustments can be made without entering the correct password.

The Smart-Switch™ may be ordered to operate on 115 VAC 50/60 Hz, 230 VAC 50/60 Hz, or 18-30 VDC input power.

The external configuration of the Smart-Switch™ is shown in Figure 1 on the next page.

RS232 COM Port

4-20 mA Output

Status Indicators

Keypad

Pressure Port 1/4-18 NPT Std

Conduit Connection 1/2-14 NPT

18" free leads #22 AWG

Neo-Dyn® SMART SWITCH™

S1
S2
ON LINE

MENU SELECT

INCR S1 DECR

INCR S2 DECR

STORE

RUN

Neo-Dyn
ITT Industries
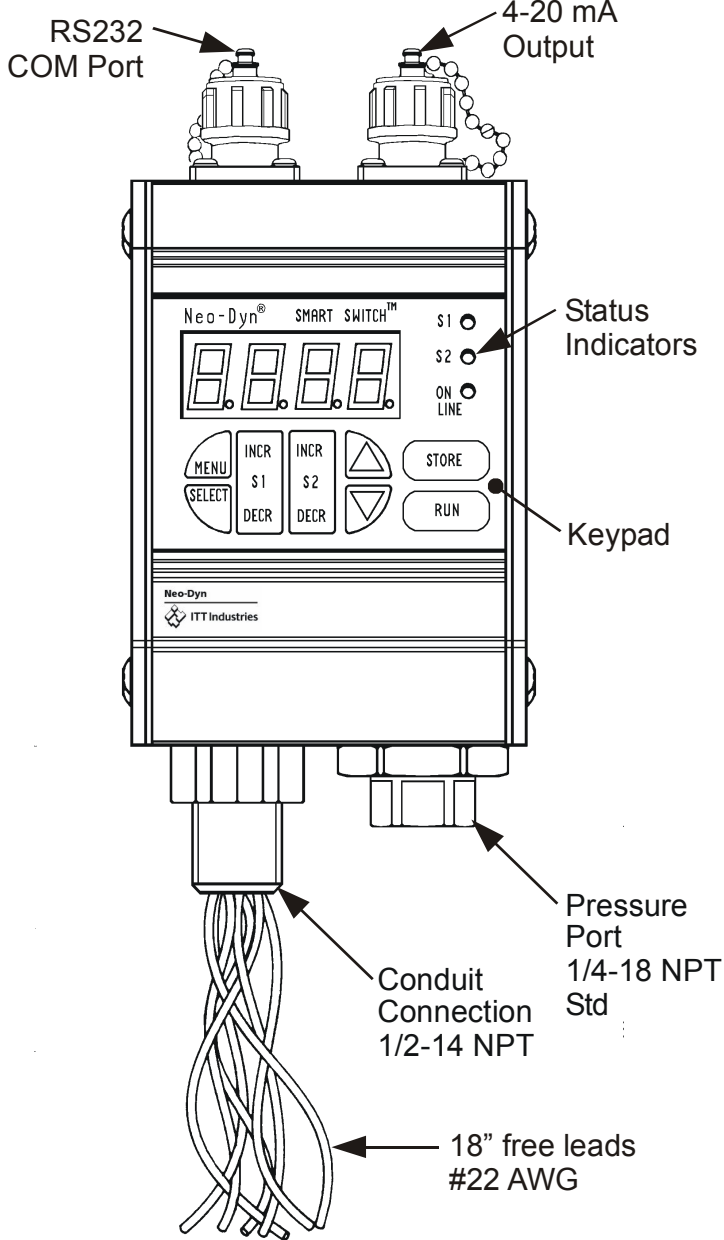
Figure 1 Model 801P5 Smart-Switch™
(Mounting Brackets not Shown)

The standard electrical interface is 22 AWG free leads exiting from a ½" - 14 NPT male conduit connection. The standard pressure connection is ¼" - 18 NPT female; a 7/16" - 20 SAE pressure connection is available as Option E.

Output options available for the Smart-Switch™ include a 4-20 mA analog output (Option V), scalable display units (Option Q), and RS232 communications (Option Z).

The RS232 option can be used to configure and monitor the unit remotely. This option includes Windows®-based software.

Chapter 7 on page 37 contains complete specifications for the 801P5 Smart-Switch™.

ABOUT THIS MANUAL

The following paragraphs describe the format conventions used in this manual.

KEYS

Most of the instructions contain directions to press a key, which is one of the blue touchpads on the display surface of the Smart-Switch™. When included in instructions, the keys are shown in brackets, as **[STORE]**.

DISPLAY

When shown in the text, the LED displays are formatted as **279.3.**

CUSTOMER SERVICE

If you have any questions about the 801P5 Smart-Switch™ that are not covered in this manual, you can contact Neo-Dyn in several ways:

The customer service phone number is (661) 295-4000. Our customer service department is open from 7:00 am to 3:30 p.m. Pacific Time.

Our Internet site is: www.neodyn.com.

INSTALLATION

Installation of the Smart-Switch™ is relatively straightforward. However, the Smart-Switch™ must be installed by a qualified electrician, in compliance with all local and national electrical codes.

WARNING **Electrical Hazard**

WARNING **Do not make electrical connections while power is on.**

WARNING **Always check for multiple circuits.**

WARNING **Always make sure grounding is adequate.**

MOUNTING

The Smart-Switch™ can be mounted directly to the pressure connection, or it can be attached to a flat surface, such as a wall, near the connection to be monitored. For surface mounting, slide the two mounting brackets into the slots on the back of the Smart-Switc™ and use #10 (.190 in. dia.) fasteners.

PRESSURE CONNECTION

The standard pressure connection for the 801P5 Smart-Switch™ is a ¼"- 18 NPT female pipe thread. A 7/16" - 20 SAE boss is also available as Option E. When installing the Smart-Switch™, always:

- Make sure that the unit and your system have the same fittings.

- Use the wrench flats provided.

- Seal all joints with pipe joint sealing compound.

CAUTION Avoid excessive torque on all threaded connections.

