UPR700 Microprocessor-Based Pressure/Process Indicator Installation and Operation Manual

Dynisco

P/N 974090
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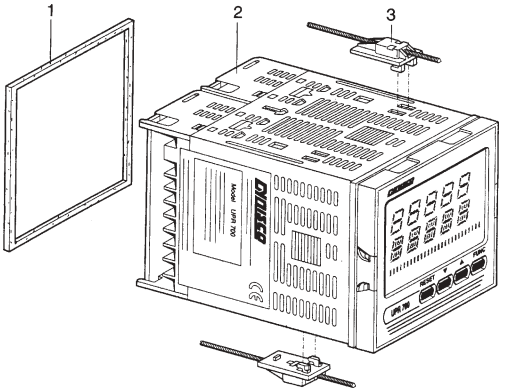
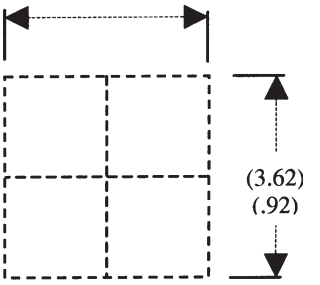
CONTENTS

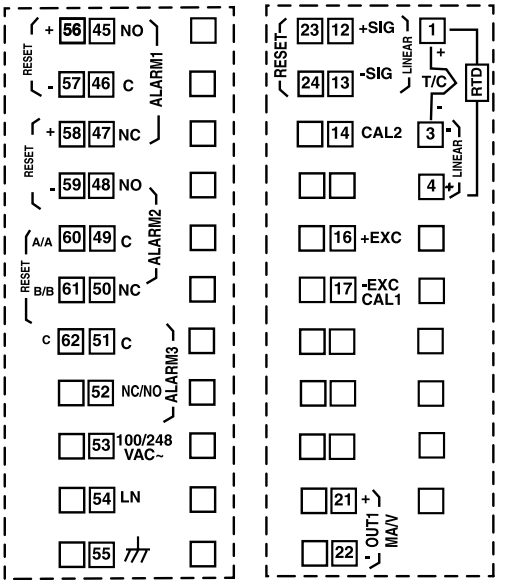
MODEL UPR700-0-0-3 QUICK START INSTRUCTIONS

1. MOUNTING

- Prepare panel cutout to dimensions shown below.
- Remove instrument from case by spreading locking tabs.
- Grasp the bezel and slide the instrument out of its case.
- Slide the rubber gasket over the case.
- Slide the instrument case into the cutout.
- Attach the panel mounting hardware tightening the threaded rod for a secure fit.
- Slide the instrument back into the case until an audible click is heard as each tab engages.







6.1 Terminal Assignments

T/C White	→ 1. RTDor T/C+
T/C Red	→ 3. RTD, T/C- or Linear-
	4. Linestr + or RTD compenstation
Red	→ 12. Strain Gage Signal + or Linear +
Black	→ 13. Strain Gage Signal - or Linear -
Orange	→ 14. Calibration 2
White	→ 16. Excitation +
Blue/Green	→ 17. Excitation - , Calibration 1

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60. RS-485: A/A'
61. RS-485: B/B'
62. RS-485: Common

2. WIRING

- Connect the wires from transducer cable as shown in the terminal diagram.
- Connect an appropriate length of thermocouple extension wire (Type J) to the connector.
- Connect the thermocouple to the appropriate terminals (remember that red is negative).
- Connect alarm(s) if applicable. Note that alarm defaults are High, Reverse Acting.
- Connect power to the appropriate terminals as shown.

3. SCALING

- Apply power to the instrument; Upper display will give a reading near zero. Lower display will read the actual temperature.
- Press FUNC key until the Upper display reads NONE. Lower display reads GROUP.
- If your transducer is not a 10,000-psi model, select Group 3 using the Up arrow, enter with function key.
- Lower display reads PI.FSV (Full Scale Value), and the upper display reads 10,000.
  NOTE: If your transducer is a 10,000-psi model skip next two steps. Scroll to GROUP.
- Using the Down arrow key set the appropriate Full Scale Value for your transducer.
- Enter using the FUNC key to scroll until GROUP legend appears again.
- Using Up arrow key, select GROUP 2.

4. CALIBRATION AND OPERATION

- Lower display reads ZERO.C and upper display reads OFF. Be sure transducer is at operation temperature and that no pressure is applied.
- Change upper display to ON by using the Up arrow key. Enter with the FUNC key. After a few seconds, the lower display will show SPAN.C and upper display will show OFF.
- Change upper display to ON using Up arrow key. Enter with the FUNC key. In a few seconds lower display shows DSP.FL and upper display shows 0.4. Calibration is complete.
- Using the FUNC key, scroll to the GROUP display. Enter 1 with the Up arrow, and enter with the FUNC key. Instrument shows 0 (±10) on upper display and temperature on lower display. System is ready for use.

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1. INTRODUCTION

The UPR700 Pressure/Process Indicator is a microprocessor-based instrument, with the capability of monitoring one or two process variables simultaneously. The primary input is user configurable to be 350-Ohm Strain Gage, high-level voltage or high level current. If the second input option is chosen, it is configurable by the user as any of four thermocouples, PT-100 RTD, high-level voltage or high level current. They are compatible with many process transmitters and can be scaled by the user to give an appropriate range in engineering units. The UPR700, in its dual input version, can provide simultaneous readout of common process variable pairs such as Pressure and Temperature, Temperature and Humidity, etc., when used with the appropriate sensor / transmitter combinations. Pressure value input and retransmission output groups are selected via internal jumpers, with the appropriate type selected via the keypad. Thus the need to make numerous selections within the instrument is minimized.

The UPR700 is provided with two alarms and an analog retransmission output any of which can be assigned to the primary or secondary input. A second analog retransmission output is available as an option, as is a 24 VDC power supply for two and four wire process transmitters. A third alarm is also available as an option.

Five groups of configuration parameters are available from the keyboard, and are protected by three levels of user definable software locks. The displays can be single-line (primary input only; lower display blanked), dual line with primary input in the upper display and high or low peak in the lower display, or dual display of primary input in the -upper display and secondary input in the lower display. In the last mode, the lower display can alternate between the secondary input and the primary input peak value via keystroke. In addition, a red LED bar graph presents an analog representation of the primary input, as well as indication of the alarm set points.

WARNING NOTE: The user should be aware that if this equipment is used in a manner not consistent with the specifications and instructions in this manual, the protection provided by the equipment might be impaired.

1.1 PRODUCT CODES

Model	Second Input	Options	Power
	Code Description	Code Description	Code Voltage
UPR700	0 Not Present	0 No Option	3 100-240 Vac (switching)
	1 T/C, RTD, mA/V	2 24 Vdc transmitter power supply and 2nd analog retransmission.	5 24 Vac/Vdc (switching)
		3 24 Vdc transmitter power supply and 2nd analog retransmission and RS-485	

Instruments with the suffix - A3 after the model number have the optional third alarm.

2. SPECIFICATIONS

2.1 MECHANICAL SPECIFICATIONS

Case: Polycarbonate Black color Self-extinguishing degree VO according to UL 94

Front Panel: Designed and tested for 1P65 and NEMA 4X for indoor location

Installation: Panel mounting

Rear Terminal Block: 34 screw terminals with rear safety cover

2.2 MAIN POWER SUPPLY & ENVIRONMENTAL SPECIFICATION

Main Power Supply: From 100 to 240 VAC (-15% to 10%), 50/60 Hz switching. Option: 24 V AC/DC (-10% to 10%)

Power Consumption: Max 22 VA at 50 Hz; Max 27 VA at 60 Hz

Insulation Resistance: 100 MΩ @500 VDC

Dielectric Strength: 2300V rms for 1 min, (according to EN61010-1 + A2)

Ambient Temperature: From 0 to 50°C

Storage Temperature: From -20 to 70°C

Humidity: Max 85% RH non-condensing

Watchdog: Hw/Sw is provided for automatic restart

Protection: Two internal dipswitches for factory calibration and security codes protection

Agency Approvals: UL, cUL pending

Self-Certification: CE

Electromagnetic Compatibility and Safety Requirements: The instrument is marked CE. Therefore, it conforms to council directives 89/336/EEC (reference harmonized standard EN50081-2 and EN50082-2) and to council directives 73/23/EEC and 93/68/ EEC (reference harmonized standard EN61010-1).

Installation Category: II

2.3 DISPLAY SPECIFICATION

Display: LED technology, custom type.

Upper Digits: Red color, 5 numeric digits, 7 segments with decimal point 13.2 mm high.

Lower Digits: Green color, 5 alphanumeric digits (British flag), 14 segments with decimal points. 12.7 mm high.

Bar Graph: Red color, 35 segment with 3% resolution. Displays continuous bar graph to indicate the measured variable of the primary input (0-100% full scale). Alarm set point values displayed. Last segment blinks for pressure greater than full scale value.

Indicators:

9 red LED's annunciator for:

A1	Lit when alarm 1 is in alarm state
A2	Lit when alarm 2 is in alarm state
A3	Lit when alarm 3 is in alarm state
REM	Lit when device is controlled by serial link
0-25-50-75-100-%	These six LEDs are always on to improve the bar-graph indication.

2 green LED's annunciator for:

PEAK	Lit when lower display shows the peak value
TEMP	Lit when lower display shows the temperature input value (only for TC and RTD input)

2.4 PRIMARY INPUT SPECIFICATION

Primary Input: Selectable between strain gage and linear by jumper and configuration.

Strain Gage Input: 350 Ohm, 2-4 mV/V. Excitation 10 V ±7%. 6 wire connection.

Input Signal: -25/125% of full scale (approximately -10 / 50 mV).

Shunt Calibration: With or without shunt resistor (value programmable from 40.0 to 100.0%).

Zero Balance: ±25% of full scale (approximately ± 10 mV).

Linear Input: Selectable between 0-5VDC, 0-10 VDC. 0-20 mA, 4-20 mA.

Auxiliary Power supply: 24 VDC / 1.5W ± 2% power supply for two or four wire transmitter.

Input Impedance:
<10 Ohm for linear current input
>165 Kohm for linear voltage input

Input Protection: Open circuit detection for strain gage (on signal and excitation wires) and 4-20 mA inputs; it is not available for 0-5 Vdc, 0-10 Vdc and 0-20 mA. Up or down scale keyboard programmable.

Sampling Time: 50 ms typical.

Display Update Time: 400 ms.

Engineering Units: Peel-off labels.

Calibration mode: Field calibrations (zero and span) are applicable for both strain gage and linear input. Moreover it is possible to delete the field calibration done by the end user and to restore original factory calibration values.

Input resolution: 400 counts.

Full scale value	Resolution
10/4000	1 digit
4002/8000	2 digits
8005/20000	5 digits
20010/40000	10 digits
40020/80000	20 digits
80050/99950	50 digits

Decimal Point: Settable in any position of the display.

2.5 Optional Secondary Input Specification

Temperature Input: Selectable between linear, thermocouple or RTD input by Jumper and instrument configuration.

Linear Input: Selectable between 0-10 VDC. 0-20 mA, 4-20 mA.

Sensor Type and Range:

Thermocouple J	-200/ 800°C	-328/1472°F
Thermocouple K	-200/1200°C	-328/2192°F
Thermocouple L	-200/800°C	-328/1472°F
Thermocouple N	0/1300°C	32/2372°F
RTD Pt100	-200/600°C	-328/1112°F

Input Protection: Open circuit thermocouple. RTD and 4-20 mA input detection (excluded 0-10

VDC and 0-20 MA). Up or down scale keyboard programmable.

Input Impedance:
>1 Mohm for thermocouple input.
<10 Ohm for linear current input
>165 Kohm

T/C Lead Length: 100 Ohm max.

Reference Junction Compensation: from -20 to 60°C.

RTD Lead Length Compensation: up 20 Ohm/wire.

Sampling Time: 1000 ms.

Display Update: At each sample.

Input Resolution with Linear Input: 4000 counts.

Low/High Scale Values: from -1000 to 3000, linear inputs only.

Decimal point: Settable in any position.

NOTE: These secondary inputs are not isolated from the primary input. A double or reinforced insulation between instrument output and power supply must be guaranteed by the external device.

2.6 Primary & Secondary Inputs Common Specification

Common Mode Rejection Ratio: 120 dB @50/60 Hz

Normal Mode Rejection Ratio: 60 dB @ 50/60 Hz

Reference Accuracy: ± 0.2% Full Scale Value (FSV) ± 1 digit @ 25 ± 10°C and nominal power voltage.

Operative Accuracy - Temperature Drift:
<200 ppm/°C span (RJ excluded) for T/C input
<300 ppm/°C of full span for current, voltage and strain gage input
<400 ppm/°C of full span for RTD input
<0.10C/°C for reference junction.

2.7 Digital Input Specification

Digital Input: One input from contact closure (voltage free). It may be keyboard programmable for

the following functions:

- alarm reset
- peak reset
- alarm and peak reset
- remove zero calibration
- alarm, peak, and zero calibration

NOTE: This input is not isolated from primary input. A double or reinforced insulation between instrument output and power supply must be guaranteed by the external device.

2.8 ALARMS SPECIFICATION

Alarm Outputs: 2 standard alarms (AL1 and AL2). 1 optional alarm (AL3).

AL1 and AL2 Contacts: 1 SPDT 2 A max 0 240V AC resistive load.

AL3 Contacts: 1 SPST solder jumper selectable NO/NC 2 A max @ 240V AC resistive load.

Contact Protection: Varistor for spike protection.

Alarm Type: Each alarm is keyboard programmable for:

- Primary / Secondary input
- High / Low / Low inhibited on start up
- Auto / Manual reset

Excitation Type: Keyboard configurable for each alarm: relay coil energized in no alarm condition (failsafe) or relay coil energized in alarm condition (non-failsafe).

Threshold: From 0 to 110% Full Scale (the threshold may be limited due to the selected full scale value).

Hysteresis: Keyboard programmable for each alarm; from 0.1% to 10.0% of span or 1 LSD (whichever is greater) for each alarm.

Filter: Selectable from the following values for each alarm:
OFF, 0.4 s, 1 s, 2 5. 3 s. 4 s, 5 s.

Alarm Update Time: At every input conversion.

2.9 OPTIONAL SERIAL COMMUNICATION INTERFACE SPECIFICATION

Serial Interface: RS-485 type. Opto-isolated.

Protocol Type: Modbus/Jbus (RTU mode).

Type of Parameters: Run-time and configuration are available by serial link.

Device Address: From 1 to 255

NOTE: The physical interface can only support up to 31 devices for each segment. Use multiple segments for more than 31 devices.

Baud Rate: 600 up to 19200 baud.

Format: 1 start bit, 8 bits with/without parity. 1 stop bit

Parity: Even/Odd.

2.10 Main Analog Output Specification

Main Analog Output: Opto-isolated from CPU input and output circuits.

Type of Output Function: Keyboard selectable as:
- Primary input retransmission
- Secondary input retransmission

Type of Analog Output: Jumper and keyboard selectable between:
- +0/10 VDC min. load 5 KΩ, with under/over range capability from -2.5 to 12.5 V.
- -10/+10 VDC mm. load 5 KΩ, with under / over range capability from -12.5 to 12.5 V.
- +0/5 VDC mm. load 5 KΩ, with under / over range capability from -1.25 to 6.25 V.
- +0/20 mA max. load 500Ω, with under / over range capability from -5 to 25 mA (max. load 400Ω over 20 mA).
- -4/20 mA max. load 500Ω, with under / over range capability from 0 to 24 mA (max. load 400Ω over 20 mA).

2.11 Second Analog Output Specification

Second Analog Output: Opto-isolated from CPU input and output circuits.

Type of Output Function: Keyboard selectable as
- Primary input retransmission
- Secondary input retransmission

Type of Analog Output: Jumper and keyboard selectable between:
- +0/10 VDC min. load 5 KΩ, with under/over range capability from -2.5 to 12.5 V.
- +0/5 VDC min. load 5 KΩ, with under/over range capability from -1.25 to 6.25 V.
- +0/20 mA max. load 500Ω, with under/over range capability from 0 to 24 mA (max. load 400Ω over 20 mA).
- +4/20 mA max. load 500Ω, with under/over range capability from 0 to 24 mA (max. load 400Ω over 20 mA).

2.12 Main & Second Analog Outputs Common Specification

Resolution: 0.1% of output span.

