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Application Bulletin

000-2060 Rev B

Interfacing the 1250B, 1250LTC and 1511-LTC Monitors to the Beckwith Tapchanger Controller

Introduction:

The INCON 1250B, 1250LTC and 1511-LTC Tap Position Monitors are often used to provide positive tap position knowledge to a Digital Tapchanger Controller. One of the most commonly used Tapchanger Controllers is the Beckwith model M-2001. The Beckwith model M-2025 Current Loop Interface Module is used to condition the Tap Position Monitor's output analog signal for use by the M-2001. This document will explain in detail how to set up this interface.

Supporting Documents:

1250B Installation and Programming Manual 000-1077
1250LTC Installation and Programming Manual 000-2072
1511-LTC Installation and Programming Manual 000-1010

Tap Position Monitor Preparation:

1. Program the Tap Position Monitor for the specific type of Load Tap Changer. Refer to the Installation and Programming manuals for the 1250B (000-1077), 1250LTC (000-2072) and the 1511-LTC (000-1010) for complete programming instructions.
2. Verify that the Monitor reads the correct tap position as the LTC moves through its range of travel.
3. Verify that the Monitor's analog output current signal is correct for the tap positions indicated on the display. For example, the output should be at its low scale limit when the lowest tap position is on the Monitor's display and at the high scale limit when the highest tap position is on the Monitor's display. The output should be at the exact mid scale when the middle (or Neutral) tap position is on the display.

Wiring:

1. See figures 1 to 6 for the appropriate wiring of the Tap Position Monitor being used.
2. Wire the jumper on the M-2025 Interface Module to the proper position: between terminals 4 and 5 for Bipolar (-1 to +1 milliamp) signal; between terminals 5 and 6 for Unipolar (0 to 1 milliamp, 0 to 2 milliamp, and 4 to 20 milliamp) signal.
3. Select the proper Current Loop Range Resistor (R_x): 1.5K Ohms for -1 to +1 and 0 to 2 milliamp signals: 3.01K Ohms for 0 to 1 milliamp signal: and 150 Ohms for 4 to 20 milliamp signal.
4. Install the resistor across terminals 1 and 2 on the M-2025 Module as shown in each figure.
5. Connect the Interface Cable between the M-2025 Interface Module and the M-2001 Controller as shown.