ELECTRICAL CONNECTIONS

Units are supplied with 22 AWG free leads exiting from a ½"-14 NPT male conduit connection. The leads are-color coded and marked. See Figure 2 for AC operation and Figure 3 for DC operation.

4-20 mA output (option letter V) is connected to the 2-pin connector on the top-right of the unit per Figure 4, using the supplied mating connector. This mating connector has solder cups that will take wires as large as #18 AWG. See Chapter 4 for operating instructions.

The RS232 communications (option letter Z) are connected to the 3-pin connector on the top-left of the unit (See Figure 5), using the supplied mating connector. This mating connector has solder cups that will take wires as large as #18 AWG. Cable length must not exceed 50 feet. See Chapter 6 for operating instructions.

All field wiring for the 801P5 must comply with requirements of the NEC or applicable local electrical codes.

RED/VIO **NC1**

BRN/VIO **COM 1**

S1

BLU/VIO **NO 1**

S2

RED/BLK **NC 2**

BRN/BLK **COM 2**

BLU/BLK **NO 2**

BLK **115 VAC OR 230 VAC** **LINE**

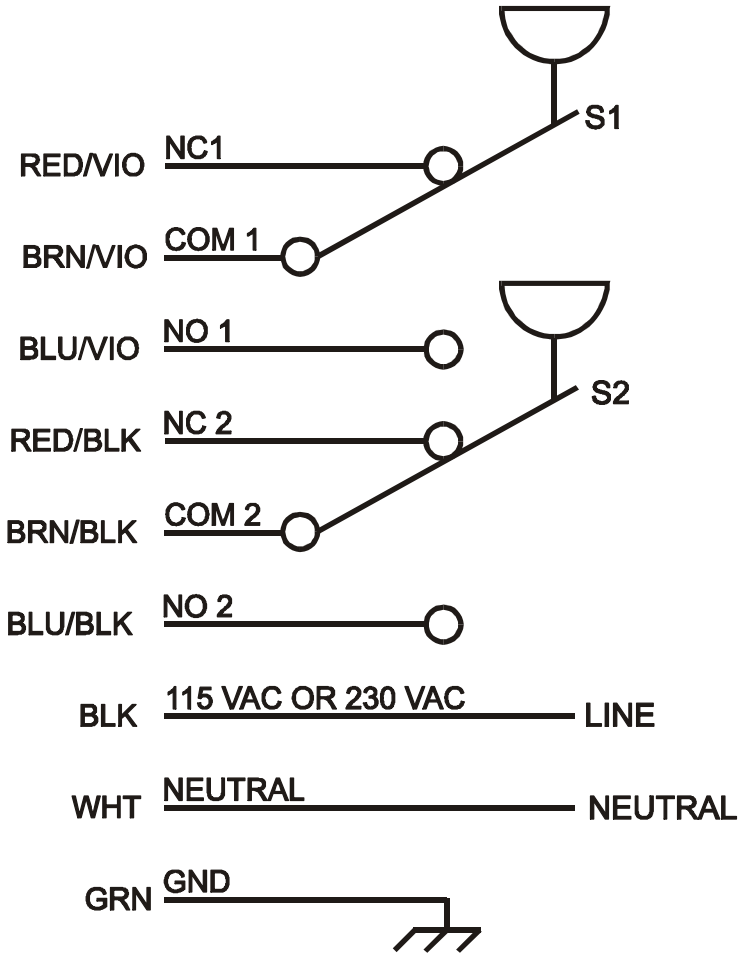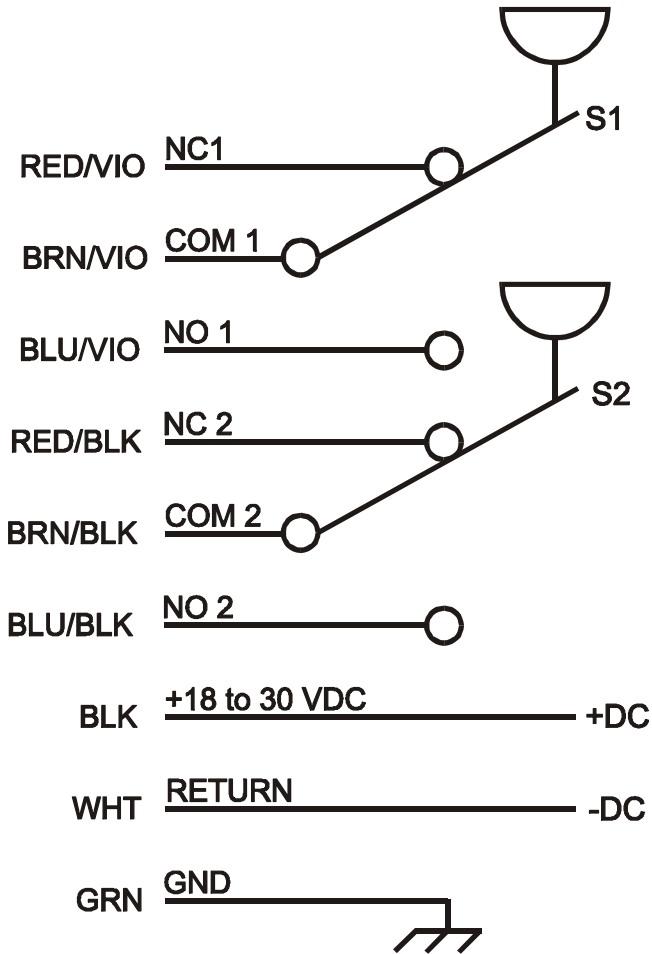WHT **NEUTRAL** **NEUTRAL**

