



Sensors Compatible with Fourier Systems' Data Loggers

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This document lists sensors compatible with Fourier Systems data loggers:

MultiLogPRO, Nova5000 and USB Link.

Together with the MultiLab software these sensors are used for data collection and data analysis.

For third-party sensors from Vernier and Data Harvest check availability with your local Fourier reseller.

Please contact Fourier Systems at support@fourier-sys.com or call 1-866-771-NOVA (toll-free in USA only) for more information regarding these sensors or for more explanation on how to setup the sensors.

Supported Fourier Systems Sensors

P/N	Type	Range	Physics	Biology	Chemistry
DT138	Acceleration	± 5g	✓		
AC020A	Ammonium Electrode	0.1 to 18,000 ppm		✓	✓
		Wind speed: 4 to 280 km/h		✓	
AC012A	Anemometer	Wind direction: 0 to 360			
AC019A	Calcium Electrode	0.02 to 40,000 ppm		✓	✓
DT040	Carbon Dioxide (CO ₂)	350 to 5,000 ppm		✓	✓
DT261A	Charge	± 0.25 uC to ± 0.025 uC	✓		
AC018A	Chloride Electrode	1.8 to 35,500 ppm		✓	✓
DT185A	Colorimeter	Three colors; blue, green, red		✓	✓
DT035A	Conductivity	0 to 20 mS	✓	✓	✓
DT110	Control Switch - Closed	Normally closed	✓	✓	✓
DT111	Control Switch - Open	Normally open	✓	✓	✓
DT005	Current 2.5 A	± 2.5 A	✓		✓
DT006	Current 250 mA	± 250 mA	✓		✓
DT020-1	Distance	0.2 to 10 m	✓	✓	
DT293	Drop Counter	0 to 4096		✓	✓
DT189A	EKG	0 to 5 V		✓	
DT254	Flow Rate	0 to 4 m/s		✓	
DT272	Force	± 10 N; ± 50 N	✓		
DT116	Geiger Muller	0 to 4096 Bq	✓	✓	✓
DT298A	Heart Rate (Exercise)	0 to 200 bpm		✓	
DT155A	Heart Rate (Pulse)	0 to 200 bpm		✓	



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P/N	Type	Range	Physics	Biology	Chemistry
DT014	Humidity	0 - 100%, 5% accuracy	✓	✓	✓
DT009-1	Light	0 to 300 lux	✓	✓	✓
DT009-4	Light Triple-range	0-600, 0-6000, 0-150,000 lux	✓	✓	✓
DT156	Magnetic Field	0 to 10 mT, 0 to 0.2 mT	✓		
DT008	Microphone	± 2.5 V Frequency range: 35 Hz to 10,000 Hz	✓		
AC017A	Nitrate Electrode	0.1 to 14,000 ppm		✓	✓
DT222A	Oxygen Adapter	0 to 12.5 mg/L 0 to 25%		✓	✓
DT118	Oxygen Electrode	0 to 12.5 mg/L 0 to 25%	✓	✓	
DT017	pH Adapter	0 to 14 pH		✓	✓
DT018	pH Electrode	0 to 14 pH		✓	✓
DT137	Photo Gate	0 to 5 V (Digital)	✓	✓	
AC008A	Potassium Electrode	90 to 39,000 ppm		✓	✓
DT015	Pressure	150 to 1150 mbar	✓	✓	✓
DT015-1	Pressure	0 to 700 Kpa	✓	✓	✓
DT015-2	Pressure	0 to 10 Kpa	✓	✓	✓
AC013	Rain Collector	0 to 819 mm		✓	✓
DT148A	Rotary Motion	± 128°	✓	✓	
DT122A	Smart Pulley	0 - 99 m/s	✓		
DT171	Soil Moisture	0 to 200 cbar		✓	✓
DT320	Sound Level	45 to 110 dB	✓		
DT037A	Spirometer (Breathing)	± 315 L/min ± 5.25 L/sec			
DT025	Temperature (Thermocouple)	0 to 1200 °C	✓	✓	✓
DT027	Temperature (PT-100)	-20 °C to 400 °C	✓	✓	✓
DT029	Temperature	-25 °C to 110 °C	✓	✓	✓
DT095A	Turbidity	0 to 200 NTU		✓	✓
DT001	Voltage 25V	± 25 V	✓		✓
DT002	Voltage 2.5 V	± 2.5 V	✓		✓
DT003	Voltage 5 V	0 - 5 V	✓		✓
DT004A	Voltage 50 mV	± 50 mV	✓		✓



Supported Vernier Sensors

Using an adapter available from Fourier Systems, the following Vernier sensors may be connected to the Fourier sensor interface. To use these sensors they must first be defined in MultiLab. Read the instructions listed at the end of this document for defining a new sensor in MultiLab.

Note: Only Vernier Analog linear sensors are supported. Digital sensors are not compatible with Fourier data loggers.