Reference Accuracy: ±0.1% of output span @ 25 ± 10C and nominal line voltage.

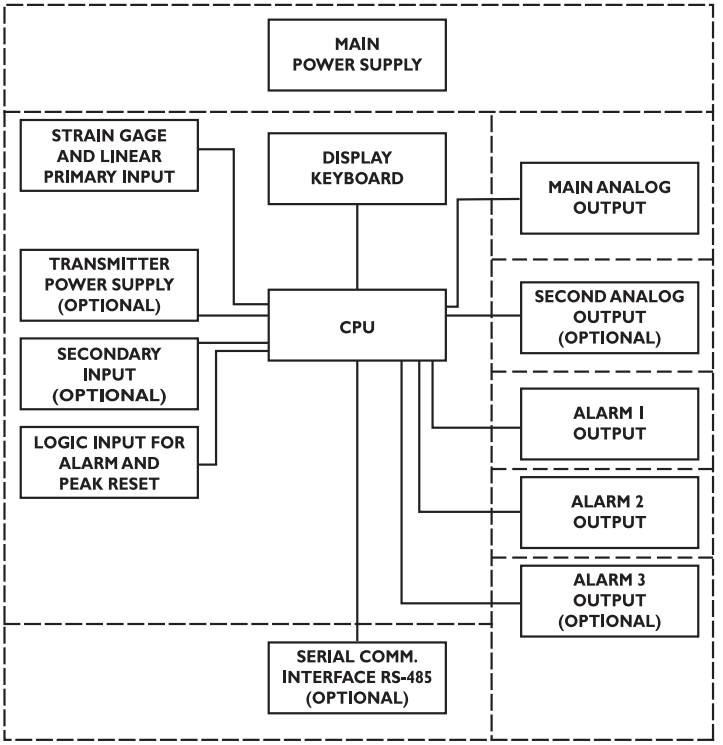
Linearity Error: <0.1% of output span.

Output Noise: <0.1% of output span.

Scaling: The retransmission low and high limits are selectable from 0 to primary input full-scale value (when the retransmitted variable is primary input) or from low to high secondary limits (when the retransmitted variable is the secondary input). The two scaling values may be freely selectable within the above range. This allows having a direct or reverse output type.

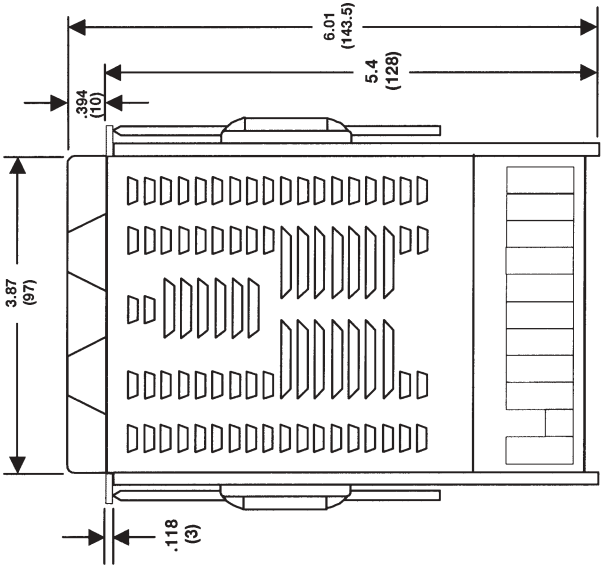
Output Filter: Selectable: OFF, 0.4 s, 1 s, 2 s, 3 s, 4 s, 5 s

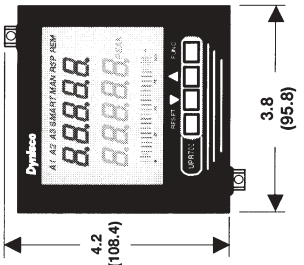
Fig. 1 Block Diagram of Electronics Layout

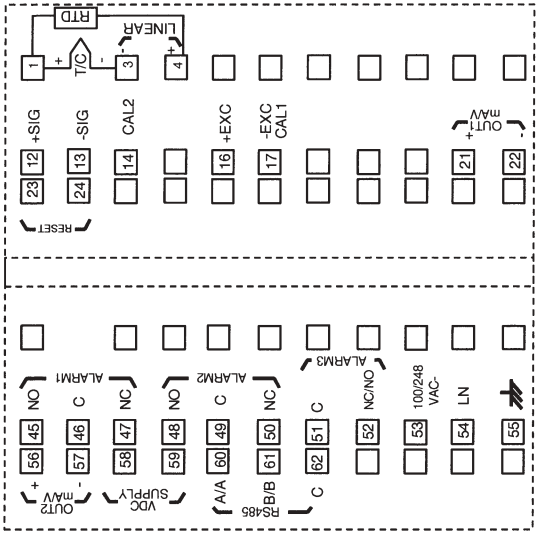


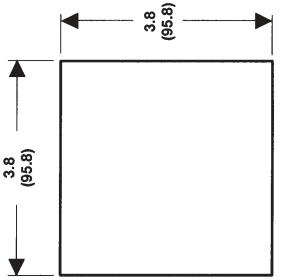
NOTE: Dashed Line represents insulation boundary.

Fig. 2 Model UPR700 Outline Drawing









All dimensions are in inches (millimeters) unless otherwise specified

3. UNPACKING

Upon receipt, examine package for shipping damage. Notify the carrier immediately in the event of any evidence of damage, and retain shipping materials for their inspection.

This package should contain the instrument, two panel mounting brackets, a sheet of peel-off labels with a variety of engineering units and an *Installation and Operation Manual*.

4. DIMENSIONAL INFORMATION

Dimensions:	3.78" X 3.78" X 6.01" overall (96mm X 96mm X 143.5mm)
Cutout:	3.62" X 3.62" (92mm X 92mm)
Depth behind panel:	5.04" (128mm)
Weight:	1.43 lbs. (650g)

5. HARDWARE

The UPR700 is shipped with the hardware jumpers set for the following:

Primary Input (Pressure) - Strain Gage
Optional Secondary Input - Thermocouple
Main Output - Voltage
Optional Secondary Output - Voltage

In addition the DIP switches controlling the software security lock codes are in the “OFF’ positions.

Please refer to the drawings in the appropriate sections to determine the correct jumper locations for the input(s) and output(s) used in your particular application. It is necessary only to select the category (e.g. Voltage or Current). The specific range will be chosen in the software menu.

Fig. 3 UPR700 Wiring - 4-20mA Transmitter Internal 24 VDC Power Supply - Primary Input

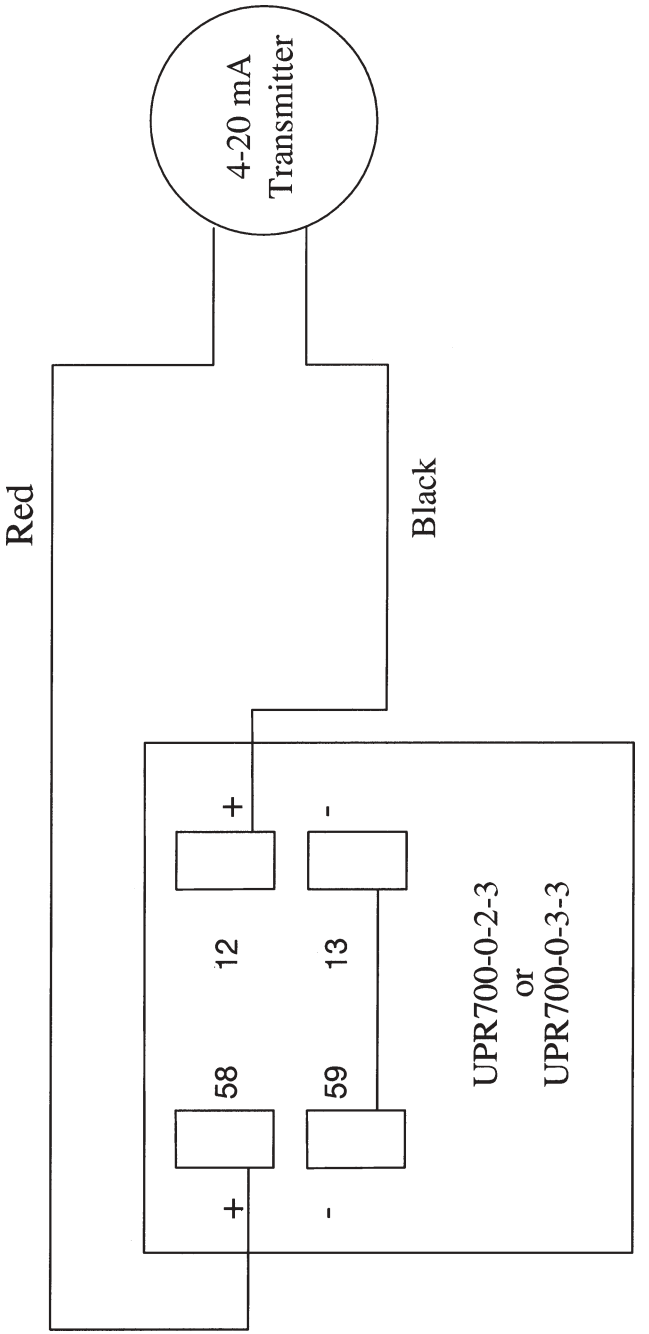
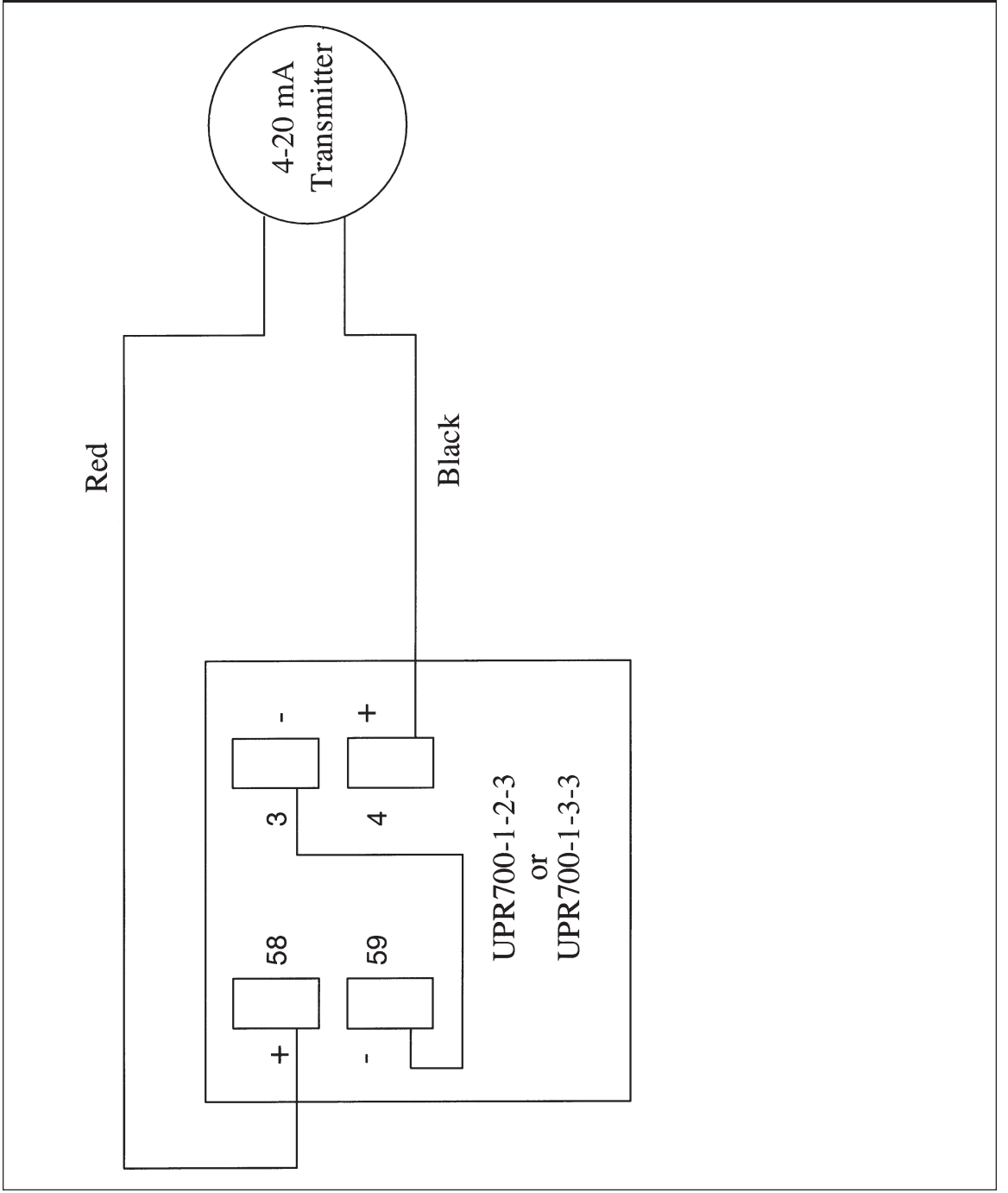


Fig. 4 UPR700 Wiring - 4-20mA Transmitter Internal 24 VDC Power Supply - Secondary Input



6. MOUNTING AND WIRING

Please refer to Figure 2 for cutout dimensions and clearance requirements. Locate the two mounting brackets packed with the instrument and have them available.

1. Remove instrument from case. To accomplish this, spread the two locking tabs located on either side of the case. The instrument will move forward past the locked position. Grasp the bezel and slide the instrument from the case. Depending on the options chosen, you may find that one or two boards appear to be loosely mounted. This patent-pending design allows the instrument to be removed from the case without having to overcome the friction of all terminals on all boards at one time. Initially the CPU board and alarm board will be released, followed by the I/O and digital communication boards.

2. Slide the instrument case into the cutout, being sure that it is right-side-up (terminal 1 at the top). Attach the panel mounting hardware at diagonally opposite sides of the top and bottom of the case, tightening the threaded rod until the case is secure against the panel.

3. Carefully slide the instrument back into its case, until the locking tabs have engaged. An audible click will be heard as each tab engages.

4. Refer to the model number of the instrument to determine the hardware and options included as part of your unit. Please refer to Section 6.1 for the terminal assignments. Terminals are accessed by opening the terminal covers from the side with the “OPEN” legend.

NOTE 1:
The UPR700 is equipped with screw terminals, and no connectors are necessary when wiring the unit

NOTE 2:
When wiring the alarms, wire to the Common and NO (normally open) terminals to maintain a fail-safe configuration.

Fail-safe denotes a situation where the alarms relay coils are activated in a no-alarm situation. As the relay coil is energized, terminals that are normally open are closed and can cause completion of a circuit when used as an interlock. Should the alarm threshold be exceeded, OR should power be lost to the instrument the contacts will open, and the circuit will be broken. If the alarm is a latching alarm, it will require an external reset signal to be activated again.

If the alarm is used to provide a contact to an alarm device (light, horn buzzer, etc., when the threshold is exceeded, wiring should be to the Common and NC (normally closed) terminals. Activation of the relay coil will cause the contacts to open in a non-alarm situation, and to close if the threshold is exceeded, or power is interrupted to the instrument. If the alarm is a latching alarm, it will require an external reset signal to be activated again.

NOTE 3: Relay Outputs
The contact rating of all outputs is equal to 2A/240 Vac on resistive load.

- To avoid electrical shock, connect power line at the end of the wiring procedure.
- For power connections use No 16 AWG or larger wires rated for at least 75°C.
- Use copper conductors only.

NOTE 4: Power Line
Before connecting the instrument to the power line, make sure that the line voltage corresponds to the description on the identification label.

To avoid electrical shock, connect power line at the end of the wiring procedure. For supply connections use No. 16 AWG or larger wires rated for at least 75°C.

- Use copper conductors only.
- Don't run input wires together with power cables.
- For 24 V DC the polarity need not be observed.

The power supply input is fuse protected by a sub miniature fuse rated T, 1A, 250 V. When the fuse is damaged, it is advisable to verify the power supply circuit It is necessary to send back the instrument to Dynisco for service.

The safety requirements for Permanently Connected Equipment say:

- A switch or circuit-breaker shall be included In the building installation;
- It shall be in close proximity to the equipment and within easy reach of the operator
- It shall be marked as the disconnecting device for the equipment

NOTE 5:
A single switch or circuit breaker can drive more than one Instrument:

- When a neutral line is present, please connect it to terminal 54.
- Protective conductor terminals shall be connected to earth.

