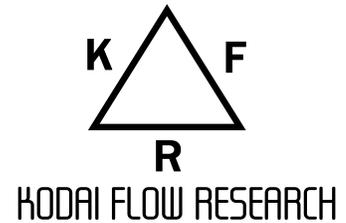


# Configuring DIN32USFT Transmitter via Modbus

Document KFR.IN04.V2

Updated August 4, 2017



### Disclaimer:

*Use of this product is at the users own risk. No liability is implied except for the value of the measurement system. Every effort has been made to insure the equipment is designed to meet required standards in safety, emissions, and susceptibility, however it is left to the user to insure no interference with other equipment exists, and that the installation complies with codes and regulations.*

### Before Set Up

Before configuring a DIN32USFT install the transmitter as instructed in *Installation Guide for DIN32USFT Transmitter (KFR.IN03.V1)*. Install the configuration software on laptop with serial adapter, or connect hand programmer to transmitter. Check the type of port (RS232 or RS485) the electronics is equipped with and that correct adapter is used.

### Configure Serial Port

Figure 1 shows the home screen of the instrument interface. Select the preferred language and the type of serial bus being used. If working on a multi-drop bus, enter node ID of the instrument. If you do not know the ID or it conflicts with an other address, isolate the other instruments from the bus and select "Poll". This will allow the user to select an open address in the configuration process.



Figure 1 – Application Home Screen

In standard Modbus protocol, The ID can be set from 1 to 16 to uniquely identify the transmitter on the network. On KFR instruments it can be any address up to 128 with the exception of 17 which is reserved for polling and blast broadcasts. RS232 are single node so the address is locked at 17. If this is the first time using the USB adapter, click on the USB symbol and set the virtual port and properties as shown in Figure 2. On PC systems use Control Panel to verify the port assigned to the USB adapter.

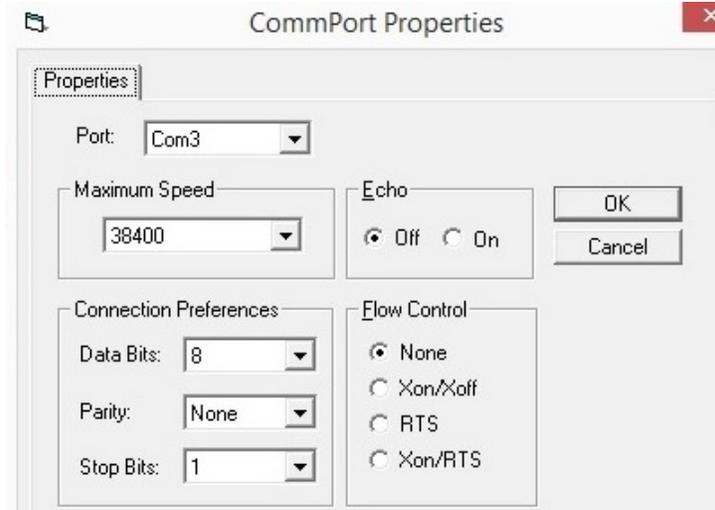


Figure 2 – USB adapter settings. Use control panel to find Comm Port

### Configuring Transmitter:

Press "Setup" icon to enter the configuration mode. The application will download the existing set up file from the meter, then turn on the edit screen (Figure 3).

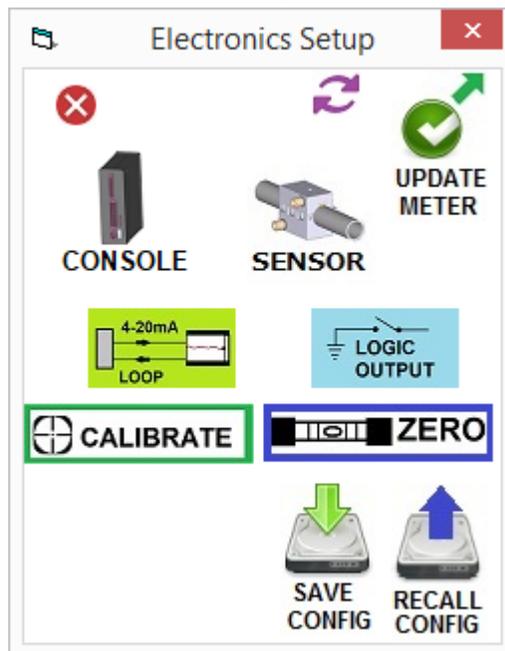


Figure 3 – The Edit screen for a transmitter (off-line mode).