Sensor	Units	Minimum Output Voltage	Minimum Real Value	Maximum Output Voltage	Maximum Real Value
Accelerometer 3 axis	m/s ²	0	-51.6	5	63.0
Accelerometer Low g	m/s ²	0	-51.8	5	62.9
Barometer Hg	Hg	0	24.2	5	35.7
Barometer atm	atm	0	0.8	5	1.2
Barometer mm Hg	mm Hg	0	614.8	5	907.4
Barometer mbar	mbar	0	819.5	5	1209.5
CO ₂	ppm	0	0.0	5	10000.0
Colorimeter	%	0	0.0	5	142.9
Current ± 0.6A	A	0	0.625	5	-0.625
Differential Voltage	V	0	6.3	5	-6.3
Dissolved Oxygen	mg/L	0	-0.3	5	16.0
Dual Range Force 10N	N	0	12.3	5	-12.3
Dual Range Force 50N	N	0	61.3	5	-61.3
Flow Rate	m/s	0	0.0	5	5.0
Force 10N	N	0	12.25	5	-12.25
Force 50N	N	0	61.25	5	-61.25
Gas Pressure kPa	kPa	0	0.0	5	232.4
Gas Pressure atm	atm	0	0.0	5	2.2935
Gas Pressure mm Hg	mm Hg	0	0.0	5	1743.2
Light Sensor 0 - 600 Lux	lx	0	0.0	5	770.0
Light Sensor 0 – 6000 Lux	lx	0	0.0	5	8460.0
Light Sensor 0 – 150,000 Lux	lx	0	0.0	5	192120.0
Magnetic Field 6.4 mT in gauss	Low gauss	0	-80.6	5	80.6
Magnetic Field 0.3 mT in gauss	Hi gauss	0	-3.2	5	4.8
Magnetic Field 0.3 mT in millitesla	Low millitesla	0	-8.1	5	8.1
Magnetic Field 6.4 mT in millitesla	Hi millitesla	0	-0.3	5	0.5



Sensor	Units	Minimum Output Voltage	Minimum Real Value	Maximum Output Voltage	Maximum Real Value
Microphone	V	0	0	5	5
ORP	mV	0	-559.8	5	1774.6
Oxygen gas	%	0	0	5	32.8125
pH	pH	0.942	10.01	2.45	4.01
Relative Humidity	%	0	-23.8	5	140.7
Salinity	ppt	0	0.0	5	81.5
Thermocouple	C	0	-188.9	5	1393.0
UVA	mW	0	0.0	5	19700.0
UVB	mW	0	0.0	5	19700.0
Voltage ± 6 V	V	0	6.25	5	-6.25
X-Long Temp	C	0	-53.1	5	238.6
X-Long Temp	F	0	-63.5	5	461.5
Direct Connect	C	0	-17.8	5	260.0

Supported Data Harvest Sensors

Data Harvest sensors are able to connect directly to the Fourier sensor interface, without the need of any custom adapters.

To use the following Data Harvest sensors they must first be defined in MultiLab. Read the instructions listed at the end of this document for defining a new sensor in MultiLab.

Note: Only Data Harvest Analog linear sensors are supported. Digital sensors are not compatible with Fourier data loggers.

Sensor	Slope	Intercept	Units	0 Volts (Min Output Voltage)	5 Volts (Max Output Voltage)	MultiLab Name
Current ± 100 mA	55.807	-139	m/s ²	-139	140.035	DH-100mA
Current ± 1 A	0.6233	-1.559	m/s ²	-1.559	1.55755	DH-1A
Current ± 10 A	5.547	-13.73	Hg	-13.73	14.005	DH-10A
Photogate 0-5 V	1	0	atm	0	5	DH-Photogate
pH 0-14 pH	4.3405	-3.982	mm Hg	-3.982	17.7205	DH-pH
Relative Humidity 0-100 %	-3.838	13.72	mbar	13.72	-5.47	DH-RH
Light 100 klux 0-100,000 lux	177.52	-87.515	ppm	-87.515	800.06	DH-Light-100K
Sound level 40 to 110dBA	118.56	-276.66	%	-276.66	316.14	DH-Sound



Defining a New Sensor in MultiLab

MultiLab is preconfigured to work with Fourier sensors. However, it is still possible to work with non-Fourier sensors, such as Vernier sensors, using an adapter and by defining these sensors in the MultiLab software.

To define a new sensor:

1. In MultiLab, go to **Logger > Define New Sensors**.

Calibration values:		
	Output	Real value
Value #1:	0	-10
Value #2:	5	110

2. Enter the **Sensor name** and **Sensor unit** in the relevant fields.
3. Assuming the minimum output voltage for the sensor is 0 V, enter the corresponding **Real** value in the appropriate field. In the screenshot above, the minimum Real value is -10, corresponding to the minimum range of -10 C of the PT-100 temperature probe.
4. Assuming the maximum output voltage for the sensor is 5 V, enter the corresponding **Real** value in the appropriate field. In the screenshot above, the maximum Real value is 110, corresponding to the minimum range of 110 C of the PT-100 temperature probe.
5. Click **OK** to define the sensor. This sensor will now appear in the **Input** drop-down menu in the Setup window. Connect the sensor and perform **Setup** to begin logging data with the new sensor.

Note: Use the tables above to find the relevant minimum and maximum voltage output and corresponding Real values for your Vernier or Data Harvest sensor.