6.1 TERMINAL ASSIGNMENTS

1. RTD or T/C+
3. RTD, T/C- or Linear -
4. Linear + or RTD compensation

(Secondary Input (Optional))

12. Strain Gage Signal + or Linear +
13. Strain Gage Signal - or Linear -
14. Calibration 2
16. Excitation +
17. Excitation -, Calibration 1

(Primary Input)

21. Main Output mA/V +
22. Main Output mA/V -
23. Remote Reset
24. Remote Reset
45. Alarm 1. NO
46. Alarm 1, Common
47. Alarm 1. NC
48. Alarm 2, NO
49. Alarm 2. Common
50. Alarm 2, NC
51. Alarm 3, Common
52. Alarm 3. NC/NO

(OPTIONAL)

53. 100-240 VAC OR 24 VAC OR 24 VDC (Polarity need not be observed)
54. LN LN 24 VDC
55. Protective Ground Protective Ground N/A
56. Secondary Output, mA/V +
57. Secondary Output. mA/V -

(OPTIONAL)

58. 24 VDC Auxiliary Power Supply +
59. 24 VDC Auxiliary Power Supply -

(OPTIONAL)

60. RS-485: A/A'
61. RS-485: B/B'
62. RS-485: Common

(OPTIONAL)

6.2 µPR690 TO UPR700 WIRING CONVERSION TABLE

	UPR700 Terminal	µPR690 Terminal	
Power			
120 / 240 VAC	53	31	
Line Neutral	54	32	
Protective Ground	55	33	
Transducer			**Dynisco Cable Color**
Signal + Linear (+)	12	6	Red
Signal - Linear (-)	13	7	Black
Excitation (+)	16	8	White
Excitation (-)	17	9	Green
CAL 1	17	10	Blue
CAL 2	14	11	Orange
Alarms			
A1 (N.O.)	45	24	
A1 Common	46	25	
A1 (N.C.)	47	26	
A2 (N.O.)	48	27	
A2 Common	49	28	
A2 (N.C.)	50	29	
Optional Alarm 3			
A3 (N.O. / N.C.)	52	21	
A3 Common	51	22	
Analog Output			
Voltage Out +	21	2	
Voltage Out -	22	3	
Current Out +	21	4	
Current Out -	22	5	
Optional 2nd Analog			
mA/V Out (+)	56	N/A	
MA/V Out (-)	57	N/A	
OptIonal 24 VDC Transmitter Power Supply			
24 VDC (+)	58	N/A	
24 VDC (-)	59	N/A	
External Reset Contacts			
Reset	23	1	
Reset Common	24	23	
Optional Second Analog Input			
Thermocouple Input			
TC (+)	1	N/A	
TC (-)	3	N/A	
mA/V Input			
Input (+)	4	N/A	
Input (-)	3	N/A	
RTD Input 3-wire			
Red	1	N/A	
Black	3	N/A	
Black	4	N/A	
Serial Communications (RS485 only)			
A	60	16	
B	61	17	
COM	62	18	

7. START-UP PROCEDURE, UPR700 INDICATOR

In general, the UPR700 Pressure/Process Indicator is a microprocessor-based instrument, with the capability of monitoring one or two process variables simultaneously. The primary input is configured to accept a 350Ω Strain Gage, but can be changed to accept high level voltage or current. The primary input full-scale value can be as low as 10, and as high as 99,950 units. The secondary input, if supplied, will accept a "J" type thermocouple, but can be changed to most thermocouples or RTD's, or to a high-level voltage or current. The secondary input full-scale value can be as low as -1,000, and as high as 3,000 units.

The standard UPR700 has 2 SPDT dry contact closure alarms, with an optional third alarm. In addition, it has one or two scalable analog retransmission outputs, or RS485 communications.

Alarm 1 is configured as a High Alarm at 40% of the full-scale transducer value, with 0.4 second filtering, 1.0% hysteresis, Auto reset, failsafe mode, and it is linked to the primary input.

Alarm 2 is configured as a High Alarm at 60% of the full-scale value, with 0.4 second filtering, 1.0% hysteresis, Auto reset, failsafe mode, and is also linked to the primary input,

Alarm 3, if supplied, is configured as a High Alarm at 80% of the full-scale value, with 0.4 second filtering, 1.0% hysteresis, Auto reset, failsafe mode, and it is disabled (not linked to any input),

These terms will be described in the **ALARMS** section.

7.1 GETTING READY

1. Remove the instrument from its case. To accomplish this, spread the two locking tabs located on either side of the case. The instrument will move forward past the locked position. Grasp the bezel and slide the instrument from the case.

2. Slide the case into the panel cutout. MAKE SURE TERMINAL 1 IS AT THE TOP! Attach the panel mounting hardware at diagonally opposite sides of the top and bottom of the case, tightening the threaded rod until the case is secure against the panel.

3. Carefully slide the instrument into the case until the locking tabs engage with an audible click.

4. Attach the primary and secondary devices, (if supplied), and wire according to the terminal assignments as described in the Dynisco INSTALLATION AND OPERATION MANUAL FOR THE UPR700 MICROPROCESSOR-BASED PRESSURE/PROCESS INDICATOR (part number 974090) included with the instrument.

7.2 CONFIGURING THE UPR700

Apply power to the cabinet and allow the system to stabilize for about 30 minutes. The upper

display will show a reading near zero, and the lower display will show the current temperature or PEAK if the unit does not have secondary input. It may display OPEN if there is no transducer connected, or if the transducer is amplified.

The keys on the UPR700 must be pressed and released to move about in the configure screens. Do not press and hold a key unless told to do so; simply press the key and release it to advance to the next screen. The arrow keys (or (may be held down to advance rapidly through the values.

7.3 KEYBOARD DESCRIPTION

The keyboard is composed of four push buttons, covered by a silicone protective operator, labeled ▼, ▲, **FUNC** and **RESET**.

The ▼ is called the "Down Arrow Key", and is used to increment and decrement the parameter value.

The ▲ is called the "Up Arrow Key", and is used to increment and decrement the parameter value. It also may be used to switch the lower display from the secondary input (if available) to the peak value (if enabled) and back again. At power up, the lower display shows the secondary input value (if present) or it shows the peak value. If there is no secondary input and the peak value is disabled, the lower display is blank.

The **FUNC** ("function") key is used to access the parameter to view and modify.

The **RESET** key is used to reset the stored peak value and to reset the alarms when held for 1 second, (once the alarm condition has cleared beyond the hysteresis value). This function is disabled when the device is controlled by the serial link. In addition, when checking or changing parameters, it is used to return to the normal display mode without storing the parameter change.

Pressing ▲ then **RESET** together, or ▼ then **RESET** together, may be used to jump to maximum or minimum parameter values when the instrument is in function mode.

At power up, if the instrument detects a parameter error, the upper display shows ***ERR #***, (where ***#*** is the error number), and the lower display will show the parameter name. If the wrong parameter is a run-time parameter (i.e. ***AL 1*** to ***SO.TYP***) pressing the ▲ then ▼ together will cause the instrument to load the default values for all parameters.

If the wrong parameter is a calibration or code parameter, pressing the **FUNC** then **RESET** keys together, enables the instrument to access the run-time parameters. This function is intended only to restore a misplaced parameter's value; however, the performance of the instrument is not guaranteed. The user is advised to check the stated parameter.

NOTE: All the actions explained above that require two or more pushbuttons, must follow the pushbutton sequence exactly.

7.4 OPERATING MODE DESCRIPTION

The **FUNC** key is used to access the parameters organized in five groups. Use the **FUNC** pushbutton to access the Group 1 parameters; the last entry (showing ***Group*** and ***None*** is intended to access the other groups of parameters, or pressing **FUNC** again returns to the normal display mode. Each group has its own family of parameters, loosely grouped around the decreasing need to change the parameters. Each group also has the ability to load its own default parameters and the default values of the lower number groups.

8. CONFIGURATION

8.1 HARDWARE

The UPR700 is shipped with the hardware jumpers set for the following:

1. Main Input (Pressure) - Strain Gage

2. Secondary Input (Temperature) - Thermocouple*

3. Main Output - Voltage

4. Secondary Output - Voltage*

*If equipped with this option.

In addition, the DIP switches controlling the software security lock codes are in the “OFF” positions.

Please ensure that the correct jumper settings for the input(s) and output(s) used in your particular application are selected. It is necessary only to select the category (e.g. Voltage or Current). The specific range will be chosen in the software menu.

8.2 PARAMETERS

The UPR700 parameters are grouped in five sections guarded by three security levels. The more common parameters are in the first groups, with the higher Group numbers for those parameters an operator would not normally modify. Each group can be reset to its default value by two keystrokes. This also resets the parameters of any lower numbered group to default. If GROUP 5 is set to default, the entire instrument is reset to its default parameters. If a unit does not have a particular option, its parameters will not appear. For example, an instrument that does not have RS-485 communications will skip those parameters related to communications. Likewise, if a particular function is turned off, its other parameters will not appear. For example, if Alarm 2 is turned to ***OFF*** in Group 3, the hysteresis, reset, filter, type, and threshold functions will not appear on screen. Nor will the alarm appear on he bar graph display.

When the instrument is turned on, it will go through a self-test during which the front panel will illuminate. The instrument will then be in the normal display mode showing the value of the main input on the upper display, and the value of the secondary input on the lower display (if so equipped). If there is no secondary input, the lower display will show the maximum peak value of the main input. In the event that no input device is connected, both displays will show ***OPEn***. If no secondary input is present, the lower display will show ***00000*** indicating that the unit failed to full scale, the bar graph display will be at 100% with the last segment flashing. Turn the power to the instrument off and connect an input device to the appropriate terminals, and connect a thermocouple or appropriate signal source to the secondary input terminals (if supplied). Upon turning the instrument back on, the displays should have a numeric value, close to zero pressure on the pressure display, and near room temperature on the thermocouple display. Depressing **FUNC** will go automatically into the GROUP 1 parameters.

Successively pressing **FUNC** will scroll through all the parameters of GROUP 1. The last two parameters of each group allow the default parameters to be restored, and returns to ***GROUP***. If ***nonE*** is chosen in the group access function, the instrument will return to normal operating mode after pressing of the **FUNC** key.

When in GROUP 1, if no keyboard activity is detected for approximately 10 seconds, the instrument will automatically return to the normal display mode.

8.3 Parameter Configuration Procedures

The parameters in the five groups are extensive, and not all parameters need to be addressed. While they are fully explained in the following section, it would be well to review them prior to configuring the instrument in your application. It is entirely possible that only a minimum number of parameters need to be adjusted to have your process operating satisfactorily. Please note that at any time, the default parameters may be reset to the factory settings. Each parameter group can be reset at any time, (which also resets the levels with numbers higher than the selected group). To set a default level, press the **FUNC** key until ***DEFLT*** shows on the lower display and ***OFF*** shows on the upper display. Press the the ▼ or ▲ key until ***ON 1*** shows in the upper display. Press the **FUNC** key to load all of the factory parameters for groups 1, 2, 3, 4, and 5.

To reset a specific group (and higher numbered groups) to the default factory settings, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until the appropriate group number appears in the upper display. Press the **FUNC** key to enter the appropriate group. Press the **FUNC** key until ***DEFLT*** shows on the lower display and ***OFF*** shows on the upper display. Press the ▼ or ▲ key until ***ON #*** (where ***#*** is the Group number). Press the **FUNC** key to load the factory parameters for that groups (and higher numbered groups).

8.3.1 Setting the Logic Input Configuration (if supplied)

If the unit does not have the logic input option, skip to Section 8.3.3.

The Logic Input can be off, can be set to function as an alarm reset, a peak reset, perform remote

zero calibration, or it can reset both alarm and peak and perform remote zero calibration. To verify this parameter or to change it, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until 4 shows in the upper display. Press the **FUNC** key until the lower display shows LI.TYP. Press the ▼ or ▲ key until the upper display shows the correct selection: OFF, AL - Alarms Reset, P - Peak Reset, AL-P - Alarm & Peak Reset, CAL.0 - Zero Calibration or ALL - All Functions. Press the **FUNC** key to set the value and move to the next parameter, or press the RESET key to go back to the active display.

8.3.2 Setting the Logic Input Status (if supplied)

The Logic Input Status can be off, can be set to function as an alarm reset, a peak reset, or it can reset both. To verify this parameter or to change it, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the upper display. Press the **FUNC** key until the lower display shows ***LI.STS***. Press the ▼ or ▲ key until the upper display shows the correct selection: ***CLOSE***, or ***OPEn***.

Press the **FUNC** key to set the value and move to the next parameter, or press the **RESET** key to go back to the active display.

8.3.3 Setting Peak Detection

The Peak Detection can be either set to OFF, the default value of HIGH, or to LOW. To verify this parameter or to change it, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the upper display. Press the **FUNC** key until the lower display shows ***PEAK***. Press the ▼ or ▲ key until the upper display shows the correct value (***OFF***, ***HI***, or ***LO***). Press the **FUNC** key to set the value and move to the next parameter, or press the **RESET** key to go back to the active display.

8.3.4 Setting the Line Frequency

The Line Frequency default value is 60 Hz. To verify this parameter or to change to 50 Hz, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the upper display. Press the **FUNC** key until the lower display shows ***LINE.F***. Press the ▼ or ▲ key until the upper display shows the correct frequency. Press the **FUNC** key to set the value. Press the **FUNC** key to set the value and move to the next parameter, or press the **RESET** key to go back to the active display.

8.3.5 Setting the Display Filter

Filtering is an electrical method of averaging the displayed values over a period of time to arrive at a more legible display. Filtering helps to eliminate short duration transients and spikes that may cause false or spurious readings.

To change or view the Main Analog Output Filter, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***2*** shows in the upper display. Press the **FUNC** key until

the lower display changes to ***DSP.FL***. Using the ▼ or ▲ keys, select the amount of filtering desired, from none ***(OFF)*** to five seconds. When finished, press the **FUNC** key to lock in the value and advance to the next parameter.

NOTE: The parameter group legends of instruments manufactured prior to January 1998 refer to the primary input as "Pressure", and the secondary input as "Temperature" regardless of the actual process variable being indicated. When asked in the menu to "Link" an alarm to an input. "Pressure" is always the main input (upper display), and "Temperature" is always the secondary input (lower display).

Fig. 5 Parameter Table

Group #	Function	Mnemonic	Choices	Default	Value
Group 5	Primary Input Selection	PI.TYP	Str, 0-20, 4-20, 0-5, 0-10	Str	
Group 5	Secondary Input Selection	SI.TYP	OFF, tc, rtd, 0-20, 4-20, 0-10	Tc	
Group 4	Shunt Calibration	SHUNT	OFF,On	On	
Group 4	Shunt Value	SHNT%	40.0 TO 100.0%	80.0%	
Group 3	Input Full Scale Value	PI.FSV	10 TO 99.950	10000	
Group 3	Input Low Scale Value	PI.LSV	± 25% OF SFV OF FS V	0	
Group 3	Input Decimal Point Position	PI.DP	None, 1,2,3,4 places	None	
Group 3	Secondary Input T/C Type	Sl.TC	tc J, tc CA, tc L, tc n	tc J	
Group 3	Alarm I Input Channel Link	AI.LNK	OFF, Prl.ln, Sec.ln	Prl.ln	
Group 3	Alarm I Type	AI.TYP	HI, LO, lnhib	HI	
Group 3	Alarm 2 Input Channel Link	A2.LNK	OFF, Prl.ln, Sec.ln	PrLIn	
Group 3	Alarm 2 Type	ALTYP	HI, 10, lnhib	HI	
Group 2	Zero Calibration	ZERO.C	OFF, On, CLEAr	OFF	
Group 2	Span Calibration	SPAN.C	OFF, On, CLEAr	OFF	
Group 1	Alarm I Threshold	AL1	TO 110%of span	40% of range of related input	
Group 1	Alarm 2 Threshold	AL2	TO 110% of span	60% of range of related input	

In this example, these are functions necessary to allow operation of a pressure/temperature indicator with two high alarms.