GRN **GND**

Figure 2 - Schematic for AC Operation

Figure 3 - Schematic for DC Operation
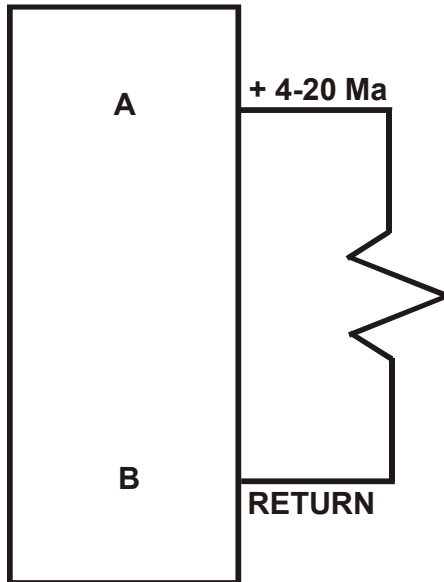
Figure 4 - Wiring for 4-20 mA Analog Output
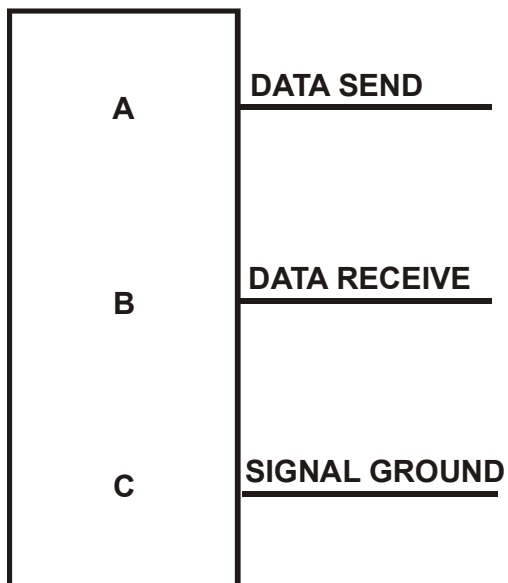
Figure 5 - Wiring for RS-232 Communications

CHAPTER

3

OPERATION & PROGRAMMING

This section describes the regular (normal) operation of the Smart-Switch™ as it monitors pressure after installation and initial setup, and the Programming Mode for changing the settings.

Both modes rely on the front panel for information and input. See Figure 6 on the next page.

OPERATION MODE

To begin operation, apply correct power to the appropriate free leads (there is no on-off switch).

In normal operation mode, the display shows:

- Online LED (green) indicates operation mode

- S1 and S2 LED's (red) indicate the switch status (illuminated when the relay coil is energized or the solid-state switch is actuated)

- System pressure is displayed

You can also check the set points in operating mode; all other actions are done in programming mode. However, If you have the RS232 option, you can program the unit remotely using its Windows® software on a personal computer; see Chapter 6.
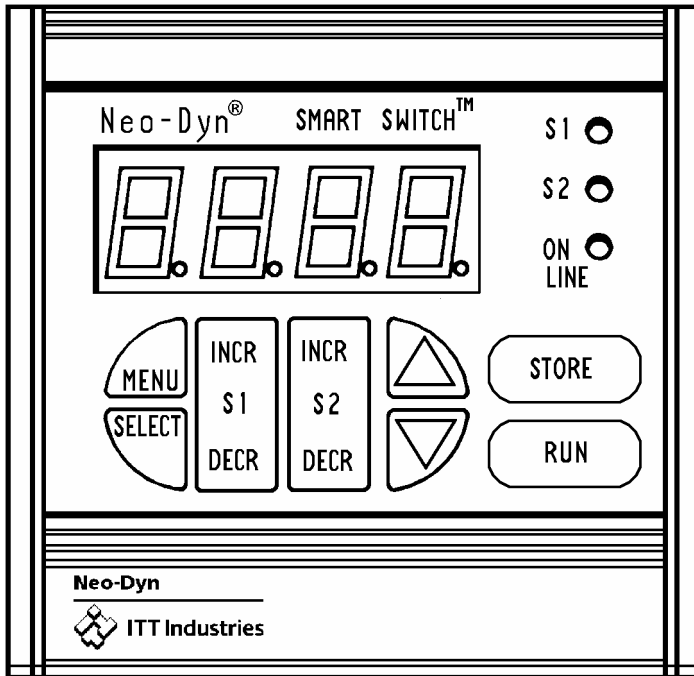
Figure 6 The Front Panel,
with Function Keys Below the Display

Indicators

Display

The display shows the actual system pressure in normal operation.

S1 and S2 (Switch) Indicators

The S1 and S2 (red LED's) indicate switch status (illuminated with the relay coil energized or the solid-state switch actuated).

Online Indicator

The Online indicator (green LED) is lit when the unit is online and active. If the indicator is not lit, the unit is offline.

INPUT CONTROLS

S1 and S2 INCR/DECR

Push the **[S1]** and **[S2] [INCR]** and **[DECR]** keys to see what values the set points are configured for.

MENU

Use the **[MENU]** key to enter program mode.

UP/DOWN ARROW

The **[UP/DOWN ARROW]** keys are used to move through the list of submenus.

SELECT

The **[SELECT]** key is used to move into the desired submenu.

STORE

The **[STORE]** key is used to temporarily save changes made to the current submenu and return to the main menu.

RUN

The **[RUN]** key is used to *lock in* the programming changes made.

NOTE After pressing **[RUN],** to return to operation mode (go back online), you must press **[SELECT**]. Otherwise, any programming changes will be lost after 2 minutes.

DISPLAYING PRESSURE

When the Smart-Switch™ is in operation mode, system pressure is displayed on the front panel.

DISPLAYING SET POINTS.