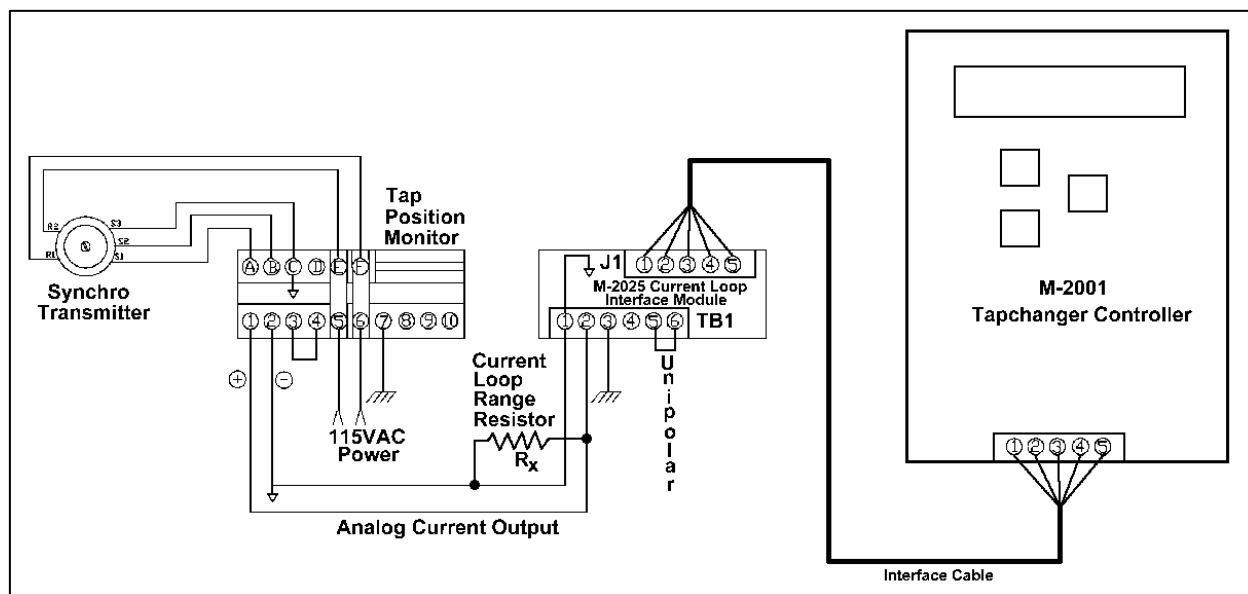


Figure 1 Wiring for model 1250B-0, 1250B-2, 1250LTC-0 and 1250LTC-2

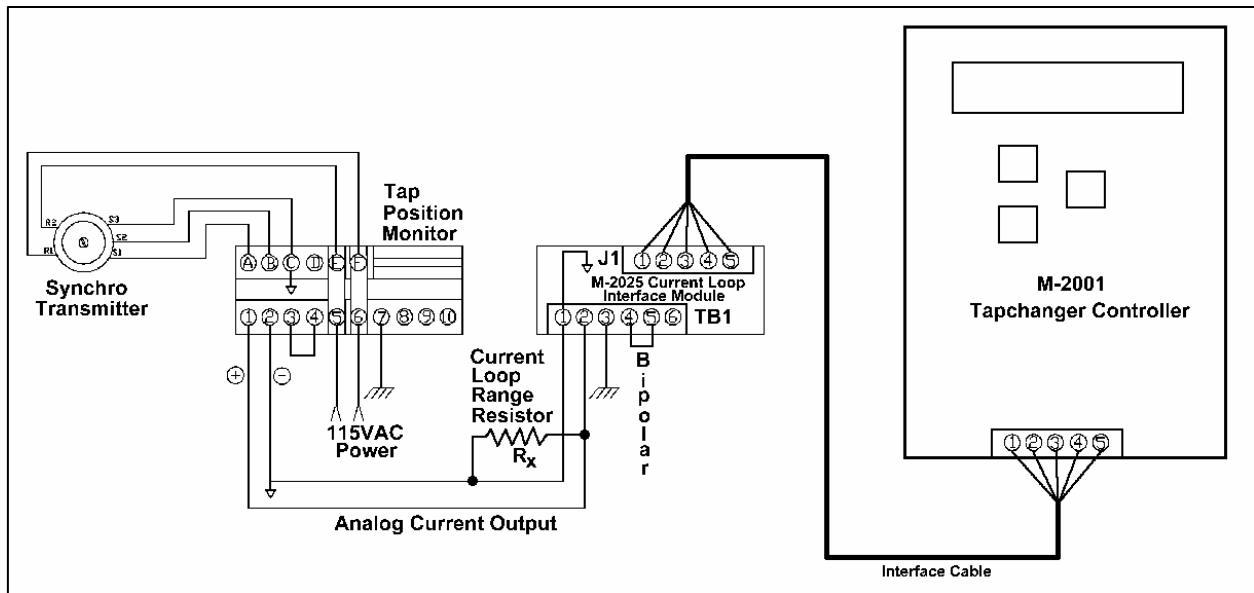


Figure 2 Wiring for model 1250B-1 and 1250LTC-1

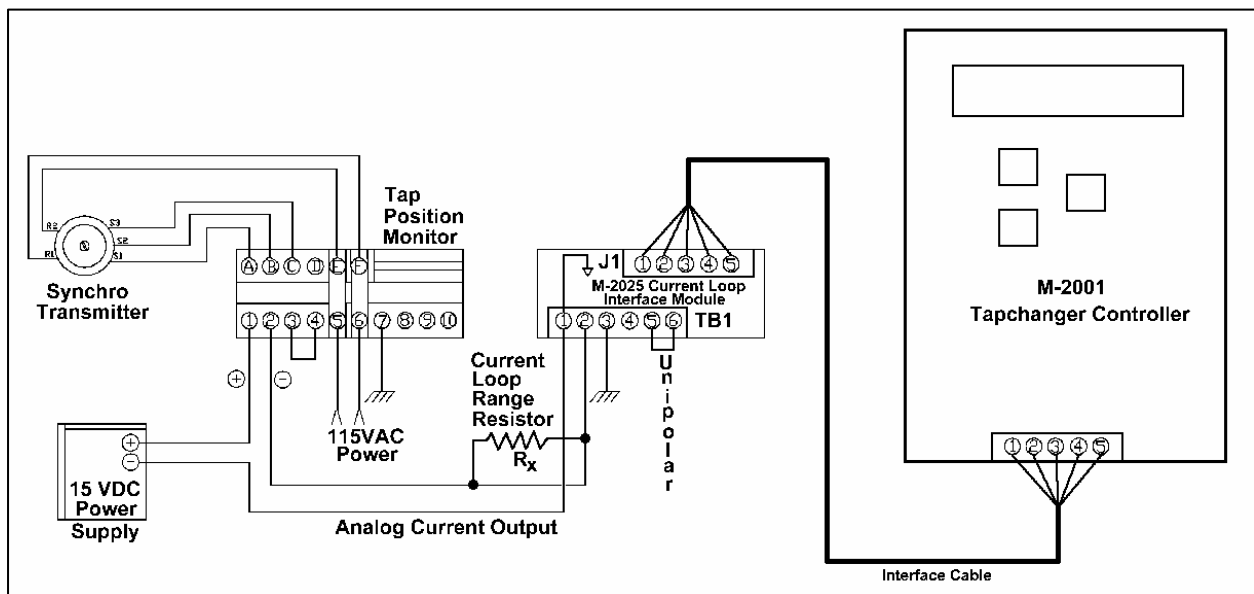


Figure 3 Wiring for model 1250B-4 and 1250LTC-4

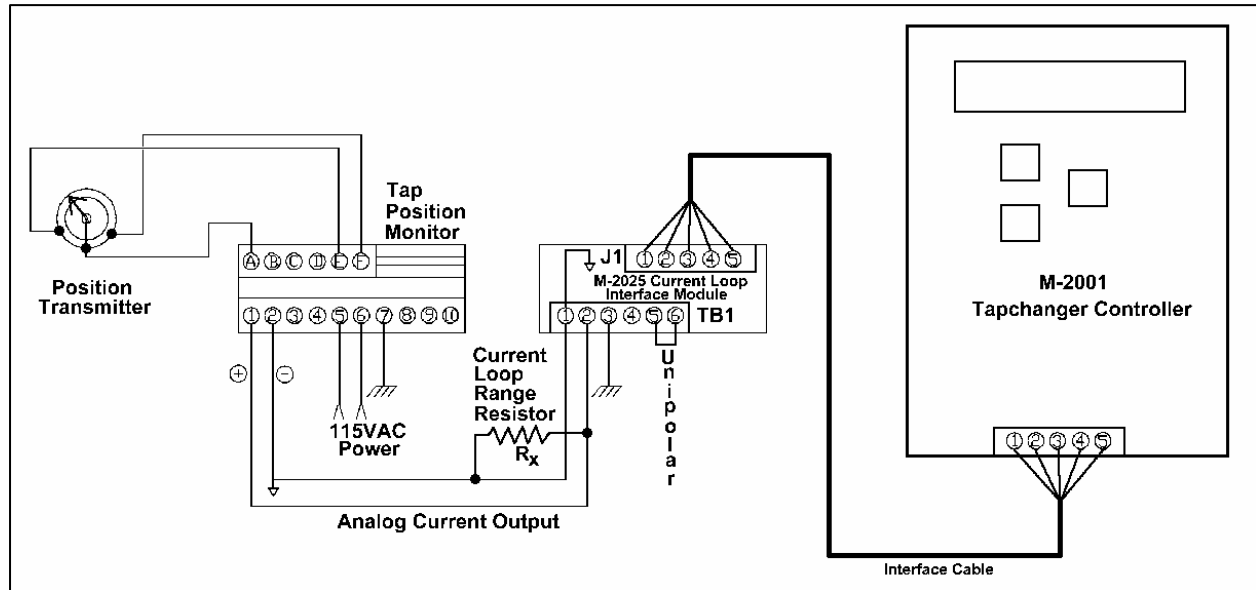


Figure 4 Wiring for model 1511-LTC-0, and 1511-LTC-2

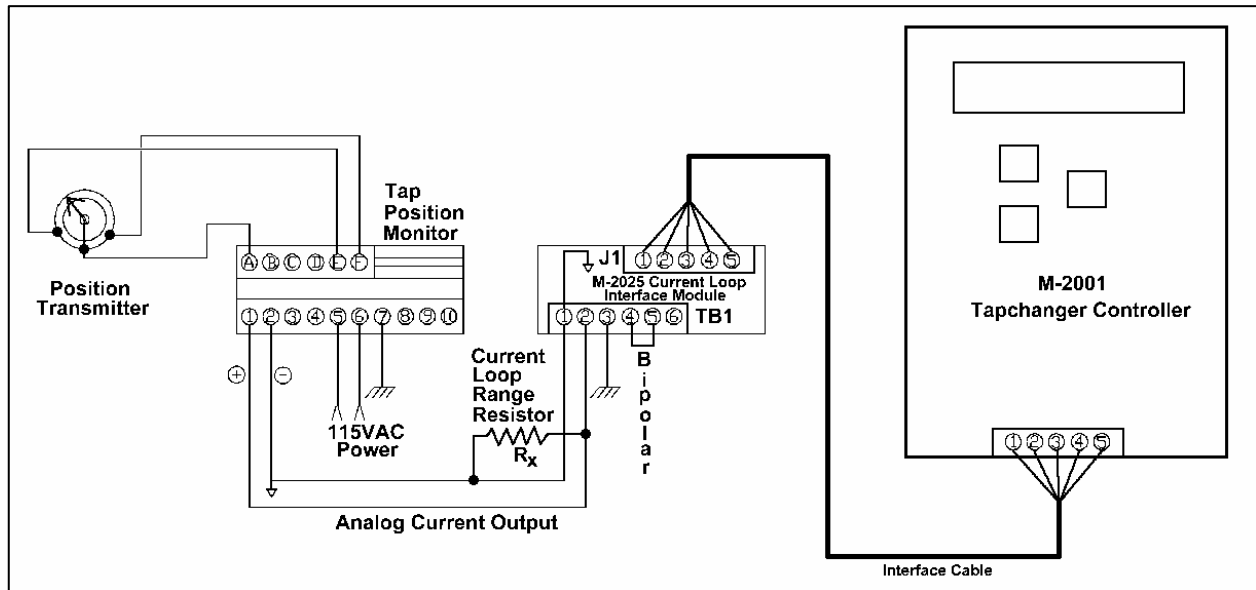


Figure 5 Wiring for model 1511-LTC-1

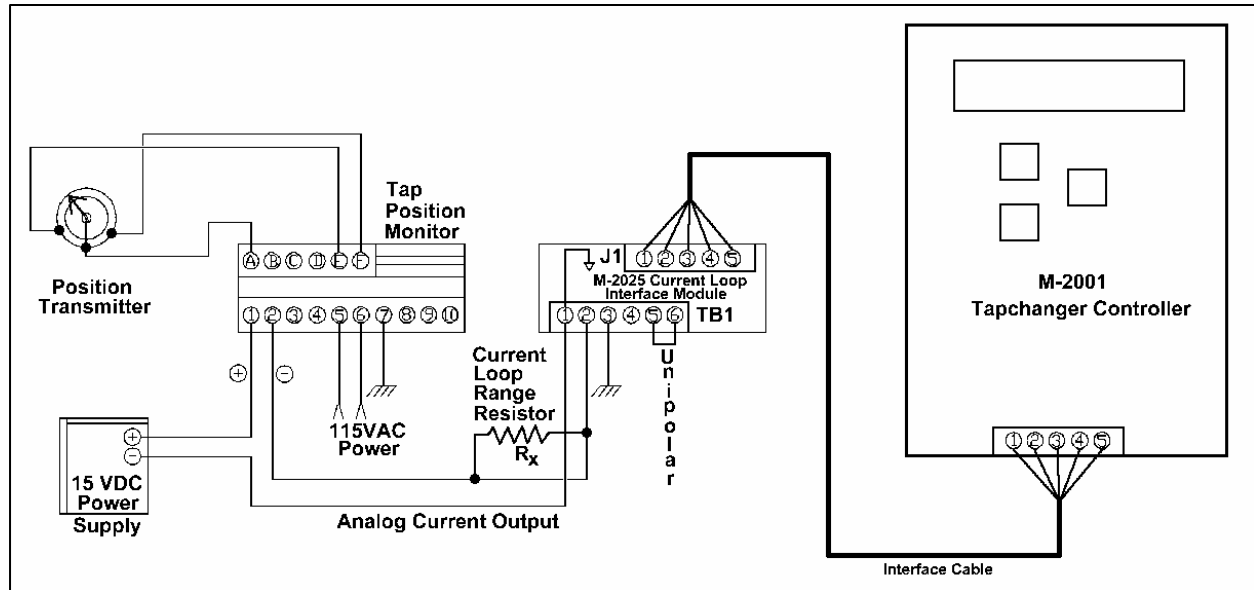


Figure 6 Wiring for model 1511-LTC-4

Tapchanger Control Setup:

1. Enter the M-2001 CONFIGURATION MENU.(Refer to Beckwith M-2001 Manual).
2. Select the appropriate TAP INFORMATION screen for the CURRENT LOOP method of Tap Position Knowledge, based upon the application (transformer or regulator) and the current range (0 to 1mA, 0 to 2, -1 to +1mA or 4 to 20mA).
3. Calibrate the Tapchanger Control to the present tap position using the TAP CALIBRATE screen. (Note: Calibration should be performed between N and 16R, if possible.)
4. Verify that the tap position displayed on the M-2001 and the actual tap position agree.

NOTE: When using the M-2025, the M-2001 should be set with a minimum Inter-tap Delay of 1 second.

DANGER: Use the neutral light and mechanical tap position indicator when determining the neutral position for bypassing a regulator. Do not rely on the Beckwith M-2001 or INCON Tap Position Monitor displays of tap position for bypassing a regulator. Doing so may result in death, severe injury, or damage to the regulator.

CAUTION: Calibration of the tap position should be *carefully checked*. Incorrect tap positioning and limiting can result in improper voltage regulation. If the tap position knowledge function is not used, the Tap Information on the Beckwith screen *should* be set to DISABLE