8.4 Primary Input Setup

8.4.1 Setting the Primary Input Type for a Strain Gage Transducer

If using a ***Dynisco*** transducer, the model number of the transducer will designate its own electrical output. For example, in plastic melt applications, the PT462E-5M-6/18 or TPT432A-10M-6/18 have a strain gage (0-3.33 mV/V dc full scale) signal output. Amplified units have a number where the strain gage units have a letter (E or A). The PT4624-5M-6/18 has a 4-20 mA signal output; the PT4625-5M-6/18 has a 0-5 Vdc signal output, while PT4626-5M-6/18 has a 0-10 Vdc signal output.

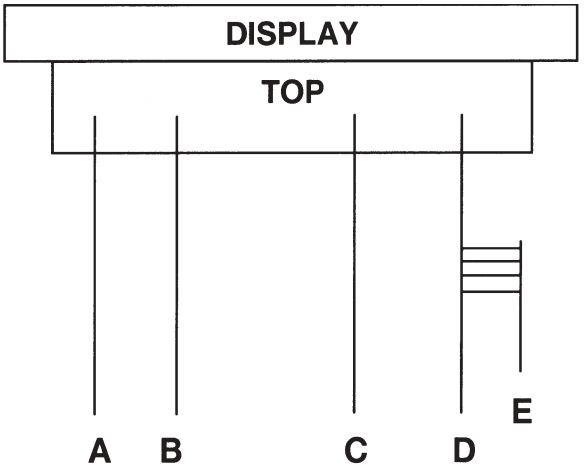
In Industrial applications, amplified units have a middle or end number of 4, 5, or 6. The S840-000-1C has a 4-20 mA signal output; the PT150-7.5M has a 0-5 Vdc signal output, while PT276-5M has a 0-10 Vdc signal output.

If you have an amplified transducer, or other amplified input, skip to Section 8.4.2.

The UPR700's default setting is strain gage input. To verify that the input is set for strain gage, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***5*** shows in the upper display. Press the **FUNC** key and the upper display should show ***Str*** while the lower display shows ***PI.TYP***. If not, press the ▼ or ▲ key until the upper display changes to ***Str*** (for strain gage). Press the **FUNC** key to set the value. The upper display changes to ***tc*** with ***SI.TYP*** on the lower display. Press the **RESET** key to return to the active display.

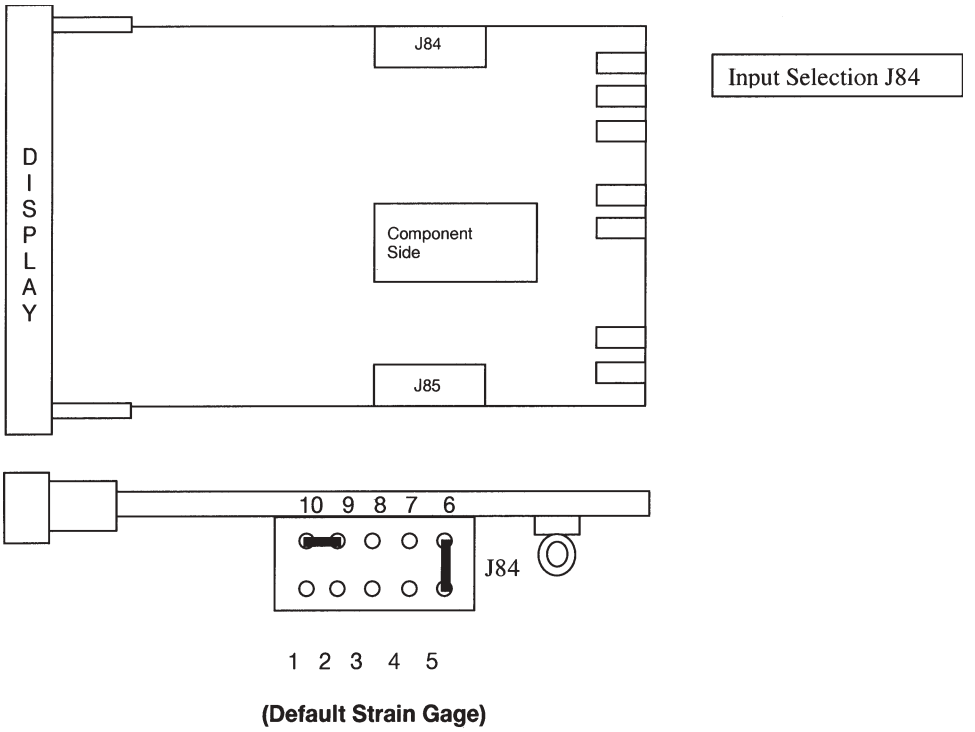
Remember to change the jumper settings to correspond to the proper input as shown in Figure 6 for board location and Figure 7 for amplified input jumpers.

Fig. 6 UPR700 Board Location



A. Second Retransmission Output, 24 V Power Supply, RS485 Board
B. Alarm/Power Supply Board
C. CPU Board
D. Input/Output Board
E. Auxiliary Input Board

Fig. 7 Input/Output Jumper Location



8.4.2 Setting the Shunt Calibration for Strain Gage Transducers and Amplified Units

The Dynisco strain gage transducers and amplified transmitters (if so equipped) have an internal shunt to allow the UPR700 to set the span full scale value automatically. To Access the Shunt Calibration parameter, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the upper display. Press the **FUNC** key and the upper display will show ***OFF*** while the lower display shows ***SHUNT***. Press the ▼ or ▲ key until the upper display changes to the ***ON***. Press the **FUNC** key to set the value and move to the next Shunt parameter.

The upper display will show ***80.0*** while the lower display shows ***SHNT%***. In most cases, the Dynisco transducers have an 80% shunt value so no changes need be made. However, some transducers and strain gages have shunt values that may range from 40-100%. If so, press the ▼ or ▲ key until the upper display changes to the correct values. Press the **FUNC** key to set the value. Press the **RESET** key to go back to the active display.

8.4.3 SETTING THE PRIMARY INPUT TYPE FOR AN AMPLIFIED TRANSMITTER

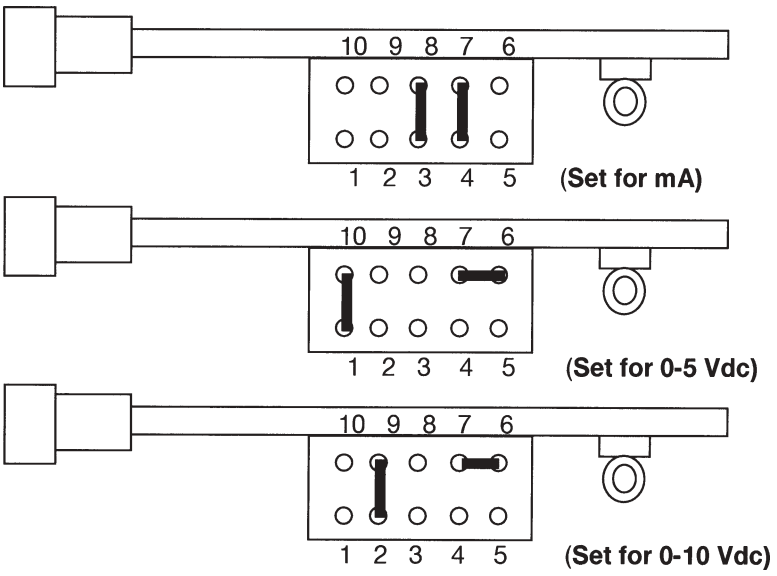
If using a voltage or current output transducer, the model number of the transducer will designate its own electrical output. For example, a PT4624-7.5M-6/18 or an S840-000-10M has an amplified signal output. In plastic melt applications, amplified units have a number where the strain gage units have a letter (E or A). The PT4624-7.5M-6/18 has a 4-20 mA signal output; the PT4625-7.5M-6/18 has a 0-5 Vdc signal output, while PT4626-7.5M-6/18 has a 0-10 Vdc signal output. In Industrial applications, amplified units have a middle or end number of 4, 5, or 6. The S840-000-1C has a 4-20 mA signal output; the PT150-7.5M has a 0-5 Vdc signal output, while PT276-5M has a 0-10 Vdc signal output.

If you have a strain gauge transducer, load cell, or other mV/V device, see Section 8.4.1.

The Instrument's default setting is strain gage input. To select another input for a transmitter or to use another process instrument, such as humidity sensors, position sensors, etc., press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***5*** shows in the upper display. Press the **FUNC** key and the upper display will show ***Str*** while the lower display shows ***PI.TYP***. Press the ▼ or ▲ key until the upper display changes to the correct value (***0-20*** for 0-20 mA linear input, ***4-20*** for 4-20 mA current loop input, ***0-5*** for 0-5 Vdc linear input, and ***0-10*** for 0-10 Vdc linear input. Press the **FUNC** key to set the value. Press the **RESET** key to go back to the active display.

Remember to change the jumper settings to correspond to the proper input as shown in Figure 6 for board location and Figure 8 for amplified input jumpers.

Fig. 8 Input Selection J84 for Amplified Input



8.4.4 SETTING THE PRIMARY INPUT FULL-SCALE VALUE

The model number of the transducer or transmitter will designate the full-scale pressure capability. For example, model number TPT432A-5M-6/18 indicates that the full-scale pressure is 5,000 (5M), while the PT150-5C indicates that the full-scale pressure is 500 (5C). Since the default value in the instrument is 10,000 full scale, the input full-scale value must be changed to 5,000 (or 500). Note that there are no units here, it can be psi, bar, mPa, kg/cm2 or any engineering unit; the magnitude is all that is important. To set the full-scale value, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key and the upper display will show **10000** while the lower display shows ***PI.FSV***. Hold the ▼ or ▲ key until the upper display changes to **5000** (or whatever the full-scale value of the primary input may be). Press the **FUNC** key to set the value. Check that the next display reads **0** in the upper display and ***PI.LSV*** in the lower display; if not, set to zero with the arrow keys and press **FUNC** to lock in the value. Finally, press the **RESET** key to go back to the active display. Similarly, if the full-scale pressure is 350 Bar (3.5CB), set ***PI.FSV*** to 350.

8.4.5 SETTING THE PRIMARY INPUT LOW-SCALE VALUE

For applications where a low scale value is non-zero, the Instrument can provide a low scale value of ±25% of the full scale value.

To set the low-scale value, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key and the upper display will show a value while the lower display shows ***PI.SFV***. Press the **FUNC** key and the upper display will show **0** while the lower display shows ***PI.LFV***. Hold the ▼ or ▲ key until the upper display changes to whatever the low-scale value of the primary input may be. Press the **FUNC** key to set the value. Finally, press the **RESET** key to go back to the active display.

8.4.6 SETTING THE PRIMARY INPUT DECIMAL PLACE

To set the decimal place, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key until the lower display shows **PI.DP**. Press the ▼ or ▲ key until the upper display shows the correct decimal place location. Press the **FUNC** key to set the value. Finally, press the **RESET** key to go back to the active display.

8.4.7 SETTING THE PRIMARY INPUT FAILSAFE MODE

The Primary Input Failsafe Mode is nothing more than a safety mechanism that tells the instrument what to do in the event of a loss of the primary signal. If the system is set up to shut down the process in a high alarm condition, the Primary Input Failsafe parameter sets the value of the primary input to full scale if it looses the primary signal. If the system is set up to shut down the process in a low alarm condition, the Primary Input Failsafe parameter sets the value of the primary input to low scale if it looses the primary signal. The default Primary Input Failsafe Mode is to set the value to full scale high.

To set the Primary Input Failsafe Mode, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the upper display. Press the **FUNC** key until the lower display shows ***PI.IFS***. Press the ▼ or ▲ key until the upper display shows the correct mode, either ***HI*** or ***Lo***. Press the **FUNC** key to set the value. Finally, press the **RESET** key to go back to the active display.

8.5 Secondary Input Setup

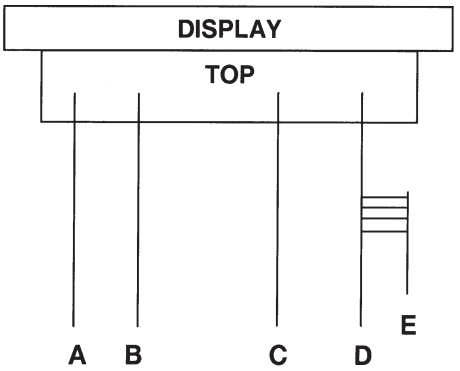
Skip this section if there is no secondary input or if this is a new installation and the secondary input is for a "J" type thermocouple expressed in degrees Fahrenheit (°F).

8.5.1 Setting the Secondary Input Type

The Secondary Input measured values will show in the lower display. The Instrument's default secondary input setting is for a "J" type thermocouple. To select another type of input, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***5*** shows in the upper display. Press the **FUNC** key twice and the upper display will show ***tr*** while the lower display shows ***SI.TYP***. Press the ▼ or ▲ key until the upper display changes to the correct value (***rtd*** for Platinum RTD, ***0-20*** for 0-20 mA linear input, ***4-20*** for 4-20 mA current loop input, ***0-10*** for 0-10 Vdc linear input, and ***OFF*** if the input is to be disabled. Press the **FUNC** key to set the value. Finally, press the **RESET** key to go back to the active display.

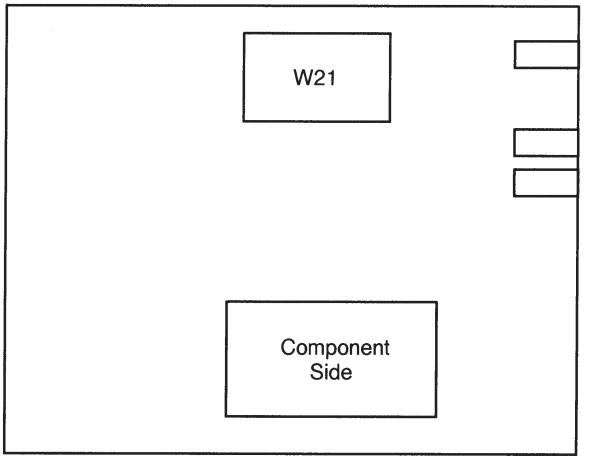
Remember to change the jumper settings to correspond to the proper input as shown in Figure 9 for board location and Figure 10 for input jumpers.

Fig. 9 UPR700 Board Location

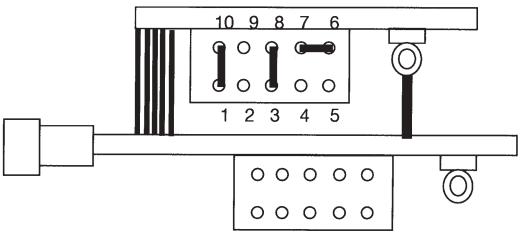


A. Second Retransmission Output, 24 V Power Supply, RS485 Board
B. Alarm/Power Supply Board
C. CPU Board
D. Input/Output Board
E. Auxiliary Input Board

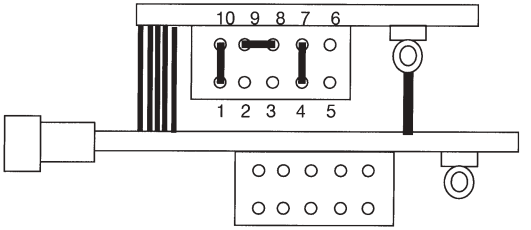
Fig. 10 Secondary Input Jumper Location



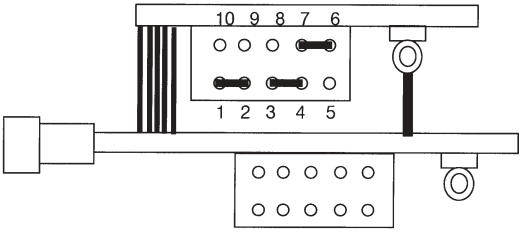
Secondary Input Selection W21



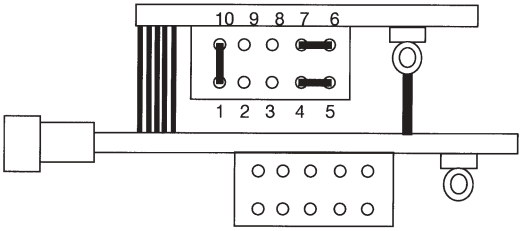
Set for T/C Default



Set for Current (mA)



Set for RTD



Set for Voltage (V)

8.5.2 Setting the Secondary Input Scale and Decimal Point

Skip to section 8.5.3 if the secondary input is for an RTD or a thermocouple.