Programmed set points can be viewed on the front panel display by pressing the corresponding **[S1]** or **[S2]** key. To view the increasing value for Switch 1, press **[S1 INCR]**. To view the decreasing value for Switch 2, press **[S2 DECR]**.
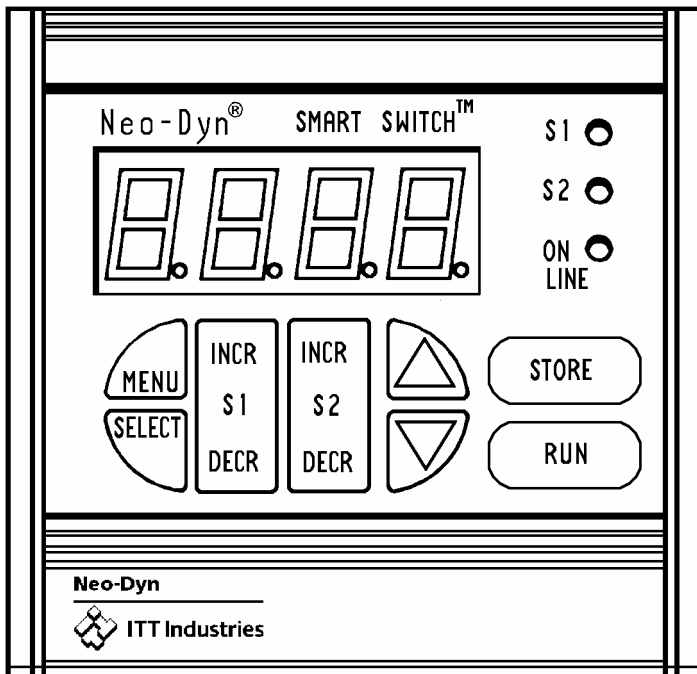
**Figure 7   Press the Incr / Decr Buttons
to Display Set Points for S1 / S2**

NOTE After 5 seconds of keypad inactivity, the display automatically changes back to the system pressure display. While viewing set points, the output functions remain active.

STANDARD VS. WINDOW MODE

The terms "Standard" and "Window" describe two methods for setting up the Smart-Switch™ to monitor pressure.

Standard Mode

In Standard Mode, illustrated in Figure 8, the **SP1i** (or **SP2i**) set point actuates when the pressure being monitored goes above the set value. At this point, the Smart-Switch™ might turn off whatever electrical power is being applied to a pump, for example, which is increasing or maintaining the pressure. The switch de-actuates, or resets, when the pressure drops below the preset decreasing set point (**SP1d** or **SP2d**). At this time, the electrical power to the pump would be turned back on.
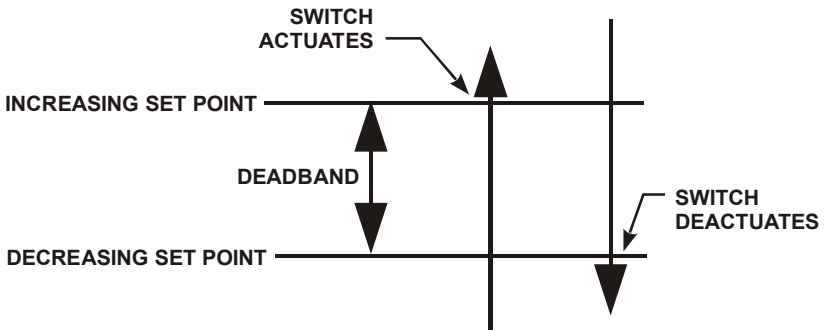
Figure 8   Standard Mode

Deadband

The deadband is the separation between the increasing set point and the decreasing set point, as shown in Figure 8. The deadband can be anywhere from 1% to 99% of Full-Scale Output (F.S.O.).

In the case above where the Smart-Switch™ is controlling a pump, a wider deadband reduces the frequency at which the pump cycles on and off.

Window Mode

This mode is useful when you want to maintain pressure within a certain range, and want to be notified when pressure either goes above or falls below that range. In Window Mode, the Smart-Switch® starts out *actuated*, then deactuates when it reaches its lower set-point (*SP1d* or *SP2d*). As pressure continues to increase, the switch actuates again when it reaches the upper set-point (*SP1i* or *SP2i*). This range between the lower and upper set-points is the "window". When pressure decreases, the sequence reverses, with a deadband of 1% of F.S.O. at each of the set-points. See Figure 9.

In this mode, the Smart Switch™ might be wired to, say, an alarm bell, which would sound if the pressure either rose above *SP1i* or fell below *SP1d*.

NO = CLOSED

UPPER BOUNDARY
(INCREASING SET POINT)

WINDOW   **NO = OPEN**

LOWER BOUNDARY
(DECREASING SET POINT)

NO = CLOSED
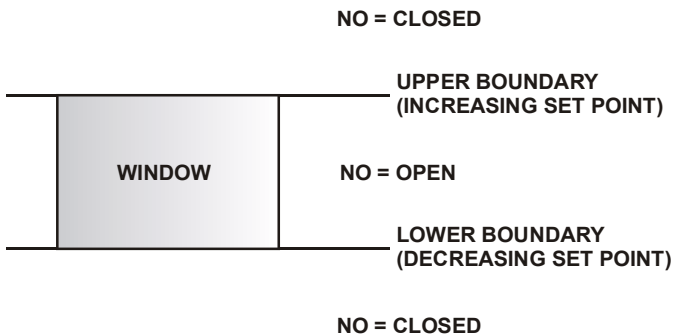
Figure 9 Window Mode

PROGRAMMING MODE

In Programming Mode, you can:

- Change the set points

- Perform field pressure calibration

- Program Window or Standard Mode

- Change the password

- Program display update time

- Program delays for both switches

- Scale the readout

- Reset the Smart-Switch™ to factory defaults

If your unit includes the 4-20 mA option, you can:

- Activate 4-20 mA mode

- Calibrate the 4-20 mA

- Scale the 4-20 mA output

If your unit includes the RS232 option, you can:

- Set the BAUD rate

NOTE The unit will not function as a switch while in programming mode.

ENTER PROGRAMMING MODE

To access the programming mode, press the **[MENU]** key (See Figure 7). On the initial startup, no password is required. If you have previously set up a password, you must enter it at this time:

1. When the displays show **---O**, press the **[UP/DOWN ARROW]** keys to set the first digit.

2. Press **[SELECT]** to move to the next digit.

3. Repeat this process until display shows the correct password.

4. Press **[STORE]** to enter programming mode.

You can now use the arrow keys to move throughout the menu system. Then:

1. When the menu item you want to change is displayed, press **[SELECT]**.

2. After changing the value, use the **[STORE]** key to temporarily save the changes. If you make a mistake while entering values, press the **[MENU]** key to return to the menu system and restart.