If the meter is not connected the user will receive a warning and be given the option to work in offline mode. In offline mode, load a site file from the drive to edit. If in online mode, the meters software version and serial number will be displayed in the lower left corner of the screen. The functions to zero the flow output and calibrate the analog current loops can only be performed when connected to a running transmitter.

Select **Console** sub-menu to set an alphanumeric name for the site, the number of channels to be used and the node address is unit is on a multi-drop network (Figure 4).



Figure 4 – Console sub-menu.

Next, select the sensor icon to select the type of sensor being used with the transmitter as shown in Figure 5.



Figure 5 – Sensor sub-menu.

Select model number of the sensor being used from the first drop down menu. In most cases, this will all the user will need to do as all the settings will be automatically loaded. Select the fluid the meter will be used to measure and the response time. For reciprocating pumps, select a response time greater than 5 times the cycle rate for best display. This has no effect on the performance of the batch totalizers.

The Zero-On menu selects what type of error causes the flow output is forced to zero. The best practice is set this to zero only when the error is due to low acoustic strength only because this is the result of dry pipe conditions. The loop current output can be set-up to respond to errors independent of this function. The error limits and signal processing inputs should be left at defaults unless instructed by service personnel.

If using an adjustable frame clamp-on sensor, or non-standard tubing, select special and follow the instructions from service personnel.

Back at the Setup Screen, the other features can be modified in any order. To set up the current loop outputs select the icon to load the sub-menu shown in Figure 6.

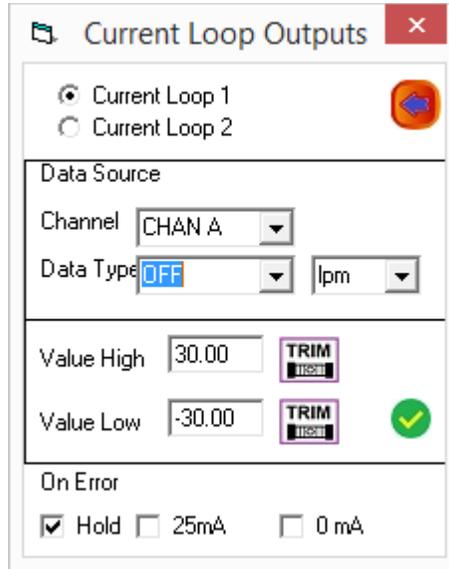


Figure 6 - Current loop output setup.

Select the current loop you want to set up and the data from transmitter to be mapped to the output. If the transmitter is in single channel mode, the data will come from CHAN A by default. Use the trim button to adjust the high (20mA) and the low (4 mA) till each matches the remote reader. For error handling, the user can select “Hold” which passes through the error handling of the flow measurement, or they can chose to output 0mA or 25mA to flag that an Alarm has been set.

The transmitter also has two of logic inputs and three logic outputs. Please refer to KFR.IN03.V1 for exact electrical characteristics of the logic ports. Logic Input 1 is reserved for batch totalizing control and calibration gate. When the input gate is driven low totalizing is suspended on both channels. Logic Input 2 can be set to do nothing, clear the batch totals on both channels, or blank alarms so the meter does not issue alerts during maintenance periods. To set these functions, press the Logic icon on Configuration menu to show the Logic I/O sub-menu (Figure 7). Select the mode for the logic input at the bottom of the menu screen. The logic outputs can either be self biased to 5V using the internal bias voltage or take a user supplied bias. When the logic condition is true, the transmitter drives the gate impedance low. Each output can be selected to set an alarm on a range of error conditions, indicate that the totals have reached a programmed limit, or provide a 50ms pulse each time a programmed volume has accumulated. If an alarm, select the type of errors to alarm and the flow channel for reference. If total or pulse, set the channel, what type of data, and the trigger level.