If the Instrument's secondary input is set as a voltage or current, the Range Values need to be set. Press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key and the upper display will show the full scale value while the lower display shows ***SI.FSV***. Press the **FUNC** key until the lower display changes to ***SI.LO***. Using the ▼ or ▲ keys, enter the zero value for the input. For example if the input from a device is 500-3,000 units, it is 500 units at zero, so enter 500. Press the **FUNC** key to set the value. The lower display will change to ***SI.HI***. Using the ▼ or ▲ keys, enter the high (full-scale) value for the input. For example if the input from a device is 500-3,000 units, it is 3,000 units at full scale, so enter 3000. Press the **FUNC** key to set the value. The lower display will change to ***SI.DP***, the decimal point position for the secondary input. Using the ▼ or ▲ keys, select the position for the decimal point for this input and press **FUNC** to lock in the value. Finally, press the **RESET** key to go back to the active display.

8.5.3 Setting the Thermocouple Type and Units

If the secondary input is from a thermocouple, set the thermocouple type and temperature units, by pressing the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key until the lower display shows ***SI.TC***. Press the ▼ or ▲ key until the upper display changes to the correct value (***tc j*** for type "J", ***tc CA*** for type "K", ***tc L*** for type "L", and ***tc n*** for a type "N" thermocouple). Press the **FUNC** key to set the value. The upper display changes to ***FAHr*** (for Fahrenheit) while the lower display shows ***SI.C/F***. Press the ▼ or ▲ key to change to Celsius ***CEL*** or if desired.

These inputs are factory pre-calibrated for the following ranges, and require no further calibration.

Thermocouple:	Type J	-200 - 800°C	-328 - 1472°F
	Type K (CA)	-200 - 1200°C	-328 - 2192°F
	Type L	-200 - 800°C	-328 - 1472°F
	Type N	0 - 1300°C	32 - 2372°F
RTD	Pt100	-200 - 600°C	-328 - 1112°F

8.5.4 Setting the Secondary Input Failsafe Mode

The Secondary Input Failsafe Mode is a safety mechanism that tells the instrument what to do in the event of a loss of the Secondary signal. In the event of a Secondary input signal loss, the Secondary Input Failsafe parameter sets the value of the primary input to full scale (in the default mode).

To set the Primary Input Failsafe Mode, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the upper display. Press the **FUNC** key until the lower display shows ***SI.IFS***. Press the ▼ or ▲ key until the upper display shows the correct mode, either ***HI*** or ***Lo***. Press the **FUNC** key to set the value. Finally, press the **RESET** key to go back to the active

display.

8.6 SETTING THE ALARMS

All Alarms supplied with the Instrument can be linked to either the Primary Input or the Secondary Input (if available), and are capable of being set as High Level Alarms or Low Level Alarms, and may operate in either Failsafe or Direct condition.

Failsafe means that in the event of power failure to the Instrument, the Alarm will activate. Use this feature on a shutdown alarm. Please note that in a proper operating condition in Failsafe mode, the Normally Closed Contact are held OPEN, while the Normally Open contacts are held CLOSED. On power failure, they are released.

On start-up, a Low Alarm may cause the unit to go into an undesired alarm condition prior to reaching running conditions. This Alarm can be masked so that the Low Alarm will be deactivated until it has gone above the alarm value for the first time. It will then operate as a normal low alarm.

The default values for **Alarm 1** are: high alarm at 40% of full scale, linked to the primary input, 0.4 second filtering, 1% hysteresis, automatic reset, and failsafe mode. Each alarm may be set to 110% of full scale.

The default values for **Alarm 2** are: high alarm at 60% of full scale, linked to the primary input, 0.4 second filtering, 1% hysteresis, automatic reset, and failsafe mode.

The default values for **Alarm 3**, if supplied, are: high alarm at 80% of full scale, disabled (not linked to any input), 0.4 second filtering, 1% hysteresis, automatic reset, and failsafe mode.

Set the Alarm parameters before setting the alarm value. If the alarm parameters have already been set, set the alarm values as described in section 8.6.7.

8.6.1 SETTING WHICH CHANNEL ALARM WILL MONITOR (ALARM INPUT CHANNEL LINK)

The Alarm 1 Input Channel Link defaults to the primary input. To check or change this value press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key until ***A1.LNK*** shows in the lower display. Select the choice desired by pressing the ▼ or ▲ keys. The choices are: ***OFF***, (disabled), linked to the primary input ***Prl.In***, or linked to the secondary input ***Sec.In***. Note: if you do not have a secondary input, ***Sec.In*** will not appear as a choice. Press the **FUNC** key to lock in the value and advance to the next parameter. Similarly, you may configure Alarm 2 ***(A2.LNK)*** and if supplied, Alarm 3 ***(A3.LNK)***.

8.6.2 SETTING ALARM TYPE

A high alarm will activate when a set point is exceeded. A low alarm will activate whenever the value falls below a set point (including startup). An inhibited low alarm must exceed the low alarm

set point before it is enabled. Then it will work like a low alarm. This is ideal on startup.

The default alarm type for Alarm 1 is high. To check or change this value press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key until ***A1.TYP*** shows in the lower display. Using the ▼ or ▲ keys, select ***HI*** for high level alarm, ***LO*** for low level alarm or ***Inhib*** for a low level alarm with mask at start-up. Press the **FUNC** key to lock in the value and advance to the next parameter. If finished, press **RESET** to return to the operating screen. Similarly, you may configure Alarm 2 ***(A2.TYP)*** and if supplied, Alarm 3 ***(A3.TYP)***.

8.6.3 Setting the Filtering for Alarm 1

Filtering is an electrical method of averaging the input values over a period of time to arrive at a smoother curve. This helps to eliminate short duration transients and spikes which can cause alarms, but which may cause false or spurious readings.

The Alarm filter default is 0.4 seconds of filtering. To change this value, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***2*** shows in the upper display. Press the **FUNC** key until the lower display changes to ***A1.FL***. Using the ▼ or ▲ keys, select the amount of filtering desired, from none ***(OFF)*** to five seconds. When finished, press the **FUNC** key to lock in the value and advance to the next parameter. If finished, press **RESET** to return to the operating screen. Similarly, you may configure Alarm 2 ***(A2.FL)*** and if supplied, Alarm 3 ***(A3.FL)***.

8.6.4 Setting the Hysteresis for Alarm

Hysteresis is used to describe the amount that the reading must drop below the alarm point (in a high alarm) or must rise above the alarm point (in a low alarm) to clear the alarm condition. This helps to eliminate short duration alarms when operating near the alarm condition. To change or view this value, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the upper display. Press the **FUNC** key until the lower display changes to ***A1.HYS***. The values for hysteresis can range from .1% to 10.0%. Press the ▼ or ▲ keys until the upper display changes to the desired value. Press the **FUNC** key to lock in the value and advance to the next parameter, or press **RESET** to return to the operating screen. Similarly, you may configure Alarm 2 ***(A2.HYS)*** and if supplied, Alarm 3 ***(A3.HYS)***.

8.6.5 Setting the Reset Mode for Alarms

The Alarm Reset Mode determines if the alarm resets itself once the alarm condition is been corrected, or whether the operator must press a button to reset the alarm. The Alarm Reset Mode default is automatic reset once the alarm has cleared. To change or view this value, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the upper display. Press the **FUNC** key until the lower display changes to ***A1.RES***. The values for reset mode is either ***Auto*** for automatic reset, or ***LAtCH*** for manual reset. Press the ▼ or ▲ keys until the upper display changes to the desired value. Press the **FUNC** key to lock in the value and advance to the next parameter, or press **RESET** to return to the operating screen. Similarly, you may configure Alarm 2 ***(A2.RES)*** and if supplied, Alarm 3 ***(A3.RES)***.

8.6.6 Setting the Failsafe Mode for Alarms

The Alarm Failsafe Mode determines how the alarms react in the event of a power failure to the UPR700. In the failsafe mode, the alarms will activate in the event of power loss. In non-failsafe mode they **cannot** activate in the event of power loss. The Alarm failsafe mode default is failsafe mode. To change or view this value, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the upper display. Press the **FUNC** key until the lower display changes to ***A1.FSM***. The options for failsafe mode are either ***FS*** for failsafe mode, or ***nFS*** for non-failsafe mode. Press the ▼ or ▲ keys until the upper display changes to the desired value. Press the **FUNC** key to lock in the value and advance to the next parameter, or press **RESET** to return to the operating screen. Similarly, you may configure Alarm 2 ***(A2.FSM)*** and if supplied, Alarm 3 ***(A3.FSM)***.

Please note that the wiring must be considered: For failsafe operation the alarm contacts must be wired differently to have operation as expected. This is because the UPR700 holds the contact relay in an energized state during normal operation. In the event of an alarm condition or the loss of power to the UPR700, the relay will be de-energized and will then open. The same holds true for a NC contact. It will be held OPEN during normal operation. In the event of an alarm condition or the loss of power to the UPR700, the relay will be de-energized and will then close.

8.6.7 Setting the Alarms Value (Alarms Threshold)

The Alarm 1Threshold Values, is the value beyond which the Alarm will activate (i.e. the threshold). Alarm 1 is set in the same engineering units that the Full Scale Value uses. To change or view this value when in the operating screen, press the **FUNC** key, when in the main screen, and the lower display will change to ***AL1*** with the threshold value in the upper display. Press the ▼ or ▲ keys until the upper display changes to the desired value. Press the **FUNC** key to lock in the value and advance to the next parameter, or press **RESET** to return to the operating screen. Similarly, you may configure Alarm 2 ***(AL2)*** and if supplied, Alarm 3 ***(AL3)***.

8.6.8 Setting the Alarms Mask Reset Type

The Alarm 1 Mask Reset may only be used on alarms configured as inhibited Low Alarms on startup. It prevents the alarm from activating (masks the alarm) until the value of the primary input exceeds the alarm value. To change or view this value when in the operating screen, press the **FUNC** key until the lower display changes to ***AL.MSK*** with ***OFF*** in the upper display. Press the ▼ or ▲ keys until the upper display changes to ***rESEt***. Press the **FUNC** key to lock in the value and advance to the next parameter, or press **RESET** to return to the op screen. You may similarly configure Alarm 2 and if supplied, Alarm 3.

8.7 Main and Secondary Analog Output (Retransmission) Setup

This set of parameters will only be available for units that include an active secondary input (***SI.TYP*** other than ***OFF***); otherwise it defaults to the primary input.

8.7.1 SETTING THE MAIN ANALOG OUTPUT TYPE

The Main Analog Output Type sets the output to specific voltages or currents. The available outputs are 0-20 mA, 4-20 mA, 0-10 VDC, -10 to +10 VDC, and 0-5 VDC. To change or view this value, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***5*** shows in the upper display. Press the **FUNC** key until the lower display changes to ***MO.TYP***, and the upper display shows the selected type. Press the ▼ or ▲ keys until the upper display changes to the desired value. Then press the **FUNC** key to lock in the value and advance to the next parameter, or press **RESET** to return to the operating screen. Similarly if the unit has a Secondary input, the Secondary Analog Output Type ***(SO.TYP)*** can be set in the same manner.

Remember to change the jumper settings to correspond to the proper output as shown in Fig. 9 for board location and Fig. 11 for Main Analog output jumpers and Fig. 12 for Second Analog output jumpers.

8.7.2 SETTING THE MAIN ANALOG OUTPUT LINK

To change or view this value, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key until the lower display changes to ***MO.LNK***, and the upper display shows the selected type, either ***PrI.In*** (the primary input) or ***SEc.In*** (the secondary Input). Press the ▼ or ▲ keys until the upper display changes to the desired value. Then press the **FUNC** key to lock in the value and advance to the next parameter, or press **RESET** to return to the operating screen. . Similarly the Secondary Analog Output Link ***(SO.LNK)*** can be set in the same manner.

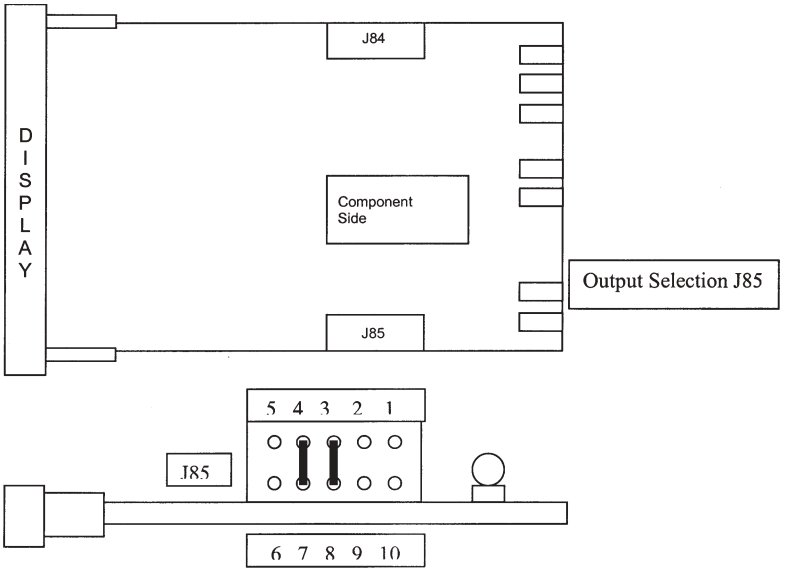
8.7.3 SETTING THE MAIN ANALOG OUTPUT RANGE LOW

To change or view the Main Analog Output Range Low, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key until the lower display changes to ***MO.LO***. Press the ▼ or ▲ keys until the upper display changes to the desired value. The value may be anything from 0 to the primary input full scale value, ***PI.FSV*** if the ***MO.LNK*** is set to ***PrL.Ln***, or if the ***MO.LNK*** is set to ***SEc.Ln***, the value may be from -1000 to 3000. Once the desired value is set, press the **FUNC** key to lock in the value and advance to the next parameter, or press **RESET** to return to the operating screen. Similarly the Secondary Analog Output Range Low ***(SO.LO)*** can be set in the same manner.

8.7.4 SETTING THE MAIN ANALOG OUTPUT RANGE HIGH

To change or view the Main Analog Output Range High, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key until the lower display changes to ***MO.HI***. Press the ▼ or ▲ keys until the upper display changes to the desired value. The value may be anything from 0 to the primary input full scale value, ***PI.FSV*** if the ***MO.LNK*** is set to ***PrL.Ln***, or if the ***MO.LNK*** is set to ***SEc.Ln***, the value may be from -1000 to 3000. Once the desired value is set, press the **FUNC** key to lock in the value and advance to the next parameter, or press **RESET** to return to the operating screen. Similarly the Secondary Analog Output Range High ***(SO.HI)*** can be set in the same manner.

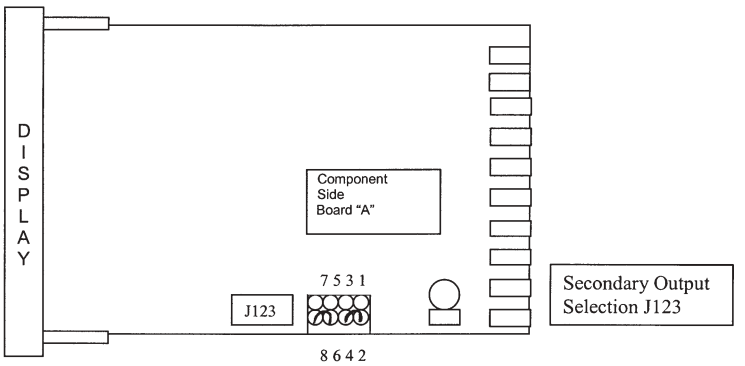
Fig. 11 Main Analog Output Jumper Location



mA – Jumpers 2 and 9, 5 and 6
Volts – (Default) Jumpers 3 and 8, 4 and 7

Fig. 12 Secondary Analog Output Jumper Location (optional)

Note: Circuit board "A" not installed in models UPR700-0-0-3 and UPR700-1-0-3



Voltage (Default) – Jumpers between 2 and 4, and between 6 and 8
mA Current - Jumpers between 1 and 3, and between 5 and 7

8.7.5 SETTING THE MAIN ANALOG OUTPUT FILTER

Filtering is an electrical method of averaging the output values over a period of time to arrive at a smoother curve. This helps to eliminate short duration transients and spikes that may cause false or spurious readings.

To change or view the Main Analog Output Filter, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***2*** shows in the upper display. Press the **FUNC** key until the lower display changes to ***MO.FL***. Using the ▼ or ▲ keys, select the amount of filtering desired, from none ***(OFF)*** to five seconds. When finished, press the **FUNC** key to lock in the value and advance to the next parameter. Similarly the Secondary Analog Output Filter ***(SO.FL)*** can be set in the same manner.

