Specifications

Inputs:
- Voltage: Range Limits: 10mV to 100V (see Table 1)
- Impedance: >10M ohms
- Overvoltage: 2000V continuous
Current Input:
- Range Limits: 1mA to 100mA
- Impedance: 20 ohms typical
- Overcurrent: 170mA, protected by self-resetting fuse
- Overvoltage: 60V

Pushbutton Adjustment (inputs):
- Effective zero offset: >99%
- Effective span turn down: >99% except 20mA/2V range in which 5% is max. zero and span turn down.

Outputs:
- Voltage:
  - Output: 0-5V, 0-10V
  - Drive: 10mA max.

Current:
- Output: 4-20mA, 0-1mA, 0-20mA (DRI-DC only)
- Source Impedance: >10 ohms
- Output: 0-5V, 0-10V

Voltage:
- Effective zero offset:
  - Pushbutton Adjustment (inputs >10mV)
- Overcurrent: 170mA, protected by self-resetting fuse

Current Input:
- Impedance:
  - 0-1mA: 750 ohms
  - 4-20mA: 20 Ohms

Voltage:
- Effective zero offset:
  - Pushbutton Adjustment (inputs >10mV)

Overcurrent Protection:
- 170mA, protected by self-resetting fuse

Power:
- UL recognized per standard UL508 (File No. E99775).

Dimensions:
- DIN Rail Multi-Channel Signal Conditioner

Touch Calibration Technology

Using a pushbutton instead of potentiometers, improvements in calibration resolution and reliability are realized due to the elimination of the potentiometers' mechanical variability. The thermal drift and mechanical variability of the potentiometers has been removed and replaced with a digitally stable circuit. Additionally, the inherent zero and span interactivity of analog amplifier circuitry is removed, providing 100% noninteractive adjustment.

The DRI-DC and DRI-SP-AC can be configured for virtually any DC input to DC output within the limits specified. Calibration utilizes Touch Calibration Technology where the user simply configures the input for the current or voltage range via switches, then follows the Calibration Flow Chart. The output is set by adjusting the input until the desired output is present and then pressing the [RUN] button to store the output level.

DIAGNOSTIC LEDS

The DRI-DC and DRI-SP-AC have three diagnostic LEDs. The green (RUN) LED is used for diagnostics to indicate that power is on. It will flash quickly if the input signal is above the calibrated range or slowly if the input signal is below range.

The yellow (IN) LED is on while calibrating the input and the red (OUT) LED is on while calibrating the output.

Configuration

The DRI-DC and DRI-SP-AC can be configured for inputs ranging from 10mV to 100V or 1mA to 100mA, with >90% input offset and will adjust down to >90% of full scale input span (except on 20mA/2V range where maximum offset or gain adjustment is 50%). Unless a specific custom calibration is specified, the factory presets the Model DRI-DC and DRI-SP-AC as follows:

- Input Range: 20mA (Current on)
- Input Configuration: Unipolar
- Calibrated Input: 4-20mA
- Operation: Direct (Reverse off)
- Calibrated Output: 4-20mA

For other I/O configurations, refer to the tables below.

WARNING: Do not change switch settings with power applied. Severe damage will result!

1. With power off, snap off the faceplate by lifting the right edge away from the heatsink. Slide the heatsink forward and off the module.
2. The single channel module has two eight position switch blocks, one for input and one for output. The dual output modules have a second board behind the heatsink. Gently lift this board away from the main board, rocking it back while lifting. The one output, two input module has one ten position switch block for input and channel 1 output, along with a two position switch for channel 2 output.
3. For single channel modules, choose the desired input, function and output range from Table 1, 2, and 3. For multi-channel modules, use Table 4. Set the dip switches for the desired I/O.
Calibration

Note: For best results, calibration should be performed with the intended output load, in the operating environment, mounted on a DIN rail, allowing at least one hour for thermal equilibrium of the system.

1. Install the module on to a piece of DIN rail and the ACPB rail mounting combination. See the ACPB rail Data sheet for details.

Note: An ACPB rail is required to deliver power to the modules. See ordering information.

2. Connect the input to a calibrated DC source and the output to a voltage or current meter. Apply power and allow the system to reach thermal equilibrium (approx. 20 minutes).

3. Adjust the input signal to the desired maximum and observe that the green LED is on or flashing. Push the CAL button and hold it down for more than 5 seconds (until the yellow and green LEDs are flashing).

4. When the yellow and green LEDs stop flashing, the yellow and red LEDs will be on. Push the CAL button momentarily (the yellow and green LEDs will be on).

Note: To quit the calibration mode and reset the unit, push the CAL button and hold for more than 5 seconds. Or, wait for more than two minutes and the unit will timeout and reset itself to the previously stored calibration.

5. Apply the maximum input signal level desired, and push the CAL button to store (the yellow LED will be on).

6. Apply the minimum input signal level desired, and push the CAL button to store (the green and red LED will be on).

7. Adjust the input signal while monitoring the output signal until the output is at the desired maximum level (e.g. -20.00mA), then push the CAL button to store (the red LED will be on).

8. Adjust the input signal while monitoring the output signal until the output is at the desired minimum level (e.g. 4.00mA), then push the CAL button to store (the yellow, green and red LEDs will be on).

9. Push the CAL button one final time to store the calibration data. The green LED will be on if the input is within the calibrated range.

Table 1: Input Range Settings for Single Channel Module (DRI-DC)

Table 2: Input Function Settings for Single Channel Module (DRI-DC)

Table 3: Output Range Settings for Single Channel Module (DRI-DC)

Table 4: I/O Range & Function Settings for Dual Channel Module (DRI-SP-AC)

Note:
1. To start a new calibration push button & hold 1 sec.
2. To apply calibration push button & hold 1 sec.
3. To apply calibration push button & hold 2 sec. or push CAL button & hold 2 sec. to apply calibration.
4. To quit the calibration mode push button & hold 2 sec. for 5 sec.

Figure 1: Input Connection

Figure 2: DRI-DC and DRI-SP-AC Calibration Flow Chart

Legend:
- = 1 = On or Closed; - = n/a