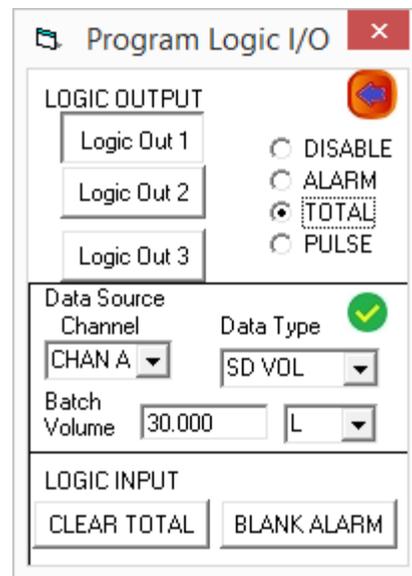


Figure 7 – Logic I/O.

Now that the all the features of the transmitter have been edited, it is a good idea to save the site to a drive for later reference. Press the large check mark in the corner to send the updated file to the transmitter and reset the transmitter.

**Entering Calibration Data:**

There are two other icons on the set-up screen. They are “Calibration” and “Zero”. Once the transmitter is programmed it can be calibrated at a test stand or against a reference meter. The transmitter must be correctly configured before it can be tested.

The once the tests are completed re-connect to the meter and press the Set-Up icon again. Press the Calibration icon to load the menu as shown in Figure 8. Select the Channel then enter the calibration factor (1.05 will make the meter read 5% higher).

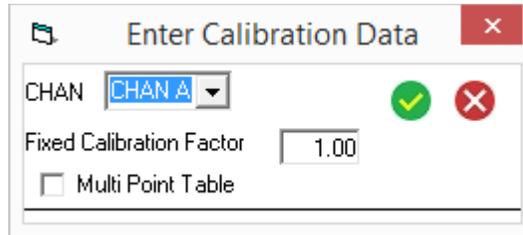


Figure 8 – Calibration Sub-Menu

If provided with a multi-point calibration report, leave the fixed calibration factor at 1.00 and select Multi Point Table. Calibration reports can be issued with the results displayed as either Error in percent of reading or Calibration factor. Select the result type and if the result is versus flow rate or a dimensionless Reynolds number. The Reynolds number is used if the operational fluid will be different that the fluid used in calibration. Enter the data line by line pressing the “Add” button after each data point to build the table. Press the cancel symbol next to a line to remove it from the table. Each table can have up to 25 lines. When complete press the green check mark to save the settings and return to the configuration screen

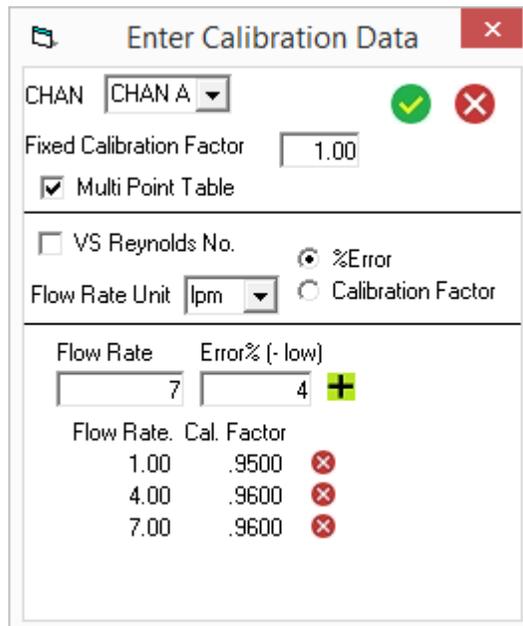


Figure 9 – Building Calibration Table

The configuration screen also has a Zero icon for removing small offsets in the flow. This function is only used in very small tubes where delays in the cables and connectors become important. To use this the terminal must be connected to the transmitter and the transmitter must be operating error free. Verify that the flow is blocked and no bubbles or debris is in the measurement section. Select the Zero function, then confirm the result to return to the configuration screen.

Select Update on the configuration screen to send the new settings to the meter and begin operations.