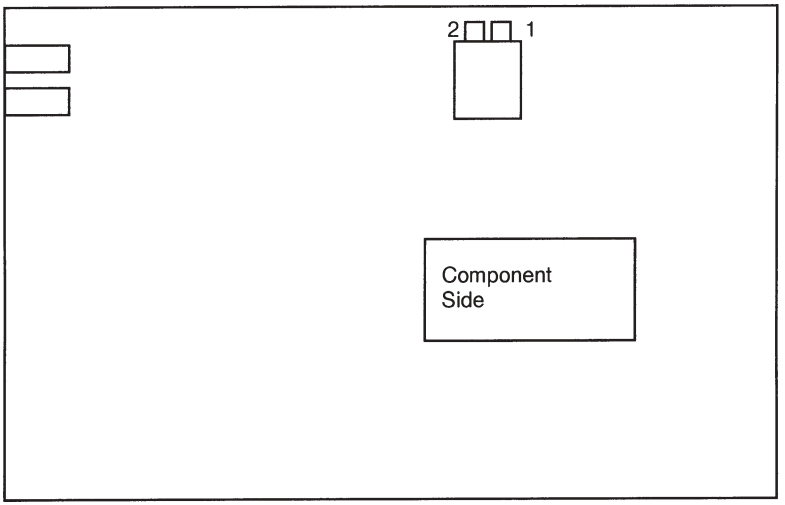
8.8 SETTING THE SECURITY CODES

The security code setting is accessible by setting an internal dip switch (see Figure 13 below). There are three Security levels. When each level has been assigned a code access to the parameters will be available as follows:

- Level A: Allows access to parameters in Group 1 Only
- Level B: Allows access to parameters in Groups 1 and 2 Only
- Level C: Allows access to parameters to all Groups 1 - 5

To enter the security mode, remove the instrument form its case and reconfigure the internal dip-switch settings to the Security Mode by placing SW1 and SW2 in the ON position.

Fig. 13 CPU Board DIP Switch Locations



When the instrument is re-inserted into its case, the upper display will show ***CodE*** and the lower display will show ***UPR***.

8.8.1 Setting the Security Codes for Level A

To view or change the security code, press the **FUNC** key and the lower display changes to ***CODE.A***. The upper display shows ***0***, which indicates no security, and 1 means all parameters related to levels A, B, and C are always locked). Press the ▼ or ▲ keys until the desired security code number (from 2 to 250) appears in the upper display. Press the **FUNC** key to lock in the value. The upper display changes to ***1***, and the lower display changes to ***CODE.B***. This means that ONLY Levels B and C are locked, NOT Level A. If finished remove the instrument from its case and place both dip switch SW1 and SW2 into the OFF position to return to the operating mode; otherwise, continue with the next step.

8.8.2 Setting the Security Codes for Level B

If you first set ***CODE.A***, the lower display will read ***CODE.B***; if not, press the **FUNC** key to move to ***CODE.B***. The upper display shows ***0***, which indicates no security; or it may show ***1***, which means all parameters related to levels A, B, and C are always locked). Press the ▼ or ▲ keys until the desired security code number (from 251 to 500) appears in the upper display. Press the **FUNC** key to lock in the value. The lower display changes to ***CODE.C***, and the Upper display shows ***1***. This means that all levels are locked and cannot be changed. If finished, remove the instrument from its case and place both dip switch SW1 and SW2 into the OFF position to return to the operating mode.

8.8.3 Setting the Security Codes for Level C

If you first set ***CODE.A*** and ***CODE.B***, the lower display will read ***CODE.C***. If not, press the **FUNC** key to move to ***CODE.C***. The upper display shows ***0***, which indicates no security; a 1 means all parameters related to levels A, B, and C are always locked). Press the ▼ or ▲ keys until the desired security code number (from 501 to 1000) appears in the upper display. Press the **FUNC** key to lock in the value. The upper display changes to CodE and the lower display changes to ***UPR***. If finished, remove the instrument from its case and place both dip switch SW1 and SW2 into the OFF position to return to the operating mode.

Once the security codes are selected, they CANNOT be displayed. If the codes are forgotten, new values must be entered using the above procedure. It is recommended that a code be set for each security level. Note that unlocking the Level C code unlocks Levels A, B, and C. To, relock a code, simply enter any incorrect number and all the locked levels will relock. Unlocking the Level B code, unlocks Levels A and B. Unlocking Level A unlocks only Level A. When the ***SECUR*** functions are accessed in Group 1, the levels that are locked will be followed by a decimal point.

9. OPERATION

9.1 PRIMARY INPUT CALIBRATION

NOTE: In this section the word *Calibration* means to match the Instrument to the input device, so that a specific signal from the input device is equated to a specific pressure and no other, (to the capabilities of its input resolution).

Apply power to the cabinet and allow the system to stabilize for about 30 minutes. Allow the transducer or other input device to come up to operating conditions.

9.1.1 CALIBRATION OF PRESSURE TRANSDUCERS EQUIPPED WITH AN INTERNAL SHUNT RESISTOR

Be sure that the full scale and low scale values (***PI.FSV*** and ***PI.LSV***) have been set to match the range of the transducer and that the ***SHUNT*** function is ***ON*** and set to the correct percentage (80% for a typical Dynisco transducer).

To calibrate the transducer to the instrument, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***2*** shows in the upper display. Press the **FUNC** key and the lower display changes to ***ZERO.C***. The upper display shows ***OFF***. Press the ▼ or ▲ keys until the upper display changes to ***ON***. Press the **FUNC** key to calibrate the zero value. The lower display changes to ***SPAN.C***. The upper display shows ***OFF***. Press the ▼ or ▲ keys until the upper display changes to ***ON***.

Press the **FUNC** key to calibrate the span value. When the legend ***DSP.FL*** appears in the lower display, calibration is complete. Press **RESET** to return to the operating screen.

9.1.2 CALIBRATION OF AMPLIFIED PRESSURE TRANSMITTERS EQUIPPED WITH AN INTERNAL SHUNT RESISTOR

Be sure that the full scale and low scale values (***PI.FSV*** and ***PI.LSV***) have been set to match the range of the transducer and that the ***SHUNT*** function is turned ***OFF***.

To calibrate the transducer to the instrument, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***2*** shows in the upper display. Press the **FUNC** key and the lower display changes to ***ZERO.C***. The upper display shows ***OFF***. Press the ▼ or ▲ keys until the upper display changes to ***ON***. Press the **FUNC** key to calibrate the zero value. The lower display changes to ***SPAN.C***. The upper display shows ***OFF***. Press the ▼ or ▲ keys until the upper display changes to CLEAr. Press the **FUNC** key to calibrate the span value. When the legend ***DSP.FL*** appears in the lower display, calibration is complete. Press **RESET** to return to the operating screen.

9.1.3 Calibration of Pressure Transducers Equipped with External Shunt Resistors

Install the external shunt resistor across terminals 13 (signal -) and 14 (Cal 2). Be sure that the full scale and low scale values (***PI.FSV*** and ***PI.LSV***) have been set to match the range of the transducer and that the ***SHUNT*** function is ***ON*** and set to the correct percentage (as supplied by the transducer manufacturer. If the values supplied is an actual pressure value, convert to a percentage and enter in ***SHNT.%***).

To calibrate the transducer to the instrument, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***2*** shows in the upper display. Press the **FUNC** key and the lower display changes to ***ZERO.C***. The upper display shows ***OFF***. Press the ▼ or ▲ keys until the upper display changes to ***ON***. Press the **FUNC** key to calibrate the zero value. The lower display changes to ***SPAN.C***. The upper display shows ***OFF***. Press the ▼ or ▲ keys until the upper display changes to ***ON***. Press the **FUNC** key to calibrate the span value. When the legend ***DSP.FL*** appears in the lower display, calibration is complete. Press **RESET** to return to the operating screen.

9.1.4 Calibration of Analog Inputs Using a Pressure Calibration Source

Be sure that full scale and low scale values have been set to the range of the process sensor. Press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the upper display. Press the **FUNC** key and the upper display should show ***OFF*** while the lower display shows ***SHUNT***. If the upper display does not show ***OFF***, press the ▼ or ▲ key until the upper display changes to ***OFF***. Press the **FUNC** key to set the value and press **RESET** to return to the operating screen.

Press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***2*** shows in the upper display. Press the **FUNC** key and the lower display changes to ***ZERO.C***. The upper display shows ***OFF***. With low scale equivalent signal applied from an appropriate calibration source, press the ▼ or ▲ keys until the upper display changes to ***ON***. Press the **FUNC** key to calibrate the zero value. When the lower display changes to ***SPAN.C***, zero calibration is complete. With signal applied equivalent to full scale value from an appropriate calibration source, press the ▼ or ▲ keys until the upper display changes to ***ON***. Press the **FUNC** key to calibrate the span value. When the legend ***DSP.FL*** appears in the lower display, calibration is complete. Press **RESET** to return to the operating screen.

These inputs are factory pre-calibrated for the following ranges, and require no further calibration.

Voltage: 0-10 VDC
Current 4-20 mA; 0-20 mA

9.1.5 Calibration of the UPR700 to Calibrated Linear Analog Input

Be sure that full scale and low scale values have been set to the range of the process sensor. Press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***4*** shows in the

upper display. Press the **FUNC** key and the upper display should show ***OFF*** while the lower display shows ***SHUNT***. If the upper display does not show ***OFF***, press the ▼ or ▲ key until the upper display changes to ***OFF***. Press the **FUNC** key to set the value and press **RESET** to return to the operating screen.

Press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***2*** shows in the upper display. Press the **FUNC** key and the lower display changes to ***ZERO.C***. The upper display shows ***OFF***. With the input at the low scale value, press the ▼ or ▲ keys until the upper display changes to ***ON***. Press the **FUNC** key to calibrate the zero value. When the lower display changes to ***SPAN.C***, zero calibration is complete. Press the ▼ or ▲ keys until the upper display changes to ***CLEAr***. Press the **FUNC** key to restore the linear factory calibration of the span value. When the legend ***DSP.FL*** appears in the lower display, calibration is complete. Press **RESET** to return to the operating screen.

9.2 INSTRUMENT CALIBRATION

NOTE: In this section the word *Calibration* means to set the Instrument to an internationally recognized standard, independent of input device.

9.2.1 SETTING THE INTERNAL DIP SWITCH FOR INSTRUMENT CALIBRATION

The instrument calibrations are accessible by an internal dip-switch (see below). This is done to protect the calibration data area of the EEPROM.

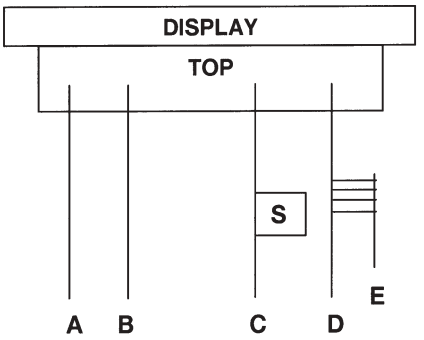
NOTE: The instrument is shipped with the fitted circuits fully calibrated.

Remember to change the switch settings back to the proper input as shown in Figure 14 for board location and switch settings.

Remove the instrument from its case by gently pulling back the tabs on either side of the display. This can be done with the unit powered, without fear of damage.

CPU BOARD	DIP SWITCH POSITIONS	
Operating Mode	SW1 OFF	SW2 OFF
Calibration Mode	SW1 ON	SW2 OFF
Factory Mode	SW1 OFF	SW2 ON
Security Mode	SW1 ON	SW2 ON

Fig. 14 UPR700 Board Location



A. Second Retransmission Output, 24 V Power Supply, RS485 Board
B. Alarm/Power Supply Board
C. CPU Board
D. Input/Output Board
E. Auxiliary Input Board
S. CPU Board Dip Switch

9.2.2 General Calibration Procedure

1. Set the dip switches to calibration mode as shown above. The upper display should show ***CAL*** while the lower display shows ***UPR***.

2. Use the ▼ or ▲ keys to show the following functions:

   - Firmware revision
   - Zero input counts (ZERO)
   - Pressure input counts (STR)
   - Reference junction counts (RJ)
   - Remote set point, linear temperature input and line resistance for RTD input (RSP.RL)
   - Thermocouple and RTD input (TC.RTD)
   - Digital inputs status (DIG.IN)
   - Maximum Power Consumption
   - Minimum Power Consumption

3. The display values for analog inputs are scaled from 0 to 25,000 counts; it is also linear for RTD input.

4. Use the ▼ or ▲ keys to select a display value from 0 to 10 and to check the linearity of output circuit at 0%, 10%, 90% and 100%.

5. If the values do not correspond with the values in the Calibration Parameters Summary Table below, use the ▼ or ▲ keys to correct the value displayed.

6. When all the appropriate values are correct, set the dipswitches to operating mode.

CALIBRATION PARAMETERS SUMMARY					
Parameter	**Circuit**	**Input Type**	**Range**	**Value**	**Note**
CAL UPR					(1)
PL.020	Primary Input	Current	Zero	0 mA	
PH.020	Primary Input	Current	Full scale	20 mA	
P.020	Primary Input	Current	Verify		(2)
PL.05	Primary Input	Voltage 0-5V	Zero	0 V	
PH.05	Primary Input	Voltage 0-5V	Full scale	5 V	
P.05	Primary Input	Voltage 0-5V	Verify		(2)
PL.010	Primary Input	Voltage 0-10V	Zero	0 V	
PH.010	Primary Input	Voltage 0-10V	Full scale	10 V	
P.010	Primary Input	Voltage 0-10V	Verify		(2)
SL.020	Secondary Input	Current	Zero	0 mA	
SH.020	Secondary Input	Current	Full scale	20 mA	
S.020	Secondary Input	Current	Verify		(2)
SL.010	Secondary Input	Voltage	Zero	0 V	
SH.010	Secondary Input	Voltage	Full scale	10 V	
S.010	Secondary Input	Voltage	Verify		(2)
SL.TC	Secondary Input	Thermocouple	Zero	0 mV	
SH.TC	Secondary Input	Thermocouple	Full scale	50 mV	
S.TC	Secondary Input	Thermocouple	Verify		(2)
S*RJ	Secondary Input	Thermocouple	Ref. junct.	Ambient	
S.RJ	Secondary Input	Thermocouple	Verify	Ambient	
SL.RTD	Secondary Input	RTD	Zero	0 Ohm	(2)
SH.RTD	Secondary Input	RTD	Full scale	320 Ohm	
S.RTD	Secondary Input	RTD	Verify		(2)
ML.CUR	Main analog output	Current	Zero	-5 mA	
MH.CUR	Main analog output	Current	Full Scale	25 mA	
M.CUR	Main analog output	Current	Verify		(3)
ML.VOL	Main analog output	Voltage	Zero	-12.5 V	
MH.VOL	Main analog output	Voltage	Full scale	12.5V	
M.VOL	Main analog output	Voltage	Verify		(3)
SL.CUR	Second analog output	Current	Zero	-5 mA	
SH.CUR	Second analog output	Current	Full scale	25 mA	
S.CUR	Second analog output	Current	Verify		(3)
SL.VOL	Second analog output	Voltage	Zero	-12.5 V	
SH.VOL	Second analog output	Voltage	Full scale	12.5 V	
S.VOL	Second analog output	Voltage	Verify		(3)
DEFLT	Load default calibration and code	**DO NOT ATTEMPT TO MODIFY UNDER ANY CIRCUMSTANCES**			

7. If the values CANNOT be made to correspond with the values in the Calibration Parameters Summary Table, the instrument must be sent to Dynisco for repair or re-calibration.

9.3 RS-485 (OPTIONAL)

The UPR700 is available with an RS485 Digital communications port. The configuration parameters for this option are found in the Group 3 parameters only if this option is included. The UPR700, when equipped with this option, is compatible with Modbus and J-Bus protocols, the choice of which is made in the Configuration/Setup menu.

9.3.1 SERIAL COMMUNICATION INTERFACE ADDRESS

This function is used to set the serial Communication Interface Address. To view or access this function, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key and the lower display changes to ***SC.ADR***. The upper display shows ***OFF***. Press the ▼ or ▲ keys until the upper display changes to the appropriate address, from 1 to 255. Press the **FUNC** key to store the value, and to view the next parameter. If finished, press **RESET** to return to the operating screen.

