

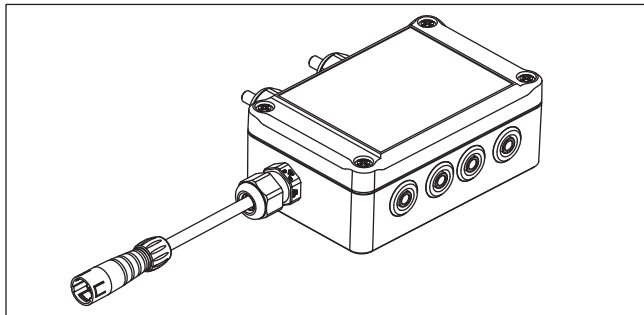
# Auxiliary Input Adapter

## for 17xx Power and Energy Loggers

### *Instructions*

#### **Introduction**

The Auxiliary Input Adapter (the Adaptor or Product) is an accessory for the 17xx Power and Energy Loggers. The adapter allows connection of up to two sensors for analog measurements. These measurements include temperature, pressure, and level with an output voltage of 0 V dc to 10 V dc or a current loop of 4 mA to 20 mA (with additional shunt). Alternately, up to two dc voltage inputs in the range of 10 V dc to 1000 V dc can be used for other applications such as solar energy systems.



## How to Contact Fluke

To contact Fluke, call one of the following telephone numbers:

- Technical Support USA: 1-800-44-FLUKE (1-800-443-5853)
- Calibration/Repair USA: 1-888-99-FLUKE (1-888-993-5853)
- Canada: 1-800-36-FLUKE (1-800-363-5853)
- Europe: +31 402-675-200
- Japan: +81-3-6714-3114
- Singapore: +65-6799-5566

Anywhere in the world: +1-425-446-5500

Or, visit Fluke's website at [www.fluke.com](http://www.fluke.com).

To register your product, visit <http://register.fluke.com>.

To view, print, or download the latest manual supplement, visit <http://us.fluke.com/usen/support/manuals>.

## Safety Information

A **Warning** identifies conditions and procedures that are dangerous to the user. A **Caution** identifies conditions and procedures that can cause damage to the Product or the equipment under test.










### **Warning**

**To prevent possible electrical shock, fire, or personal injury:**

- **Read all safety information before you use the Product.**
- **Carefully read all instructions.**
- **Do not alter the Product and use only as specified, or the protection supplied by the Product can be compromised.**
- **Do not touch voltages >30 V ac rms, 42 V ac peak, or 60 V dc.**

- **Comply with local and national safety codes. Use personal protective equipment (approved rubber gloves, face protection, and flame-resistant clothes) to prevent shock and arc blast injury where hazardous live conductors are exposed.**
- **Do not use the Product around explosive gas, vapor, or in damp or wet environments.**
- **Limit operation to the specified measurement category, voltage, or amperage ratings.**
- **Do not use test leads if they are damaged. Examine the test leads for damaged insulation, exposed metal, or if the wear indicator shows. Check test lead continuity.**
- **Remove the input signals before you clean the Product.**
- **Use only cables with correct voltage ratings.**
- **Do not exceed the Measurement Category (CAT) rating of the lowest rated individual component of a Product, probe, or accessory.**
- **Do not use the Product if it is altered or damaged.**
- **Disable the Product if it is damaged.**
- **Disconnect test leads before opening the housing.**

## Symbols

Symbol	Description
	WARNING. RISK OF DANGER.
	WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.
	Consult user documentation.
	Double Insulated
	Earth
<b>CAT II</b>	Measurement Category II is applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low-voltage MAINS installation.
<b>CAT III</b>	Measurement Category III is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation.
<b>CAT IV</b>	Measurement Category IV is applicable to test and measuring circuits connected at the source of the building's low-voltage MAINS installation.
	Conforms to European Union directives.
	Certified by CSA Group to North American safety standards.
	Conforms to relevant Australian Safety and EMC standards.
	This product complies with the WEEE Directive marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as category 9 "Monitoring and Control Instrumentation" product. Do not dispose of this product as unsorted municipal waste.