3. To change another item, press the **[UP/DOWN ARROW]** keys to display that item, and repeat steps 1 and 2.

4. After you are done, press the **[RUN]** key to lock in the changes. Then press the **[SELECT]** key to return online.

You must press the **[SELECT]** key when *RUN* is displayed to permanently save any changes you have made. If you do not, all changes will be lost after two minutes of inactivity.

NOTE When *RUN* is displayed, you have two additional choices, **REDO** and **UNDO**. Use the **[UP/DOWN ARROW]** keys to scroll through the menu. Press the **[SELECT]** key to make your choice.

> **REDO** puts the unit back into program mode to allow further changes.

> **UNDO** returns the unit online *without* making the changes you may have entered.

> **RUN** returns the unit online, saving all changes.

CHANGING THE SET POINTS

To change the set points, press the **[MENU]** key (See Figure 7). The first menu item is SP1i, for Set point 1, increasing. To change a set point:

1. If you want to change a set point other than SP1i, select the set point by pressing the arrow keys, then press **[SELECT]**. The furthest right digit will blink.

2. Use the **[SELECT]** key to move to the digit you want to change.

3. Use the **[UP/DOWN ARROW]** keys to change the value of the digit.

4. When the value is correct, press the **[SELECT]** key to move to another digit. Repeat this until you have the correct value for this set point.

5. Use the **[STORE]** key to temporarily save the changes and return to the main menu.

6. Press **[RUN]**and then **[SELECT]** to permanently save the setting and return to On-Line operation.

If you have set an invalid set point, the error message **EROR** will be displayed. Possible causes for errors are:

*   *INCREASE* value is equal to or lower than *DECREASE* value.

*   Values exceed range limits

*   Deadband is less than 1% of F.S.O.

To alter the settings of the Smart-Switch™, press the **[MENU]** key and use the **[UP/DOWN ARROW]** keys to move through the menu.

Mode (MOD)

Mode allows you to choose between Standard and Window Mode. After *MOD* is displayed, use the **[SELECT]** key to enter the Mode submenu and use the **[UP/DOWN ARROW]** keys to toggle between **STD** and **WIN**. Press the **[STORE]** key to temporarily save your setting.

Delay *(DELY)*

This menu item allows you to delay the actuation and deactuation of the relay switches controlled by the set points. After *DELY* is displayed, use the **[SELECT]** key to enter the submenu. Use the **[UP/DOWN ARROW]** keys to cycle through the available delay times. Your choices are *0, 40, 100, 300, 1000, 3000* or *5000* mSec. Press the [**STORE**] key to temporarily save your settings.

Display *(DISP)*

This item sets how often the pressure display is updated. This can be useful when there is a lot of fluctuation in the pressure reading. After *DISP* appears, use the **[SELECT]** key to enter the submenu. Use the **[UP/DOWN ARROW]** keys to cycle through the available display settings. This option can be set at *OFF, 0.5, 1.0, 2.0, 3.0, 4.0, or 5.0* seconds. Press the **[STORE]** key to temporarily save your setting.

Password *(PASS)*

The Password function allows you to set a password to limit access to all menu functions. After *PASS* is displayed, use the **[SELECT]** key to enter the submenu. Use **[SELECT]** to find the digit of the value you want to change. The digit will blink. Use the **[UP/DOWN ARROW]** keys to change the value of the digit. When the value is correct, press the **[SELECT]** key. Use this procedure until all digits of the password are changed to the correct values. Then press the **[STORE]** key to temporarily save your setting.

Scalable Readout: *Option Q*

With this option installed, you can change the scale factor of the display to read in different units of pressure, or in arbitrary numbers that you choose.

If your system is set up with pressures in bars, for example, you might want the Smart-Switch™ display to show bars instead of psig.

The **r-Hi**, **r-Lo** and **.Loc** menu functions allow you to scale the readout to your preference. In the following example, millibars are used:

You have a scalable 801P5 with the 15psig sensor. You want to represent the pressure in millibars. The standard conversion unit is 1 psi = 68.95 millibars.

You want to read zero for zero pressure, therefore, **r-Lo** = 0.

Full-scale output pressure for the 801P5 for this example is 15 psig. So, **r-Hi** = 68.95 x 15 = 1034.25 millibars, which rounds to 1034. Therefore **r-Hi** should be set to 1034.

The unit now reads from 0 to 1034 millibars for 0 to 15 psig pressure. The accuracy is ± 2 millibars, which is ± 0.2% of 1034.

You can use the scalable readout to set the display to read whatever units are most familiar to you, or arbitrary numbers such as 0 to 10. With the 4-digit display, you can use positive numbers to 9999, and negative numbers to -999 (for fewer digits, use leading zeros).

To change the *(r-Lo)*and *(r-Hi)*:

1. Press the **[MENU]** key and use the **[UP/DOWN ARROW]** keys to move through the menu selections to *r-Lo.*

2. Press **[SELECT]**. The furthest right digit will blink.

3. Change the digit's value with the **[UP/DOWN ARROW]** keys.

4. When the value is correct, press the **[SELECT]** key to move to the next digit and repeat step 3. Repeat for each digit until you have the correct value for *r-Lo*.

5. Use the **[STORE]** key to temporarily save the changes and return to the main menu.

6. Press **[RUN]**and then **[SELECT]** to permanently save the setting and return to On-Line operation.

7. Repeat steps 1 through 6 for *r-Hi*. The setting should be at least 2 display counts higher than *r-Lo*.

Decimal Location *(.Loc)*

You can change the location of the decimal point, thereby changing the scale of the display, by using this function. After *.Loc* displays, press **[SELECT]** to move the location one digit left. When the correct location has been reached, press **[STORE]** to temporarily save your setting.

NOTE When the decimal point is in the far right location, no decimal is displayed during operation.