9.3.2 PROTOCOL TYPE

This function is used to select the Protocol Type. To view or access this function, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key and the lower display changes to ***SC.BUS***. The upper display shows ***nodbS***. Press the ▼ or ▲ keys until the upper display changes to the appropriate protocol, either Modbus ***(nodbS)*** or Jbus ***(JbuS)***. Press the **FUNC** key to store the value, and to view the next parameter. If finished, press **RESET** to return to the operating screen.

9.3.3 COMMUNICATION TYPE

This function is used to select the number and format of the serial bits used in communication. To view or access this function, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key and the lower display changes to ***SC.FRM***. The upper display shows ***8***. Press the ▼ or ▲ keys until the upper display changes to the appropriate bit format, 8 bit without parity ***(8)***, 8 bit with even parity ***(8 E)***, or 8 bit with odd parity ***(8 O)***. Press the **FUNC** key to store the value, and to view the next parameter. If finished, press **RESET** to return to the operating screen.

9.3.4 COMMUNICATION BAUD RATE

This function is used to select the Communication Baud Rate. To view or access this function, press the **FUNC** key until ***nonE*** and ***GROUP*** show on the display. Press the ▲ key until ***3*** shows in the upper display. Press the **FUNC** key and the lower display changes to ***SC.BDR***. The upper display shows ***19200***. Press the ▼ or ▲ keys until the upper display changes to the appropriate Baud rate: 600, 1200, 2400, 4800, 9600, or 19200.

Press the **FUNC** key to store the value, and to view the next parameter. If finished, press **RESET** to return to the operating screen.

Further documentation is available in Dynisco's publication #974089 *Modbus/J-Bus Protocol for Dynisco UPR700/ATC770*. Please visit www.dynisco.com or contact Dynisco at 800-221-2201 for a copy of this manual.

10. ERROR CODES

On power up, the UPR700 will enter a self-test mode to evaluate the condition of the equipment. If an error is detected, the screen will show an error code number in the upper display and the mnemonic ***Err***, in the lower display.

10.1 ERROR CODES AND TROUBLESHOOTING

The errors codes and their possible causes and solutions are as follows:

1 Error during EEPROM access.
Correction: De-power the instrument and wait for 60 seconds. On power-on the situation should clear itself. If it does not correct itself de-power again. If the error still remains, send the instrument to Dynisco for repair (See Section 13).

3 Wrong zero measure.
Correction: Check that the wiring is correct. Check that there is NO pressure applied on the transducer. If there is no pressure on the transducer, and the wiring is correct, contact Dynisco Technical Assistance at 800-221-2201.

5 Input calibration error.
Correction: Check that there is no pressure applied to the transducer. If the transducer is at zero pressure, verify that the SHUNT is turned on, and the Jumpers are set correctly. Also verify that the wiring is correct, especially that the Orange wire is on Terminal 14, and the Blue wire is on Terminal 17 with the Green wire. Disconnect the transducer from the wiring, and either replace the wire, or check the continuity of EACH wire, and that there is no short between any of the wires. If the cable is good, substitute a known good transducer to determine if the transducer is damaged. If the good transducer shows the same error, send the instrument to Dynisco for repair (See Section 13).

6 Wrong Reference Junction Measure.
Correction: The on-board thermocouple cold reference junction was read improperly. Press RESET to try to clear. If this does not work, turn the instrument off, wait about a minute, and turn the power back on. Verify that the instrument is not outside its operating temperature (-20 to 60°C). If the error persists, send the instrument to Dynisco for repair (See Section 13).

11 Overload or short-circuit on strain gage power supply, or unconnected "-4-EXC" or "-EXC" wire.

Correction: An instrument set for strain gage input with NO transducer connected will display this error. Connect a transducer to the instrument to remedy this condition. If there is a transducer connected, disconnect it from the wiring, and either replace the wire, or check the continuity of EACH wire, and that there is no short between any of the wires. If the cable is good, substitute a known good transducer to determine if the transducer is damaged. If the good transducer shows the same error, send the instrument to Dynisco for repair (See Section 13).

PR EE Wrong value of EEPROM protect register.
Correction: Turn the power to the instrument off. Change the internal jumpers to calibration mode (see Section 9.2.1), and re-power the instrument. In calibration mode, the registers will be properly re-written on power-up. When this is done return to normal operating mode. If the error persists, send the instrument to Dynisco for repair (See Section 13).

RAM Failure of RAM circuit. There is no correction; the device needs to be sent to Dynisco for repair (See Section 13).

10.2 "OPEN" Error Code and Troubleshooting

The display will show "OPEN" under one or more of the following conditions:

- A/D converter saturation (indicating a signal outside the expected range)
- Input current lower then 0.8 mA (for 4-20 mA inputs)
- Primary input lower then -25% or higher then 125% of full scale value.
- "SIG +" or "SIG -" wire unconnected for strain gage input
- Remote set point input lower then -1% or higher then 101% of full scale value
- Linear secondary input lower than -1% or higher than 101% of full scale value
- One or more unconnected thermocouple or TD input
- Excess line resistance for thermocouple or RTD input
- Thermocouple or RTD input value outside the specified range.
- Connection cable wire broken or two wires shorted together
- The Orange (CAL2) and Blue (CAL1) wires are on the wrong terminals for a strain gage transducer. The Orange (CAL2) wire connects to terminal 17 (EXC-) together with the Green wire. The Blue (CAL1) wire connects to terminal 14. If the transducer is wired to DHF or (WRSG) Western Regional Strain Gage standards, contact Dynisco Technical Service at 800-221-2201

10.3 Instrument Maintenance

1. Remove power from the power supply terminals and from relay output terminals.

2. Remove the instrument from case.

3. Using a vacuum cleaner or a compressed air jet (max. 42 PSI) remove all deposits of dust and dirt which may be present on the louvers and on the internal circuits trying to be careful not to damage the electronic components.

4. To clean external plastic or rubber parts use only a cloth moistened with:
   - Ethyl Alcohol (pure or denatured) (C_2H_5OH) or
   - Isopropyl Alcohol (pure or denatured) ($[CH_3]_2CHOH$) or
   - Water (H_2O)
   - Always use the mildest means available.

5. Verify that there are no loose terminals.

6. Before re-inserting the instrument in its case, be sure that it is perfectly dry.

7. Re-insert the instrument and turn it ON.

11. NORMATIVE REFERENCES

UL 94:	Tests for flammability of plastic materials for parts in devices and appliances.
CEI 70-1 (IEC 529):	Degrees of protection provided by enclosures. (IP Code)
Nema 250-1991:	Enclosures for electrical equipment. (1000 Volt maximum)
DIN 43700:	Measurements and control instruments for panel mounting: Nominal front and cut-out dimensions.
EN 61010-1:	Safety requirements for electrical equipment for measurements, control and laboratory use. Part 1: General requirements
EN 50081-2:	Electromagnetic compatibility - Generic emission standard - Part 2 Industrial environment
EN 55011:	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) radio frequency equipment.
EN 50082-2:	Electromagnetic compatibility - Part 2 -Industrial environment
ENV50140:	Electromagnetic compatibility - Basic immunity standard - Radiated radio-frequency electromagnetic field - Immunity test
IEC 1000-4-2:	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 2: Electrostatic discharge immunity test
EN 610004-8:	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques -Section 8: Power frequency magnetic field immunity test

IEC 1000-4-4: Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 4: Electrical fast transient/burst immunity test

ENV50141: Electromagnetic compatibility - Basic immunity standard - Conducted disturbances induced by radio-frequency fields - Immunity test

12. PARAMETER GROUP MENUS

Group I	Function	Sec.	As Set
AL.MSK	Alarms Mask Reset	8.6.8	
SECUR	Security	8.8.3	
AL1	Alarm 1 Threshold	8.6.7	
AL2	Alarm 2 Threshold	8.6.7	
AL3	Alarm 3 Threshold	8.6.7	
DEFLT	Loading Default Data	8.3.0	
GROUP	Group Access Number	N/A	
Group 2	**Function**	**Sec.**	**As Set**
ZERO.C	Zero Calibration	9.1.X	
SPAN.C	Span Calibration	9.1.X	
DSP.FL	Display Filter	8.3.5	
A1.FL	Alarm 1 Filter	8.6.3	
A2.FL	Alarm 2 Filter	8.6.3	
A3.FL	Alarm 3 Filter	8.6.3	
MO.FL	Main Analog Output Filter	8.7.5	
SO.FL	Second Analog Ouput Filter	8.7.5	
DEFLT	Loading Default Data	8.3.0	
Group 3	**Function**	**Sec.**	**As Set**
PI.FSV	Primary Input Full Scale Value	8.4.4	
PI.LSV	Primary Input Low Scale Value	8.4.5	
PI.DP	Primary Input Decimal Point Position	8.4.6	
SI.TC	Secondary Input Thermocouple Type	8.5.3	
Sl.C/F	Engineering Unit For Secondary Input	8.5.4	
SI.LO	Secondary Input Range Low	8.5.7	
Sl.Hl	Secondary Input Range High	8.5.7	
SI.DP	Secondary Input Decimal Point System	8.5.7	
A1.LNK	Alarm 1 Input Channel Link	8.6.1	
A1.TYP	Alarm 1 Type	8.6.2	
A2.LNK	Alarm 2 Input Channel Link	8.6.1	
A2.TYP	Alarm 2 Type	8.6.2	
A3.LNK	Alarm 3 Input Channel Link	8.6.1	
A3.TYP	Alarm 3 Type	8.6.2	
MO.LNK	Main Analog Output Link	8.7.2	
MO.LO	Main Output Range Low	8.7.3	
MO.HI	Main Output Range High	8.7.4	

Group 3	Function	Sec.	As Set
SO.LNK	Second Analog Range Link	8.7.2	
SO.LO	Second Output Range Low	8.7.3	
SO.HI	Second Output Range High	8.7.4	
SC.ADR	Serial Communication Interface Address	9.3.1	
SC.BUS	Protocol Type	9.3.2	
SC.FRM	Communication Type	9.3.3	
SC.BDR	Communication Baud Rate	9.3.4	
DEFLT	Loading Default Data	8.3.0	
Group 4	**Function**	**Sec.**	**As Set**
SHUNT	Shunt Calibration	8.4.2	
SHNT.%	Shunt Value	8.4.2	
Pl.IFS	Primary Input Fail Safe	8.4.7	
SI.IFS	Secondary Input Fail Safe	8.5.4	
A1.HYS	Alarm 1 Hysteresis	8.6.4	
A1.RES	Alarm 1 Reset Mode	8.6.5	
A1.FSM	Alarm 1 Failsafe Mode	8.6.6	
A2.HYS	Alarm 2 Hysteresis	8.6.4	
A2.RES	Alarm 2 Reset Mode	8.6.5	
A2.FSM	Alarm 2 Failsafe Mode	8.6.6	
A3.HYS	Alarm 3 Hysteresis	8.6.4	
A3.RES	Alarm 3 Reset Mode	8.6.5	
A3.FSM	Alarm 3 Failsafe Mode	8.6.6	
LI.TYP	Logic Input Configuration	8.3.1	
LI.STS	Logic Input Status	8.3.2	
PEAK	Peak Detection	8.3.3	
LINE.F	Line Frequency	8.3.4	
DEFLT	Loading Default Data	8.3.0	
Group 5	**Function**	**Sec.**	**As Set**
PI.TYP	Primary Input Selection	8.4.1	
SI.TYP	Secondary Input Selection	8.4.1	
MO.TYP	Main Analog Output Selection	8.7.1	
SO.TYP	Second Analog Output Selection	8.7.1	
DEFLT	Loading Default Data	8.3.0	

12.1 GROUP 1 DEFAULT PARAMETERS

ALARMS MASK RESET - Group 1

Available: Only if one or more alarms are configured with mask at start-up
Upper display: OFF
Lower display: AL.MSK
Range: Use the ▼ ▲ keys to switch the upper display from OFF to rESEt, then press the FUNC key to restore the alarm mask.
Default value: not applicable

SECURITY - Group 1

Available: Only if CODE.A or CODE.B or CODE.C are On.
Upper display: A b C or A b C. or A b. C or A. b. C. One or more letters followed by a decimal point means that the access to modification of the parameters of the related security level is inhibited.
Lower display: SECUR
Range: Use ▼ ▲ keys to input the security code; if the selected code matches the programmed code the parameters of the related security level are unlocked. The unlock operation also unlocks the parameters of the lower numbered groups, while the lock operation locks all the parameters. To choose new security codes requires positioning of the internal dipswitches. In order to re-lock the different groups insert any number with the exception of the selected codes.

ALARM 1 THRESHOLD - Group 1

Available: Only if A1.LNK is different than OFF.
Upper display: Alarm 1 threshold value
Lower display: AL1
Range: From low to high scale of the related input. The high limit may be expanded to 110% of span.
Default value: 40% of range of the related input.

ALARM 2 THRESHOLD - Group 1

Available: Only if A2.LNK is different than OFF.
Upper display: Alarm 2 threshold value
Lower display: AL2
Range: From low to high scale of the related input. The high limit may be expanded to 110% of span.
Default value: 60% of range of the related input.

ALARM 3 THRESHOLD - Group 1

Available: Only if A3.LNK is different than OFF.
Upper display: Alarm 3 threshold value
Lower display: AL3
Range: From low to high scale of the related input. The high limit may be expanded to 110% of span.
Default value: 80% of range of the related input.

LOADING DEFAULT DATA - Group 1

Available: Only if access to level A is allowed.
Upper display: OFF

Lower display: DEFLT
Range: Use ▼ ▲ keys to switch the upper display from OFF to On 1, the press FUNC key to load the default data of the parameters belonging to Group 1.

GROUP ACCESS NUMBER

Available: Always
Upper display: OFF
Lower display: GROUP
Range: Use ▼ ▲ keys to switch the upper display from nonE to 1, 2, 3, 4 or 5 and then gain access to the parameters of the selected group by pressing the FUNC key.

12.2 GROUP 2 DEFAULT PARAMETERS

ZERO CALIBRATION - Group 2

Available: Always
Upper display: OFF
Lower display: ZERO.C
Range: Use ▼ ▲ keys to switch the upper display from OFF to On then press FUNC key to start the zero calibration. It is also possible to select "CLEAr" value to delete the field calibration and restore factory calibration.
Default value: Zero

SPAN CALIBRATION - Group 2

Available: Always
Upper display: OFF
Lower display: SPAN.C
Range: Use ▼ ▲ keys to switch the upper display from OFF to On then press FUNC key to start the span calibration. It is also possible to select "CLEAr" value to delete the field calibration and restore factory calibration.
Default value: Full scale for linear input, 33.3 mV for strain gage input.

DISPLAY FILTER - Group 2

Available: Always
Upper display: Time constant of the display filter (primary input).
Lower display: DSP.FL
Range: OFF, 0.4, 1, 2, 3, 4, 5 sec.
Default value: 0.4 sec.

ALARM 1 FILTER - Group 2

Available: Only if A1.LNK is different than OFF.

Upper display: Time constant of the alarm 1 filter.
Lower display: A1.FL
Range: OFF, 0.4, 1, 2, 3, 4, 5 sec.
Default value: 0.4 sec.

ALARM 2 FILTER - Group 2

Available: Only if A2.LNK is different than OFF.
Upper display: Time constant of the alarm 2 filter.
Lower display: A2.FL
Range: OFF, 0.4, 1, 2, 3, 4, 5 sec.
Default value: 0.4 sec.

ALARM 3 FILTER - Group 2

Available: Only if A3.LNK is different than OFF.
Upper display: Time constant of the alarm 3 filter.
Lower display: A3.FL
Range: OFF, 0.4, 1, 2, 3, 4, 5 sec.
Default value: 0.4 sec.

MAIN ANALOG OUTPUT FILTER - Group 2

Available: Only if MO.TYP is different than OFF.
Upper display: Time constant of the main analog output filter.
Lower display: MO.FL
Range: OFF, 0.4, 1, 2, 3, 4, 5 sec.
Default value: 0.4 sec.

SECOND ANALOG OUTPUT FILTER - Group 2

Available: Only if SO.TYP is different than OFF.
Upper display: Time constant of the second analog output filter.
Lower display: SO.FL
Range: OFF, 0.4, 1, 2, 3, 4, 5 sec.
Default value: 0.4 sec.

