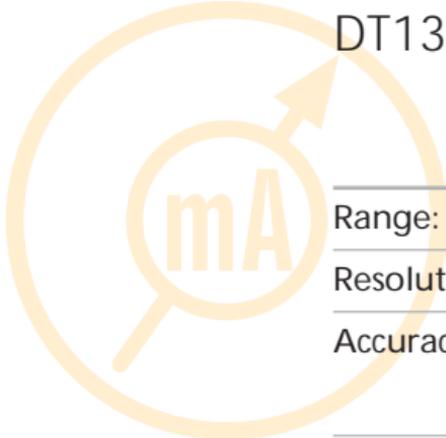


# External Sensor

# CURRENT

DT139



Range:	0-20mA
Resolution:	$\pm 0.1$ mA
Accuracy:	$\pm 3\%$ (before calibration)
Input impedance:	$\sim 170\Omega$
Calibration:	2 calibration points
OV protection:	$\pm 55$ mA

ACCESSORIES

**MicroLog**



## User Guide

for MicroLog  
EC600 and EC650

# Microlog External Current Sensor

DT139



The MicroLog External Current Sensor is one of MicroLog's 6 external sensors. This sensor allows MicroLog to sample any device or transmitter producing an analog and linear output between 0 and 20mA. Using the MicroLab software, the analog current can be converted to any sensor unit simply by entering the sensor name, the unit and two calibration values.

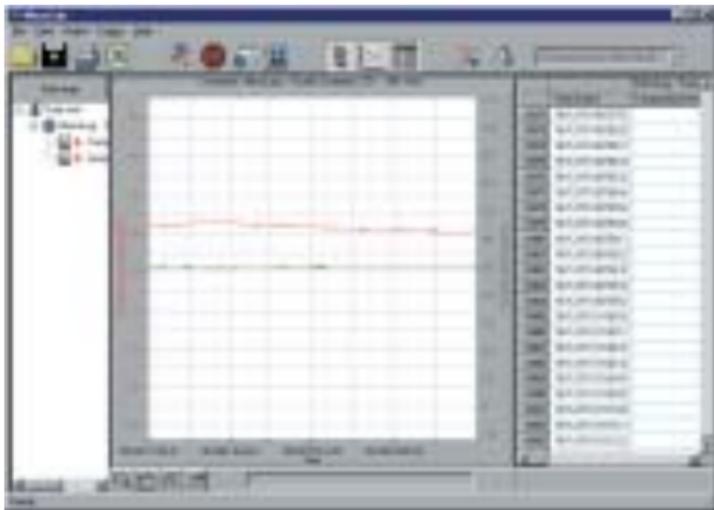


fig. 1

## MICROLOG SOFTWARE

Windows 3.x (MicroLab 2.0 only), Windows 95/98/2000/ME/XP compatible. Data can be exported to any common spreadsheet.

The external current sensor is compatible with MicroLab software versions 2.0 or higher.

**Follow the steps below to select the sensor using MicroLab 3.0 (or higher versions):**

### Selecting the MicroLog External Sensor

1. Connect MicroLog to the PC using the serial communication cable.
2. Open the MicroLab software.
3. Select SETUP menu.
4. Activate the MicroLog external sensor by marking the external sensor check box (fig. 2).

### Selecting the External Current Sensor

Select the external current sensor from the drop-down menu. If you are using the sensor to measure current, use the sensor's default parameters: Name = Current, Unit = mA and Calibration Values = 0 and 20mA.

When connecting your own sensor to the 0-20mA sensor, you can define it and view its results in your sensor's unit and values. In the DEFINE NEW SENSOR dialog box, select ADD, and select CURRENT. Then fill in the sensor's name, unit and two values representing the sensor's levels when it is measuring 0mA and 20mA. You may also define the sensor using other current values such as 4mA and 20mA. Once you have finished filling in all the parameters, select OK, the dialog box should close automatically. Choose the External Sensor that you defined from the drop down menu. Then click on the SEND SETUP icon and MicroLog will automatically start running.