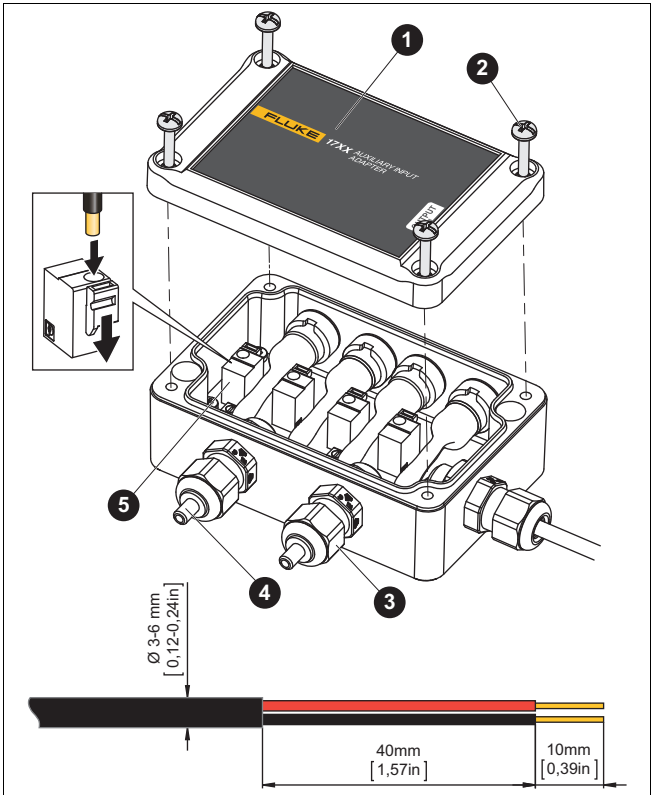
## Direct Input 0 V DC to 10 V DC Configuration

### ⚠ Caution

Connect to the Direct Input only if the Voltage Divider Input is disconnected.

To connect the Adapter:

1. Make sure that all 4 mm safety test leads are disconnected.
2. Loosen the 4 captive screws **2** and remove the lid **1** to open the housing.



3. Cut and strip the cable.
4. Open the grommet strain relief **3** and remove the dummy plug **4**.

### Note

The dummy plug or a cable must be installed to achieve the ingress protection of IP50.

5. Insert the sensor cable through the strain relief ③.  
The cable diameter must be in the range of 3 mm to 6 mm to ensure proper strain relief.
6. Tighten the strain relief.
7. To connect the wires to the terminals ⑤, press the opening lever.
8. Correctly orient the lid ① and close the housing.
9. Tighten the captive screws ②.
10. Connect the 4-pin connector (not shown) to the Logger.
11. Configure the AUX channel on the Logger to show the correct readings and unit of measurement for the attached sensor. For more information, see the documentation for the Logger and the Sensor.

## **Voltage Divider Input**

### **10 V DC to 1000 V DC Configuration**

#### **⚠ Caution**

**Connect the Voltage Divider Input only if the Direct Input is disconnected.**

To connect the Adapter:

1. Use correctly rated 4 mm test leads on the safety socket inputs.

#### *Note*

*Do not connect a signal at the direct input and voltage divider input at the same time. The measured value will be incorrect.*

*The best accuracy is achieved when the inputs have galvanic isolation from each other.*

*See the Additional Errors table for more information.*

2. Connect the 4-pin connector to the Logger.
3. Configure the AUX channel on the Logger to show the correct readings, select an available custom configuration (Custom 1 to Custom 5), and use these settings:
  - Sensor Type: Other
  - Unit: V
  - Gain: 1000 V/V
  - Offset: 0 V

## How to Clean

Clean the Product with a soft cloth, mild soap, and water.

### Caution

To avoid damage, do not clean with abrasives or solvents.

## Specifications

### General

Calibration Cycle .....	2 years
Dimensions .....	119 mm x 86 mm x 38 mm (4.69 in x 3.39 in x 1.5 in)
Weight .....	280 g (0.6 lb)
Output Cable Length .....	1.9 m (6.2 ft)

### Electrical

#### Direct input

Voltage .....	0 V dc to $\pm 10$ V dc
Input Impedance .....	1066 k $\Omega$ (see block diagram for details)
Cable Diameter .....	3 mm to 6 mm
Connection .....	Spring-loaded terminal for solid or braided wires minimum: 0.2 mm <sup>2</sup> (AWG 24) maximum: 1.5 mm <sup>2</sup> (AWG 16)

#### Voltage Divider Input

Voltage .....	0 V dc to $\pm 1000$ V dc
Input Impedance .....	421 M $\Omega$ (see block diagram for details)
Connector .....	4 mm safety socket