LOADING DEFAULT DATA - Group 2

Available: Only if access to level B is allowed.
Upper display: OFF
Lower display: DEFLT
Range: Use ▼ ▲ keys to switch the upper display from OFF to On 2, then press FUNC key to load the default data of the parameters belonging to Group 1 and Group 2.

12.3 GROUP 3 DEFAULT PARAMETERS

PRIMARY INPUT FULL SCALE VALUE - Group 3

Available: Always
Upper display: Full scale value
Lower display: PI.FSV
Range: from 10 to 99950. Changes to this value affect the values for the pressure input low scale, the alarm set points and the retransmission limits.
Default value: 10000.

PRIMARY INPUT LOW SCALE VALUE - Group 3

Available: Always
Upper display: Low scale value
Lower display: PI.LSV
Range: from -/+25% of Full scale value
Default value: 0.

PRIMARY INPUT DECIMAL POINT POSITION - Group 3

Available: Always
Upper display: Full scale value
Lower display: PI.DP
Range: Use ▼ ▲ keys to select the position of the decimal point.
Default value: None.

SECONDARY INPUT THERMOCOUPLE TYPE - Group 3

Available: Only if SI.TYP is tc.
Upper display: Selected thermocouple type of temperature input.
Lower display: SI.TC
Range: tc J, tc CA, tc L, tc N. (thermocouple J, thermocouple K (Cromel lumel), thermocouple L, thermocouple N.)
Default value: Thermocouple J.

ENGINEERING UNIT FOR SECONDARY INPUT - Group 3

Available: Only if SI.TYP is tc or rtd.
Upper display: Selected type of temperature input engineering unit.
Lower display: SI.C/F
Range: Celsius or Fahrenheit
Default value: °F.

SECONDARY INPUT RANGE LOW - Group 3

Available: Only if SI.TYP is 0-20, 4-20 or 0-10.
Upper display: Secondary input range low.
Lower display: SI.LO
Range: from -1000 to 3000.
Default value: 0.

SECONDARY INPUT RANGE HIGH - Group 3

Available: Only if SI.TYP is 0-20, 4-20 or 0-10.
Upper display: Secondary input range high.
Lower display: SI.HI
Range: from -1000 to 3000.
Default value: 1000.

SECONDARY INPUT DECIMAL POINT POSITION - Group 3

Available: Only when SI.TYP is 0-20, 4-20 or 0-10.
Upper display: Secondary input range high
Lower display: SI.DP
Range: Use ▼ ▲ keys to select the position of the decimal point.
Default value: None.

ALARM 1 INPUT CHANNEL LINK - Group 3

Available: Always
Upper display: Configuration for alarm 1 selection.
Lower display: A1.LNK
Range: OFF, PrI.In, Sec.In. Disabled, primary input, secondary input.
Default value: Primary input.

ALARM 1 TYPE - Group 3

Available: Only if A1.LNK is different than OFF.
Upper display: Selection of alarm 1 type.
Lower display: A1.TYP
Range: HI, LO, InhIb. High, low, low with mask at start-up.
Default Value: High.

ALARM 2 INPUT CHANNEL LINK - Group 3

Available: Always
Upper display: Configuration for alarm 2 selection.
Lower display: A2.LNK

Range: OFF, PrI.In, SEc.In. Disabled, primary input, secondary input.
Default value: Primary input.

ALARM 2 TYPE - Group 3

Available: Only if A2.LNK is different than OFF.
Upper display: Selection of alarm 2 type.
Lower display: A2.TYP
Range: HI, LO, InhIb. High, low, low with mask start-up
Default value: High.

ALARM 3 INPUT CHANNEL LINK - Group 3

Available: Only if Alarm 3 output is fitted.
Upper display: Configuration for alarm 3 selection.
Lower display: A3.LNK
Range: OFF, PrI.In, SEc.In. Disabled, primary input, secondary input.
Default value: Disabled.

ALARM 3 TYPE - Group 3

Available: Only if A3.LNK is different than OFF.
Upper display: Selection of alarm 3 type.
Lower display: A3.TYP
Range: HI, LO, InhIb. High, low, low with mask at start-up.
Default value: High.

MAIN ANALOG OUTPUT LINK - Group 3

Available: Only if SI.TYP is different than OFF.
Upper display: Selected type for man analog output.
Lower display: MO.LNK
Range: PrI.In, SEc.In. Primary input, secondary input.
Default value: Primary input.

MAIN ANALOG OUTPUT RANGE LOW - Group 3

Available: Only if MO.TYP is different than OFF.
Upper display: Range low for main analog output.
Lower display: MO.LO
Range: from 0 to PI.FSV (if PO.LNK = PrI.In) from -1000 to 3000 (if PO.LNK = SEc.In).
Default value: 0.

MAIN ANALOG OUTPUT RANGE HIGH - Group 3

Available: Only if MO.TYP is different than OFF.
Upper display: Range high for main analog output.
Lower display: MO.HI
Range: from 0 to PI.FSV (if PO.LNK = PrI.In) from -1000 to 3000 (if PO.LNK - SEc.In).
Default value: PI.FSV

SECONDARY ANALOG OUTPUT LINK - Group 3

Available: Only if SO.TYP is different than OFF and SI.TYP is different than OFF.
Upper display: Selected type for second analog output
Lower display: SO.LNK
Range: PrI.In, SEc.In. Primary input, secondary input
Default value: Primary input.

SECONDARY ANALOG OUTPUT RANGE LOW - Group 3

Available: Only if SO.TYP is different than OFF.
Upper display: Range low for second analog output.
Lower display: SO.LO
Range: from 0 to PI.FSV (if SO.LNK = PrI.In) from -1000 to 3000 (if SO.LNK = SEc.In).
Default value: 0.

SECOND ANALOG OUTPUT RANGE HIGH - Group 3

Available: Only if SO.TYP is different than OFF.
Upper display: Range high for second analog output.
Lower display: SO.HI
Range: from 0 to PI.FSV (if SO.LNK = PrI.In) from -1000 to 3000 (if SO.LNK - SEc.In).
Default value: PI.FSV.

SERIAL COMMUNICATION INTERFACE ADDRESS - Group 3

Available: Only if serial communication interface is fitted.
Upper display: Serial communication interface address.
Lower display: SC.ADR
Range: OFF, 1, 2, Ö, 255. Off disables serial interface.
Default value: Off.

PROTOCOL TYPE - Group 3

Available: Only if SC.ADR is different than off.
Upper display: Protocol type.
Lower display: SC.BUS

Range: nodbS, JbuS. Modbus/Jbus selection.
Default value: Modbus.

COMMUNICATION TYPE - Group 3

Available: Only if SC.ADR is different than Off.
Upper display: Number of bits.
Lower display: SC.FRM
Range: 8, 8 E, 8 O. 8 bit without parity, 8 bit + even parity, 8 bit + odd parity.
Default value: 8 bit without parity.

COMMUNICATION BAUD RATE - Group 3

Available: Only if SC.ADR is different than Off.
Upper display: Baud rate.
Lower display: SC.BDR
Range: 600, 1200, 2400, 4800, 9600, 19200.
Default value: 19200.

LOADING DEFAULT DATA - Group 3
Available: Only if access to level 3 is allowed.
Upper display: OFF
Lower display: DEFLT
Range: Use ▼ ▲ keys to switch the upper display from OFF to On 3, then press FUNC key to load the default data of the parameters belonging to group 1, group 2, group 3.

12.4 GROUP 4 DEFAULT PARAMETERS

SHUNT CALIBRATION - Group 4

Available: Always
Upper display: OFF if shunt calibration is disabled, On if shunt calibration is enabled.
Lower display: SHUNT
Range: OFF, On.
Default value: On.

SHUNT VALUE - Group 4

Available: Only if SHUNT parameter is on.
Upper display: Shunt value.
Lower display: SHNT.%
Range: From 40.0 to 100.0%
Default value: 80.0%

PRIMARY INPUT FAIL SAFE - Group 4

Available: Always.
Upper display: Primary input fail safe condition.
Lower display: PI.IFS
Range: HI, LO.
Default value: High.

SECONDARY INPUT FAIL SAFE - Group 4

Available: Only if SI.TYP is different than OFF.
Upper display: Secondary input fail safe condition.
Lower display: SI.IFS
Range: HI, LO.
Default value: High.

ALARM 1 HYSTERESIS - Group 4

Available: Only if A1.LNK is different than OFF.
Upper display: Alarm 1 hysteresis.
Lower display: A1.HYS
Range: From 0.1 to 10.0% of the selected range.
Default value: 1.0%

ALARM 1 RESET MODE - Group 4

Available: Only if A1.LNK is different than OFF.
Upper display: Selected reset mode for alarm 1.
Lower display: A1.RES
Range: Auto, LAtCh. Automatic reset, manual reset.
Default value: Auto.

ALARM 1 FAILSAFE MODE - Group 4

Available: Only if A1.LNK is different than OFF.
Upper display: Selected failsafe mode for alarm 1.
Lower display: A1.FSM
Range: FS, nFS. Failsafe mode, non-failsafe mode.
Default value: Failsafe mode.

ALARM 2 HYSTERESIS - Group 4

Available: Only if A2.LNK is different than OFF.
Upper display: Alarm 2 hysteresis.
Lower display: A2.HYS

Range: From 0.1 to 10.0% of the selected range.
Default value: 1.0%

ALARM 2 RESET MODE - Group 4

Available: Only if A2.LNK is different than OFF.
Upper display: Selected reset mode for alarm 2.
Lower display: A2.RES
Range: Auto, LAtCh. Automatic reset, manual reset
Default value: Auto.

ALARM 2 FAILSAFE MODE - Group 4

Available: Only if A2.LNK is different than OFF.
Upper display: Selected failsafe mode for alarm 1.
Lower display: A2.FSM
Range: FS, nFS. Failsafe mode, non-failsafe mode.
Default value: Failsafe mode.

ALARM 3 HYSTERESIS - Group 4

Available: Only if A3.LNK is different than OFF.
Upper display: Alarm 3 hysteresis
Lower display: A3.HYS
Range: From 0.1 to 10.0% of the selected range.
Default value: 1.0%

ALARM 3 RESET MODE - Group 4

Available: Only if A3.LNK is different than OFF.
Upper display: Selected reset mode for alarm 3.
Lower display: A3.RES
Range: Auto, LAtCh. Automatic reset, manual reset.
Default value: Auto.

ALARM 3 FAILSAFE MODE - Group 4

Available: Only if A3.LNK is different than OFF.
Upper display: Selected failsafe mode for alarm 1.
Lower display: A3.FSM
Range: FS, nFS. Failsafe mode, non-failsafe mode.
Default value: Failsafe mode.

LOGIC INPUT CONFIGURATION - Group 4

Available: Always.
Upper display: Configuration of logic input.
Lower display: LI.TYP
Range: OFF, AL, P, AL-P, CAL.0, ALL. Disabled, alarm reset, peak reset, alarm and peak reset, zero calibration, alarm, peak reset, zero cal/all
Default value: Alarm and peak reset.

LOGIC INPUT STATUS - Group 4

Available: Only if LI.TYP is different than OFF.
Upper display: Status of logic input.
Lower display: LI.STS
Range: CLOSE, OPEn. The logic input is considered active when the contact is closed or open with respect to this parameter.
Default value: Closed.

PEAK DETECTION - Group 4

Available: Always.
Upper display: Polarity of peak detector.
Lower display: PEAK
Range: OFF, HI, LO. Disabled, maximum peak, minimum peak.
Default value: Maximum peak.

LINE FREQUENCY - Group 4

Available: Always.
Upper display: Line frequency rejection.
Lower display: LINE.F
Range: 50, 60. 50 Hz, 60 Hz.
Default value: 60.

LOADING DEFAULT DATA - Group 4

Available: Only if access to level C is allowed.
Upper display: OFF
Lower display: DEFLT
Range: Use ▼ ▲ keys to switch the upper display from OFF to On 4, then press FUNC key to load the default data of the parameters belonging to group 1, group 2, group 3 and group 4.

12.5 Group 5 Default Parameters

PRIMARY INPUT SELECTION - Group 5

Available: Always.
Upper display: Type of primary input selection.
Lower display: PI.TYP
Range: Str, 0-20, 4-20, 0-5, 0-10. Strain gage, 0-20 mA, 4-20 mA, 0-5V, 0-10V.
Default value: Strain gage.

NOTE: Remember to make the proper selection on the hardware jumpers.

SECONDARY INPUT SELECTION - Group 5

Available: Only is secondary input circuit is fitted.
Upper display: Type of secondary input selection.
Lower display: SI.TYP
Range: OFF, tc, rtd, 0-20, 4-20, 0-10. Disabled thermocouple, RTD, 0-20 mA, 4-20 mA, 0-10V.
Default value: Thermocouple.

NOTE: Remember to make the proper selection on the hardware jumpers.

MAIN ANALOG OUTPUT SELECTION - Group 5

Available: Always.
Upper display: Type of main analog output selection.
Lower display: MO.TYP
Range: 0-20, 4-20, 0-10, -10.10, 0-5. 0-20 mA, 4-20 mA, 0-10V, 0-5V.
Default value: 0-10V.

NOTE: Remember to make the proper selection on the hardware jumpers.

SECOND ANALOG OUTPUT SELECTION - Group 5

Available: Only if second output is fitted.
Upper display: Type of second analog output selection.
Lower display: SO.TYP
Range: OFF, 0-20, 4-20, 0-10, -10.10, 0-5. Disabled, 0-20 mA, 4-20 mA, 0-10V, -10-10V, 0-5V.
Default value: 0-10V.

NOTE: Remember to make the proper selection on the hardware jumpers.

LOADING DEFAULT DATA - Group 5

Available: Only if access to level C is allowed.
Upper display: OFF
Lower display: DEFLT
Range: Use ▼ ▲ keys to switch the upper display from OFF to On 5, then press FUNC key to load the default data of the parameters belonging to group 1, group 2, group 3, group 4 and group 5.

12.6 GROUP 6 SECURITY CODES SETTING

The security codes setting is accessible by setting an internal dip-switch (see Pg. 37) for the security mode. There are three security levels. When each level has been assigned a code, access to the parameters will be available as follows:

- level A: access to parameter group 1.
- level B: access to parameter groups 1 and 2.
- level C: access to parameter groups 1, 2, 3, 4 and 5.

SECURITY CODE - LEVEL A

Available: Always.
Upper display: 0, 1, On.
Lower display: CODE.A
Range: Use ▼ ▲ keys to input the security codes. 0 means no security code (all parameters related to level A are always unlocked). 1 means no security code (all parameters related to level A, level B and level C are always locked). A number from 2 to 250 is the code for level A protection.

SECURITY CODE - LEVEL B

Available: Only if CODE.A is 0 or On.
Upper display: 0, 1, On.
Lower display: CODE.B
Range: Use ▼ ▲ keys to input the security codes. 0 means no security code (the parameters related to level A and level B are always unlocked). 1 means no security code (all parameters related to level B and level C are always locked). A number from 251 to 500 is the code for level B protection.

SECURITY CODE - LEVEL C

Available: Only if CODE.B is 0 or On.
Upper display: 0, 1, On.
Lower display: CODE.C
Range: Use ▼ ▲ keys to input security codes. 0 means no security code (the parameters

related to level A, level B and level C are always unlocked).

1 means no security code (all parameters related to level C are always locked). A number from 501 to 1000 is the code for level C protection.

NOTE: When complete, return dip switches to operating mode. Once security codes are selected, their values cannot be displayed again but the display shows On. If the codes are forgotten, new values should be chosen, using the above procedure. It is recommended that a code be set for each security level. Note that unlocking the Level C code unlocks Levels A, B and C. Unlocking Level B unlocks Levels B and A. Unlocking Level A only Unlocks Level A. When the SECUR functions are accessed in Group 1, the levels that are locked will be followed by a decimal point. E.g. A.b.C. indicates that all the levels are locked.

13. REPAIR

Questions concerning warranty, repair cost, delivery, and requests for a RA# should be directed to the Dynisco Repair Department, 508-541-9400 or email: repair@dynisco.com. Please call for a return authorization number (RA#) before returning any product. Damaged products should be returned to:

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14. WARRANTY

This Dynisco product is warranted under terms and conditions set forth in the Dynisco Web Pages. Go to www.dynisco.com and click on “Warranty” at the bottom of any page for complete details.

Notes:

Notes:

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