

Addendum to TI-500RF Installer's Manual For Analog Output Option

OVERVIEW OF CHANGES

1. For Version Code 14.09.12 and higher please disregard the ANALOG OUTPUT OPTION INFO section found in the current manual and use the information presented here instead
2. The F24 instructions have changed
3. Additional A3 menu selections have been added
4. This indicator provides one analog output in lieu of the COM1 serial port. As a result, all serial port communication functions were removed to accommodate the analog output. Appendix B is no longer applicable. In addition, almost the entire "A" menu is excluded.

GENERAL INFORMATION

This digital indicator provides an active analog output from two terminals designated V_{OUT}/I_{OUT} and COM.

- For Model TI-500 RF, the output terminals are realized on the D-SUB9 connector: Pin 2 is V_{OUT}/I_{OUT} and pin 3 is COM.
- For Model TI-500 RF SS, the output terminals (J2) are found on the option PCBA located inside of the unit.

There are two types of active analog outputs available:

1. 4-20 mA
2. 0-10 V

Select between the two types by positioning the JP1 shunt block inside of the unit and configuring A3. ("5" = 4-20 mA, "6" = 0-10 V)

The output tracks the displayed weight, so you must first have the indicator configured and calibrated correctly in order for it to work properly.

Once everything is connected and working, you can use the F24 fine calibration procedure to adjust the output if necessary.

NOTE1: The unit ships from the factory pre-configured to 4-20 mA.

NOTE2: The unit is pre-calibrated at the factory to transmit 0V or 4 mA at 0 mV/V and 10V or 20 mA at 1 mV/V.

NOTE3: Unlike typical 2-wire transmitters, an external DC power supply is not required when the indicator is configured for 4-20 mA.

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How to configure the analog output for 4-20 mA:

1. Remove power and carefully open up the unit.
2. Locate the small PCBA marked "C&V AD5422 07152K14" and position the shunt block between pin 1 and pin 2 of JP1. **NOTE:** You can identify pin 1 by looking for the square pad
3. Set A3 to "5"

How to configure the analog output for 0-10 V:

1. Remove power and carefully open up the unit.
2. Locate the small PCBA marked "C&V AD5422 07152K14" and position the shunt block between pin 2 and pin 3 of JP1. **NOTE:** You can identify pin 1 by looking for the square pad
3. Set A3 to "6"

Coarse Calibration

Coarse calibration of the analog output is done in conjunction with scale calibration (F16 and F17). Therefore, once F16 and F17 have been successfully performed, the indicator will transmit 0V or 4 mA at zero and 10V or 20 mA at full-scale.

After the coarse calibration has been executed, use F24 to perform a fine calibration of the analog output if desired.

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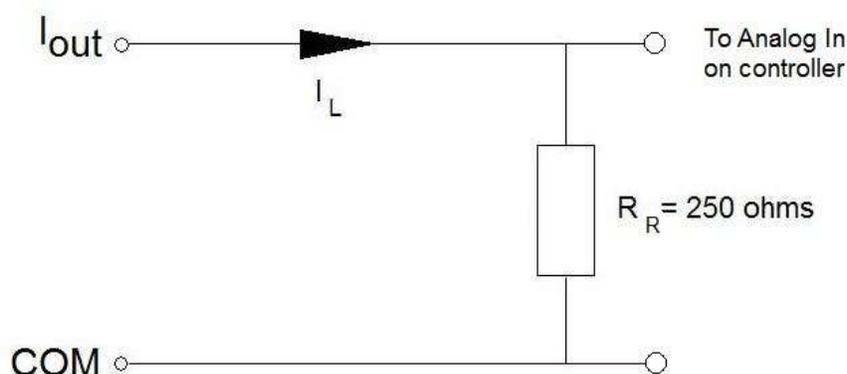
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4-20 mA Analog Output

A 16-bit DAC is used along with a current loop transmitter. The current flows out of the I_{OUT} terminal and back into the COM terminal.

Here is a working connection diagram used at the factory to test:

In most current loop applications, a receiver resistor (R_R) is used to convert the current into voltage. This voltage output is then connected to the analog input of your controller, e.g. a PLC.



Here is how to test to see if it is working correctly:

1. Configure and calibrate the indicator to your weighing platform (or load cell simulator) and ensure that the weighing function is working properly.
2. Connect the I_{OUT} and COM wires to an external 250 Ω precision resistor as shown in the test diagram above.
3. When the indicator is at zero, the output should be 4 mA and the voltage across R_R should be 1 VDC. (4 mA * 250 Ω)
4. When the indicator is at full-scale, the output should be 20 mA and the voltage across R_R should be 5 VDC. (20 mA * 250 Ω)

NOTE 1: You may also use an ammeter in series with the resistor to measure the current

NOTE 2: Use F24 (fine calibration) to digitally 'tweak' the outputs

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0-10 V Analog Output

You can measure the output directly across the V_{OUT} and COM terminals. Connect the output directly to the analog input terminal of your controller. A receiver resistor is not required.

Fine Calibration (F24)

1. Enter the Setup Menu and scroll to F24. For directions on entering the Setup Menu, see Chapter 3 of the manual.
2. Push the down (ZERO) key once.
4-20 mA: The indicator outputs 4 mA, displays "DA C0" briefly and then displays a number.
0-10V: The indicator outputs 0V, displays "DA U0" briefly and then displays a number.
3. While monitoring the output, use the left (TARE) or right (PRINT) keys to change the displayed value until the measured output is exactly what's expected.
TIP: For a larger change, use the up (UNITS) or down (ZERO) keys to change the displayed value by 10
4. Press the SET (Net/Gross) key to save.
4-20 mA: The indicator outputs 20 mA, displays "DA C1" briefly and then displays a number.
0-10V: The indicator outputs 10V, displays "DA U1" briefly and then displays a number.
5. While monitoring the output, use the left (TARE) or right (PRINT) keys to change the displayed value until the measured output is exactly what's expected.
TIP: For a larger change, use the up (UNITS) or down (ZERO) keys to change the displayed value by 10
6. Press the SET (Net/Gross) key to save and revert back to F24.

NOTE: Be sure to press the up (UNITS) key twice when finished in order to save the changes and exit setup mode

CHANGES TO "USER MENU CHART" SECTION

1. Added Selections 5 and 6 to A3 (Serial Port Mode).
A3=5: 4-20 mA
A3=6: 0-10 V