Pressure Calibration *(PCAL)*

You can do a field pressure calibration using this function. After *PCAL* is displayed, use the **[SELECT]** key to enter the submenu. *LO-P* will be displayed for one second, and then the switch's interpretation of the actual pressure will be displayed. Apply 0.0 psig to the unit. Use the **[UP/DOWN ARROW]** keys to adjust the pressure display to zero psig. Press the **[STORE]** key. The display will show *HI-P* for one second, followed by the switch's interpretation of the actual pressure applied. Apply Full- Scale pressure to the unit. Use the **[UP/DOWN ARROW]** keys to set the display equal to Full- Scale pressure. Press the **[STORE]** key to return to the main menu.

NOTE A pressure source is required for this operation. In addition, calibration equipment used must have an accuracy of at least ± 0.02% F.S.O. of the switch being calibrated.

NOTE If re-calibration results in zero or Full-Scale readings that have shifted by 4% F.S.O. or more from the factory calibration, an error code of *EROR* will be displayed.

Reset (rSET)

This command resets the Smart-Switch™ to factory default settings. After *rSET* appears, press **[SELECT], [STORE], [RUN]** and **[SELECT]** to reset the unit to factory defaults. These are as follows:

r-Hi returns to factory F.S.O.

r-Lo is set to zero

Spli is set to 60% of the full range.

SPId is set to 40% of the full range.

SP2i is set to 70% of the full range.

SP2d is set to 30% of the full range.

Switch delay is set to 0 mSec.

Display update time is set to 0.5 seconds.

NOTE If you have the 4-20 mA analog option, there are three additional menu items that are reset. These are:

> ***LooP*** is set to on.

> ***ScHi*** is set to F.S.O.

> ***ScLo*** is set to zero.

These three menu items are discussed in Chapter 4, Analog Option.

CHAPTER

4

ANALOG OPTION

The analog option (V option) for the 801P5 allows you to equate pressure with electrical current. If your Smart-Switch™ includes this option, the 4-20 mA output can be scaled; see page 27.

ANALOG OPTION WIRING

The 4-20 mA output connections are provided by the two pin connector located on the top right of the unit:

Pin A is the + (positive) output

Pin B is the – (negative) output

NOTE The 801P5 generates its own loop power and it can operate with a load resistance of 600 ohms maximum.

TURNING ANALOG OUTPUT ON AND OFF *(LOOP)*

Current Loop *(LOOP)*

This menu item enables or disables the current (4-20 mA) output. To use this item:

1. Press **[MENU]**

2. Press the **[UP/DOWN ARROW]** key until *LOOP* displays, the press the **[SELECT]** key to enter the submenu.

3. Press either **[ARROW]** key to change the display from *OFF* to *ON*, and vice versa.

4. Press **[STORE]** to temporarily save your changes, then press **[RUN]** followed by **[SELECT]** to lock in changes and return online.

4-20 MILLIAMPERE OUTPUT CALIBRATION *(4CAL)*

The 801P5 is factory calibrated to generate 4 mA when the pressure sensor is at 0 psig, and 20 mA when rated pressure is applied. Tolerances in your signal conditioning equipment may result in readings varying from these values, so you can calibrate the 4-20 mA output as follows to correct these readings.

1. Connect a calibrated milliammeter to the 4-20 mA output.

2. Press **[MENU]**, then press the **[UP/DOWN ARROW]** key until *4CAL* is displayed.

3. Press **[SELECT]**. The display will show *LO-C*.

4. While reading the milliammeter, use the **[UP/DOWN ARROW]** keys to adjust the output to 4 milliamperes.

5. Press the **[STORE]** key. The display will read *HI-C*.

6. Use the **[UP/DOWN ARROW]** keys to adjust the output to 20 mA, then press the **[STORE]** key to temporarily save the calibration data and return to the main menu.

7. Press **[RUN]** and **[SELECT]** to save the changes and return online.

NOTE If the 0 or Full Scale output has shifted by 4% of F.S.O. or more from the factory calibration, *EROR* will be displayed.

4-20 MILLIAMPERE OUTPUT SCALING

The 4-20 mA output is scaleable, allowing 4 mA to represent any pressure between 0% and 66% F.S.O., and 20 mA to represent any pressure between 33% and 100%F.S.O. This feature is helpful in systems where the normal operating pressure falls within the pressure range of the unit. For example, let's assume that the Smart-Switch™ has a pressure range of 0 to 100 PSIG, and the process that it is monitoring operates between 20 and 80 PSIG. The equipment that is monitoring the 4-20 mA output expects 4 mA to represent 20 PSIG, and 20 mA to represent 80 PSIG. Using the following instructions, by setting *SCLO* to 20 PSIG and *SCHI* to 80 PSIG, these conditions will be met.

Scale Low *(SCLO)*

To set the pressure at which the output equals 4 mA, press the **[UP/DOWN ARROW]** keys until *SCLO* is displayed. Press **[SELECT]** to enter the submenu. Use the **[SELECT]** key to move from digit to digit and use the **[UP/DOWN ARROW]** keys to adjust each digit. Once you have set the pressure, press **[STORE]** to save your setting. The range of adjustment for this function is zero psig to 66% of F.S.O.

NOTE The difference between the **SCLO** setting and the **SCHI** setting must be at least 33% of F.S.O.

Scale High *(SCHI)*

To adjust the pressure, at which the output equals 20 mA, use the [**UP/DOWN ARROW**] keys until *SCHI* is displayed. Use the [**SELECT**] key to enter the submenu. Use the [**SELECT**] key to move from digit to digit and use the [**UP/DOWN ARROW**] keys to adjust each digit. Once you have set the pressure that should equal 20 mA output, press the [**STORE**] key to save your setting. The range of adjustment for this function is 33% F.S.O to 100% of F.S.O.

NOTE The difference between the **SCLO** setting and the **SCHI** setting must be at least 33% of F.S.O.

CHAPTER

5

TROUBLESHOOTING

It is unlikely that you'll have any problems with the Smart-Switch™. However, just in case, this chapter contains information to help diagnose and correct any error messages you may see.

