

INTRODUCTION

The Model RT350 Plug-In Module accepts a strain gage (bridge) input and provides an isolated DC voltage or current output. In addition, the circuitry contains a stable source of excitation voltage for use with bridge-type transducers such as strain gauges, load cells and similar devices. The circuitry includes filtering and processing to allow effective use of low level transducers in noisy environments common in industrial applications. The RT350 allows user selection via four rotary switches and one slide switch, of most popular input and output ranges. In addition, nine different excitation voltages cover most bridge excitation requirements. Ranging and setup are done without opening the case from simple tables, which determine the switch settings. Full isolation (input/output/power) is standard to eliminate the effects of ground loops and noise common in industrial environments. Input and Output Loop Tracker LED's, which indicate input/output status and functional shunt calibration to facilitate setup and troubleshooting, are also standard.

Multiturn adjustments are for also Zero, Span, and Excitation Trim. Zero/Span are non-interactive for easy adjustment.

INSTALLATION

The RT350 signal-conditioning module is designed to be mounted on a standard 11-pin socket (Dynisco P/N 901100) and in an industrial panel. The assembly may be either DIN rail mounted or permanently secured to the panel with screws. When mounting allow for access to the zero/span trim pots.

At this point the instrument is now "zeroed" and "spanned." The buttons on the left side labeled 0 – 100 can now be used to verify the instrument's operation.

WIRING

Connect the pressure transducer to the Model RT350 per the instructions below. Do not run input wires in the same bundle with power cables, instead shielded cables should be used and grounded at the transducer end only (Dynisco's cable assemblies provide this).

FUNCTION	COLOR	PT420 SERIES	PT460 SERIES
Excitation +	White	A	C
Signal +	Red	B	A
Excitation -	Green	C	D
Signal -	Black	D	B
Internal Cal	Blue	E	E
Resistor	Orange	F	F

FIGURE 1: RT350 Wiring Schematic

WIRING (CONT.)

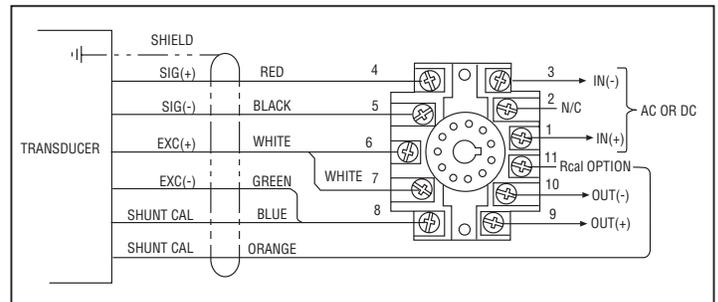


FIGURE 2: Wiring Instructions

OPERATION

The RT350 features field settable excitation, input sensitivity, and outputs, which allows operation with all Dynisco mV/V transducers in a wide range of applications. The settings are made via four rotary switches and one slide switch.

To set up the RT350, locate the slide switch and four rotary switches on the side of the module.

1. Set the slide switch for the desired output type, "I" for 4 – 20 mA or "V" for Vdc.
2. Adjust the rotary switch "B" to the desired output range per table 1.

OUTPUT RANGE	SWITCH "B" SETTINGS
0-1 V	0
0-5 V	9
1-5 V	6
±5 V4	4
0-10 V	3
±10 V5	5
4-20 mA	7

TABLE 1: Settings

3. The excitation can be adjusted via rotary switch "C". All Dynisco mV/V output transducers have a recommended excitation of 10 Vdc, which is position A on the excitation rotary switch. An excitation fine adjustment pot is provided, however, adjustment is generally not required.
4. Switch "D" controls the output zero elevation/suppression, which is useful if the transducer has a high zero offset.
 - a. To LOWER the output zero, rotate Switch "D" progressively up (clockwise) from "9" thru "F", until the "zero" control can be set for your application.
 - b. To RAISE the output zero, rotate Switch D progressively up (clockwise) from "1" thru "7", until the "zero" control can be set for your application. This "elevation" of the output is useful for bipolar input ranges (e.g., ± 10 mV).

OPERATION (CONT.)

5. Rotary switch E is to be set to the value closest to the transducer full-scale output. To determine the full scale output, multiply the mV sensitivity of the transducer by the excitation set at rotary switch C. Example: 3.33 mV/V sensitivity X 10 Vdc excitation = 33.3 mV. Set switch E to position E.

SYSTEM CALIBRATION

After the socket wiring and initial set-up are complete, the last procedure is to set the zero and the span outputs.

With the RT350 powered and the transducer at operating temperature, adjust the zero pot located on top of the RT350 for a "zero" output, e.g. 4 mA. The zero pot may also be adjusted for a zero reading on the pressure display instrumentation, e.g. control system or process indicator. Adjusting this way eliminates calibration errors in the display instrumentation.

The span adjustment can be performed by three methods.

1. For transducers such as Dynisco's, which incorporate an internal shunt calibration resistor, simply position the "CAL" toggle switch to the ON position and adjust the span pot for an 80% FS output or 80% reading on the process indicator.

Note: This is a 6-wire system, which must be connected per Figure 1.

After adjusting the span pot, return the CAL switch to OFF and re-adjust zero pot if necessary.

2. For systems using an external shunt resistor, the shunt resistor may be placed across terminals 8 and 11.

Set the CAL toggle switch to the ON position and adjust the span pot to the value simulated by the shunt resistor.

Note: The sensor manufacturer should provide this value.

Return CAL switch to OFF and adjust the zero pot if necessary.

3. The span adjustment can also be performed using a known pressure or load. Apply a known pressure or load to the transducer or load cell (typically between 40% and 100% FS) and adjust the output via the span pot to the corresponding percentage. The CAL toggle switch is not used when performing the method calibration.

TROUBLESHOOTING

When the unit is wired and powered, a set of Loop Tracker LED's will indicate module status. A green illuminated LED will indicate an Input signal. A red illuminated LED will indicate an Output signal. The intensity of the LED's indicate the I/O signals magnitude – i.e. Dim = Low..... Bright = High. The loop tracker "tracks" or varies its intensities as the process variable changes. The Loop Tracker aids in setup and troubleshooting of the Control Loop by indicating loop current flow and process fluctuations, and also acts as a "power-on" indicator.

The CAL toggle switch can be used to aid in troubleshooting the system. When the switch is in the ON position, both the green and red LED's should be on. If the LED's do not illuminate then:

1. Verify the power to the RT350.
2. Verify that CAL leads are wired to Terminals 8 and 11.
3. Confirm proper wiring between sensor and the RT350.

The green LED lights and red does not (4 – 20 mA output configuration only) the fault is in the control loop.

TRANSDUCER 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 transducers should be returned to:

Dynisco, LLC
Repair Department RA#
38 Forge Parkway, Franklin, MA 02038

TECHNICAL ASSISTANCE

Please call 800-221-2201 or 508-541-9400 or fax 508-541-9436.

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 "Instruments." Click "Product Warranty" at the bottom of any page for complete details.