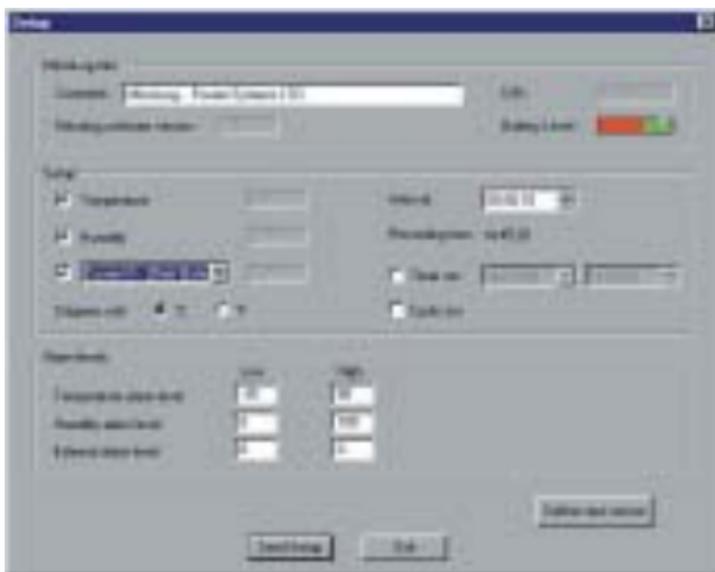


fig. 2

## Follow the steps below to select the sensor using MicroLab 2.0:

### Selecting the MicroLog External Sensor

1. Open the MicroLab software.
2. Connect MicroLog to the PC using the serial communication cable.
3. Click on STOP in the left-hand toolbar.
4. Activate the MicroLog external sensor by clicking on the Sensor Selection button next to the external sensor on the right-hand toolbar (fig. 3).
5. Program MicroLog by clicking on the yellow SEND arrow on the bottom of the right-hand toolbar. You will know MicroLog has been programmed when the yellow arrow becomes transparent.

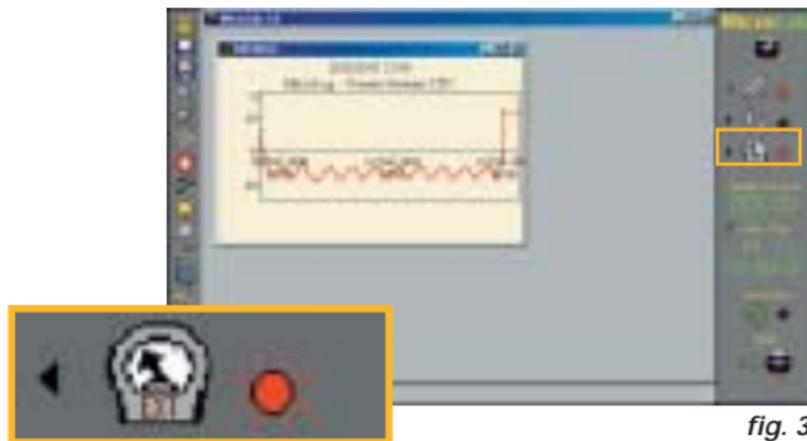


fig. 3

## Choosing the External Current Sensor

Select the small rectangle near the External sensor icon (fig. 3). In case you are using the sensor to measure current, use the sensor's default parameters: Name = Current, Unit = mA and Calibration Values = 0 and 20mA.

When using your own sensor while connected to the 0-20mA sensor, you can define it and view its results in your sensor's unit and values. To do this, select the "Current (0-20mA)" option in the "Choose External Sensor" dialog box. Fill in the sensor name, unit and the two sensor values representing the sensor levels when measuring 0 and 20mA. You may also define the sensor in other current values (e.g. 4, 20mA). In fig. 4 you can see an example of the parameters selection for a pressure sensor producing a linear output 4 to 20mA, while measuring 0 to 100 Bar.

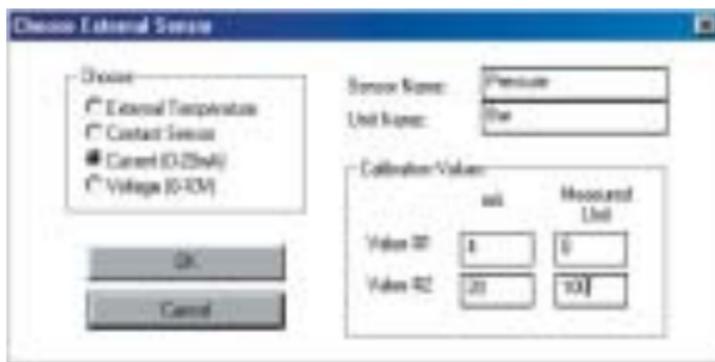


fig. 4

When all the parameters have been filled in, click on OK. The dialog box should close automatically. If the box is not closed it means that MicroLog is either not connected to the PC or is in Sleep Mode. Before disconnecting the communication cable and connecting the sensor, please do not forget to set MicroLog to “logging mode”, by clicking on the Run button on the left-hand toolbar.