ERROR MESSAGES

Below are error messages that you may see during operation or programming, along with brief descriptions of how to correct them. If you see an error that is not listed here, contact Neo-Dyn Customer Service. The contact information is located in Chapter 1.

Display Shows ---0

The **[MENU]** key has been pressed and the unit has a password other than 0000. Use the **[UP/DOWN ARROW]** keys to set the first digit at the correct value. Use the **[SELECT]** key to move to the next digit. Repeat this process until the display shows the correct password. Press the **[STORE]** key to enter the programming menu.

Display Shows *EROR*

This message might appear while programming the 801P5 Smart-Switch™. The meaning depends on what is being programmed. Following are the possible causes and solutions.

Incorrect password entered

You have entered an incorrect password. Re-enter the correct password. If you have lost or forgotten the password, contact Neo-Dyn Customer Service for assistance.

Incompatible switch set points.

You have entered incompatible set points. Switch 1 and Switch 2 are independent of each other; however, the following rules apply to each switch:

The increasing set point must be at or below the Full Scale Output (F.S.O.) value; it cannot be less than 2% of F.S.O., and it must be at least 1% of F.S.O. above the decreasing set point.

The decreasing set point must be no lower than 1% of F.S.O.; it can be no higher than 99% of F.S.O.; and it must be at least 1% of F.S.O. below the increasing set point.

The minimum deadband is 1% of F.S.O.

Re-enter the set points to conform to the requirements.

Pressure Calibration *(PCAL)* or Analog Output Calibration *(4Cal)* is incorrect.

If you change the value for pressure or analog output calibration more than 4% of the F.S.O. from the original factory values, this error occurs. Contact Neo-Dyn Customer Service for assistance.

NOTE If the power to the unit is turned off and then back on, the unit will function using the new values. However, this is not recommended, as a calibration error this large indicates imminent component failure.

Display shows *HHHH*

This indicates that the unit is online and monitoring pressure, but the pressure is at or greater than 110% of F.S.O. When the pressure returns to less than 110% of F.S.O., the display will return to its normal pressure display.

Display shows *LLLL*

This indicates that the unit is online and monitoring pressure, but the pressure is less than 4% of the F.S.O. below zero psig (pulling a vacuum). When the pressure returns to greater than 4% of the F.S.O. below zero psig, the display will return to its normal pressure display.

NOTE An unlikely possibility is that the pressure transducer's connector has been dislodged from the internal circuit card. Check to insure that the transducer connector is indeed connected. Contact Neo-Dyn Customer Service for assistance.

Display alternates between *OPEN* and *LOOP* and the pressure reading

The ***OPEN LOOP*** message is displayed with the V option (4-20 mA analog output) in the following circumstances:

The analog loop is turned on, but nothing is connected to the analog output connector. In this case, press the **[MENU]** key to enter the programming mode. Use the **[UP/DOWN ARROW]** keys to set this option to ***OFF***. Press the **[STORE]** key to temporarily save the change. Press the **[RUN]** key, followed by the **[SELECT]** key to save the change permanently and return on-line.

The analog loop is turned on and connected, but the connection has been broken. In this case, repair the broken connection, or turn the loop off using the method described in the previous paragraph.

Load resistance exceeds 600 ohms. In this case, reduce the resistance.

Display is blank

Press the **[S1 INCR]** key. If the display illuminates and displays the increasing set point for Switch 1, then the ***Disp*** display update option has been set to ***OFF***.

If the display does not react, there has been an internal component failure. Contact Neo-Dyn Customer Service for assistance.

Display shows *E-95*

This code indicates that the internal manufacturing data, which is saved in the nonvolatile RAM, has become corrupt.

Power down the unit and then turn the power back on. If the unit continues to show ***E-95***, contact Neo-Dyn Customer Service for assistance.

Display shows *E-96*

This code indicates an internal A/D reading that is out of its allowable tolerance. Although this can indicate an internal component failure, the most common cause of this error is vacuum applied to the pressure port of the unit. If the cause is vacuum, once the pressure returns to near zero, the unit will return to monitoring and controlling. If the cause is internal component failure, contact Neo-Dyn Customer Service for assistance.

Display shows *E-97*

This error indicates that the internal user data, saved in the nonvolatile RAM, has become corrupt. Press the **[SELECT]** key to cause the unit to reboot. If the unit continues to show *E-97*, contact Neo-Dyn Customer Service for assistance.

CHAPTER
6

SERIAL COMMUNICATIONS (Z Option)

GENERAL

The Smart Switch™ with the Z Option installed is capable of RS232 communications with an IBM compatible computer. This option includes Windows 3.x / 95 / 98 / Me / 2000 compatible software, which allows remote monitoring and programming of the Smart Switch, as well as data tracking functions.

To install the software, follow the Setup instructions on the diskette label. Once it is installed, the Help menu provides detailed operating instructions.

The default BAUD rate is 9600, but it may be set to 2400 BAUD for noisy environments.

WIRING

Smart Switch Connector (Pin)	Function	DB9 Connection (Pin)	DB25 Connection (Pin)
A	Transmit	2	3
B	Receive	3	2

SPECIFICATIONS

This section shows the standard specifications and available options for the Neo-Dyn® 801P5 Smart-Switch™ .

STANDARD

Interface

The Smart-Switch™ weighs approximately 6 pounds (2.7 kg).