## Accuracy

Input	Range	Intrinsic Accuracy AUX Adapter + Instrument (% of Reading + % of Range)
Direct Input	$\pm 10$ V	see instrument specification
Voltage Divider Input	$\pm 1000$ V	$\pm(0.7\% + 0.002\%)$
<p><i>Note</i></p> <p><i>Reference Conditions for attachment: Individual use of AUX1 or AUX2, or galvanic-isolated sources (for example, dc current clamps) at AUX1 and AUX2.</i></p> <p><i>Environmental Reference Conditions: 23 °C <math>\pm</math> 5 °C, instrument operating for at least 30 minutes, no external electrical/magnetic field, RH &lt;65 %.</i></p>		

## Additional Errors:

Influence by galvanic connection of sources

Type of Influence	Typical additional errors for measurements on galvanic-connected sources			
	2x Divider Inputs	Divider Input/Direct Input		2x Direct Inputs
	AUX1 or AUX2 1000 V CAT III Input	AUX1 & AUX2 1000 V CAT III Input	AUX1 or AUX2 max 30 V to ground Input	AUX1 or AUX2 max 30 V to ground Input
Common Mode [1]	1.5 % of $V_{CM}$	3 % of $V_{CM}$	30 ppm of $V_{CM}$	0.15 % of $V_{CM}$
Voltage difference [2]	0.7 % of $V_{diff}$	1.5 % of $V_{diff}$	15 ppm of $V_{diff}$	0.15 % of $V_{diff}$
<p>[1] Common Mode Voltage <math>V_{CM}</math> = Voltage difference between LO potentials of AUX1 and AUX2</p> <p>[2] Voltage difference <math>V_{diff}</math> = difference of voltages <math>V_{AUX1} - V_{AUX2}</math> with connected LO terminals</p>				

## Temperature Coefficient

Direct Input ..... See specification for Logger

Voltage Divider Input ..... 150 ppm/°C (for temperatures <18 °C and >28 °C)

## Safety

### Direct Input

Maximum Voltage between Direct Input Terminals and Earth Ground ..... 30 V

### Voltage Divider Input

Maximum Voltage between 4 mm Safety Socket and Earth Ground ..... 1000 V

IEC61010-1 ..... Pollution Degree 2

IEC61010-2-030 ..... CAT III 1000 V



Environmental

IP Rating..... IEC 60529:IP50

Temperature

Operating..... -10 °C to +50 °C (+14 °F to +122 °F)

Storage..... -20 °C to +60 °C (-4 °F to +140 °F)

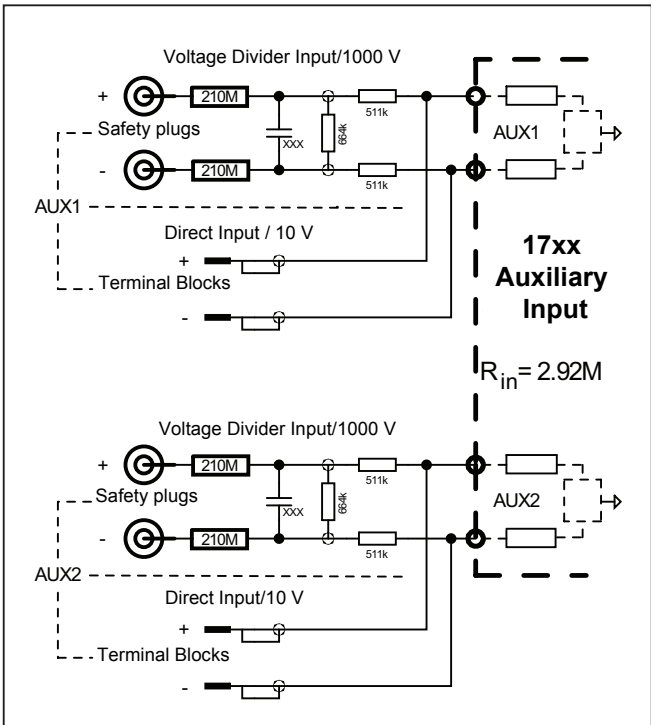
Operating Humidity..... <10 °C (<50 °F) non condensing  
10 °C to 30 °C (50 °F to 86 °F) ≤95 %  
30 °C to 40 °C (86 °F to 104 °F) ≤75 %  
40 °C to 50 °C (104 °F to 122 °F) ≤45 %

Altitude

Operating ..... ≤2000 m (>2000 m to ≤4000 m, derate to  
CAT IV 300 V / CAT III 600 V / CAT II  
1000 V)

Storage..... 12 000 m

Block Diagram



## LIMITED WARRANTY AND LIMITATION OF LIABILITY

This Fluke product will be free from defects in material and workmanship for one year from the date of purchase. This warranty does not cover fuses, disposable batteries, or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke's behalf. To obtain service during the warranty period, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that Service Center with a description of the problem.

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