## WORKING WITH MICROLOG

Disconnect the communication cable from MicroLog and insert the sensor connector cable in its place (fig. 5). Use the sensor terminals to connect to the current source you are measuring. The positive terminal is marked (+) and negative terminal is marked (-).



*fig. 5*

While measuring the 0-20mA sensor, MicroLog's LCD will display “Et”. When downloading the data to the MicroLab software, the data will be displayed in the predefined units and values. There is no need to select the external sensor before downloading the data.

## CALIBRATION

The external current sensor can be calibrated to reach an accuracy of  $<\pm 1\%$ .

### Follow these instructions to calibrate your sensor using MicroLab 3.0 (or higher versions):

1. Select DEFINE NEW SENSOR to open the dialog box (fig. 6).
2. Select Add to define new values.
3. Select external Current sensor as the default for setting the sensor to a current 0-20mA sensor.
4. Use a reference current source and measure two known current values with the sensor, such as 4mA and 16mA.
5. Write down the actual values MicroLog measured for these two known values.
6. Now define your own sensor using the actual current values you measured in Step 4.

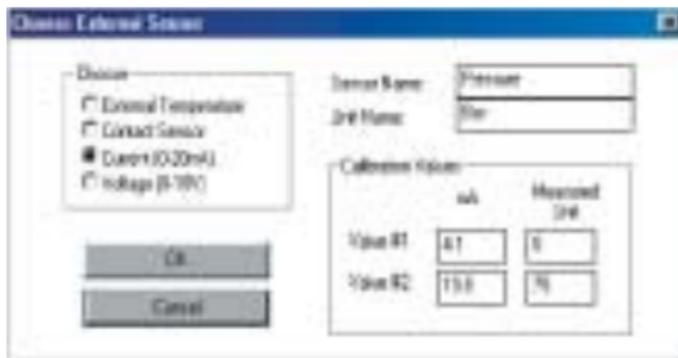
In the following example we have defined a pressure sensor producing an output of 4-20mA, while measuring 0-100 Bar. We have calibrated this sensor between 4 to 16mA. In this example, the 0-20mA sensor was measuring 4.1mA when connected to a 4mA reference and 15.8mA when connected to a 16mA reference. Those values are used to define the pressure sensor as seen in fig. 6



fig. 6

## Follow the instructions below to calibrate your sensor using MicroLab 2.0:

1. Use the "Choose External Sensor" dialog box and select the default setting of the sensor as a current 0-20mA sensor.
2. Use a reference current source and measure two known current values with the sensor (e.g. 4, 16mA).
3. Write down the values that MicroLog was reading for these two known values.
4. Now select the "Choose External Sensor" to define your own sensor using the actual values you've measured in Step 2.



*fig. 7*

In the following example we have defined a pressure sensor producing an output of 4-20mA, while measuring 0-100 Bar. We have calibrated this sensor between 4 to 16mA. In this example, the 0-20mA sensor was measuring 4.1mA when connected to a 4mA reference and 15.8mA when connected to a 16mA reference. These values are used to define the pressure sensor as seen in fig. 7.

## **Warranty**

FOURIER SYSTEMS warrants this product to be free from significant deviations in material and workmanship for a period of one year from date of purchase. If repair or adjustment is necessary and has not been the result of abuse or misuse within the warranted time period, please return – freight pre-paid – and correction will be made without charge. FOURIER SYSTEMS alone will determine if the product problem is due to deviations or customer misuse.

Out-of-warranty products will be repaired on a charge basis.

## **Return of items**

Authorization must be obtained from your FOURIER SYSTEMS distributor before returning items for any reason. When applying for authorization, please include data regarding the reason the items are to be returned. For your protection, items must be carefully packed to prevent damage in shipment and insured against possible damage or loss. We will not be responsible for damage resulting from careless or insufficient packing. A restocking charge will be made on all unauthorized returns.

**Note:** We reserve the right to make improvements in design, construction, and appearance of products without notice.

## MORE AVAILABLE EXTERNAL SENSORS

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Temperature Sensor	-50 to 100 °C (-58 to 212 °F)
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PH Sensor	1 - 14 pH
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Voltage Sensor	0 - 10 V
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Contact Sensor	open / close
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Light Sensor	0 - 5000 lux
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**Contact Us**

For further information please contact our local dealer.