½" - 14 NPT Conduit Connection with 22 AWG Free Leads

¼" - 18 NPT Female Pressure Port

Two independent Solid State or Relay Switches

Temperature Range

Operating: -15°F (-26°C) to +140°F (+60°C)

Storage: -30°F (-34°C) to +170°F (+72°C)

Input power

115 VAC, 50/60 Hz

230 VAC, 50/60 Hz

18-30 VDC

Part Number

The part number contains information about which configurations and options are included in your Smart-Switch™. To determine the pressure range, electrical rating, and options, compare the part number of your unit with the information below.

```
        801P   5    ##    X    X    X
Model Series ──┘    │     │    │    │    │
                    │     │    │    │    │
Wetted Material ────┘     │    │    │    │
                          │    │    │    │
Range Number ─────────────┘    │    │    │
                               │    │    │
Input Power ───────────────────┘    │    │
                                    │    │
Switch Type ────────────────────────┘    │
                                         │
Options ─────────────────────────────────┘
```
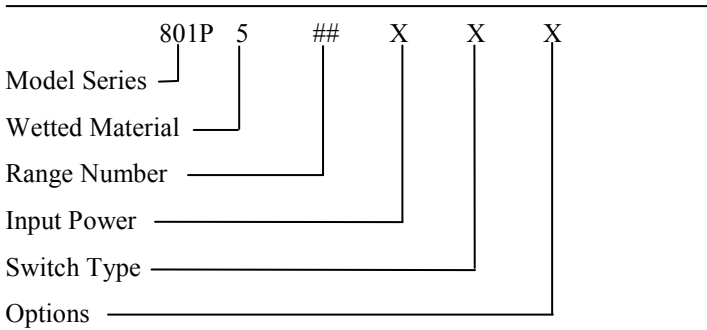
Figure 10   Part Number Breakdown

Pressure Rating Information

Range No.	Operating Range psig	Increasing Range psig	Deadband Percent of Full Scale	Minimum Decreasing Setpoint psig	Max Operating Pressure psig	Proof Pressure psig
02	0 - 5	.10 - 5	1-99	.05	12.5	25
04	0 - 15	.30 - 15	1-99	.15	37.5	75
05	0 - 30	.60 - 30	1-99	.30	75	150
07	0 - 100	2 - 100	1-99	1	250	500
09	0 - 250	5 - 250	1-99	2.5	625	750
11	0 - 500	10 - 500	1-99	5	1250	1500
12	0 - 1000	20 - 1000	1-99	10	2500	3000
14	0 - 3000	60 - 3000	1-99	30	3000	7500

Range No.	Operating Range	Increasing Range	Deadband	Minimum	Max	Proof
				Decreasing	Operating	Pressure
			Percent of	Setpoint	Pressure	
	bar	bar	Full Scale	bar	bar	bar
22	0 - 350 mB	7 - 350 mB	1-99	3.5 mB	0.86	1.7
24	0 - 1000 mB	20 - 1000 mB	1-99	10 mB	2.6	5.1
25	0 - 2	0.04 - 2	1-99	0.02	5.2	10.3
27	0 - 6.5	0.013 - 6.5	1-99	0.065	17.2	34.4
29	0 - 17	0.34 - 17	1-99	0.17	43.1	51.7
31	0 - 35	0.7 - 35	1-99	0.35	103	103
32	0 - 65	1.3 - 65	1-99	0.65	172	206
34	0 - 200	4 - 200	1-99	2	206	344

Range No.	Operating Range	Increasing Range	Deadband	Minimum	Max	Proof
				Decreasing	Operating	Pressure
			Percent of	Setpoint	Pressure	
	in H_2O	in H_2O	Full Scale	in H_2O	psig	psig
72	0 - 100	2 - 100	1-99	1	12.5	25
74	0 - 415	8.3 - 415	1-99	4.15	37.5	75

Total Accuracy

± 0.2% F.S.O., including linearity, hysteresis, repeatability, and temperature

Standard Electrical Ratings are:

Electrical Rating Code	Input Power
A	90 - 130 VAC 50/60 Hz
E	180 - 260 VAC 50/60 Hz
D	18 - 30 VDC

The Switch Types are:

Switch Code	Switch Type	Switch Rating	Leakage Current
A	Solid State SPDT	12-140 VAC 3 Amp Resistive	5 mA max
D	Solid State SPDT	5-60 VDC 3 Amp Resistive	1 mA max
R	Relay SPDT	115 VAC 24 VDC 3 Amp Resistive	N/A

OPTIONS

The 801P5 options are listed below. You can combine these options, but every option ordered should be indicated in the part number of the unit.

Option	Description
E	7/16"-20 SAE Pressure Port
Q	Scalable Readout
V	Analog Output, 4 - 20 mA
Z	RS232 Communications

WARRANTY INFORMATION

A. Warranty:

ITT Industries (ITT) warrants that at the time of shipment, the products manufactured by ITT Neo-Dyn and sold hereunder, will be free from defects in material and workmanship and will conform to the specifications furnished or approved by ITT.

B. Warranty Adjustment:

If any defect within this warranty appears, the Buyer shall notify ITT immediately.

ITT agrees to repair or furnish a replacement for, but not install, any product which, within one (1) year from the date of shipment by ITT shall, upon test and examination by ITT, prove defective within the above warranty.

No product will be accepted for return or replacement without the written authorization of ITT. Upon such authorization, and in accordance with instructions by ITT, the product will be returned with shipping charges prepaid by the Buyer. Replacements made under this warranty will be shipped prepaid.

C. Exclusion from Warranty:

THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY, OR FITNESS, OR OTHERWISE.

Components manufactured by any supplier other than ITT shall bear only the warranty made by the manufacturer of that product, and ITT assumes no responsibility for the performance or reliability of the unit as a whole.

"In no event shall ITT be liable for indirect, incidental or consequential damages nor shall the liability of ITT arising in connection with any products sold hereunder (whether such liability arises from a claim based on contract, warranty, tort or otherwise) exceed the actual amount paid by Buyer to ITT for the products delivered hereunder."

The warranty does not extend to any product manufactured by ITT which has been subject to misuse, neglect, accident, improper installation, or to use in violation of instructions furnished by ITT.

The warranty does not extend to or apply to any unit which has been repaired or altered at any place other than at ITT's factory or service locations, by persons not expressly approved by ITT.

Free Manuals Download Website

http://myh66.com

http://usermanuals.us

http://www.somanuals.com

http://www.4manuals.cc

http://www.manual-lib.com

http://www.404manual.com

http://www.luxmanual.com

http://aubethermostatmanual.com

Golf course search by state

http://golfingnear.com

Email search by domain

http://emailbydomain.com

Auto manuals search

http://auto.somanuals.com

TV manuals search

http://tv.somanuals.com