



## ±35° Programmable Dual-Axis Tilt Switch

Part Number: **0729-1736-99**

### Operating Specifications

<b>Output</b>	1 relay
<b>Supply Voltage</b>	7 V DC to 30 V DC
<b>Supply Current</b>	30 mA @ 12 V DC
<b>Operating Range</b>	±35°
<b>Minimum Trip Angle</b>	±1°
<b>Axes of Measurement</b>	2
<b>Null Offset</b>	≤5°
<b>Repeatability</b>	±0.1°
<b>Trip Accuracy</b>	±0.2°
<b>Output Trip Delay (default, settable)</b>	1 s
<b>Output Return Delay (default, settable)</b>	0.5 s
<b>Output Hysteresis (default, settable)</b>	0.25°
<b>Output Filter (default, settable)</b>	0 s
<b>Cross Axis (Roll) Sensitivity</b>	≤0.025° per degree
<b>Long Term Stability/Drift</b>	≤0.1°
<b>Materials</b>	Contains magnetic metals
<b>Operating Temperature</b>	-35 °C to 70 °C
<b>Storage Temperature</b>	-40 °C to 70 °C

### Physical Characteristics

<b>Housing</b>	ABS Plastic
<b>Electrical Connections</b>	18" cable with 24-gauge wire
<b>Weight</b>	150 g
<b>Length</b>	53 mm (2.102")
<b>Width</b>	79 mm (3.117")
<b>Height</b>	27 mm (1.075")
<b>Flange Length</b>	24 mm (0.936")
<b>Hole Center</b>	89 mm (3.500")
<b>Hole Diameter</b>	5 mm (0.188")

### Ordering Information

Part Number	Description
0729-1736-99	Tilt Switch, ±35°, 2 Axis, Relay/RS-232

### Related Products

Part Number	Description
0717-4319-99	Tilt Sensor, ±50°, 2 Axis
0729-1757-99	Tilt Switch, ±45°, 1 Axis, Open Collector
0729-1758-99	Tilt Switch, ±45°, 1 Axis, Open Collector
0729-1763-XX	Tilt Switch, ±45°, 2 Axis, Relay/RS-232
0729-1751-99	Inclinometer, ±60°, 2 Axis, SPI
0729-1752-99	Inclinometer, ±60°, 2 Axis, RS-232
0729-1753-99	Inclinometer, ±60°, 2 Axis, Analog/PWM
0729-1754-99	Inclinometer, ±60°, 2 Axis, RS-485
0729-1755-99	Inclinometer, ±60°, 2 Axis, Analog/PWM
0729-1759-99	Inclinometer, ±60°, 2 Axis, RS-232
0729-1760-99	Inclinometer, ±60°, 2 Axis, RS-485
0729-1765-99	Inclinometer, ±25°, 2 Axis, Analog/RS-232

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### Description

The **0729-1736-99** Programmable Dual-Axis Tilt Switch utilizes a **0717-4319-99** Fredericks wide range electrolytic tilt sensor and signal conditioner. Its robust plastic housing and epoxy potting provide excellent durability and environmental protection. This tilt switch has superior accuracy and unit to unit performance with a low profile and economic design making it an ideal solution for a versatile range of applications in many sectors.

The RS-232 communications included standard with this tilt switch allow access to several settable features making it simple to integrate into any system.

### Key Features and Benefits

- ±0.2° trip accuracy, ±0.1° repeatability, very high accuracy
- Programmable output trip delay, return delay, and more
- -35 °C to 70 °C operating temperature for industrial applications
- Live text and video chat technical support

### Applications

- [Agricultural vehicles and machinery](#)
- [Geotechnical and structural monitoring](#)
- [Construction machinery and equipment](#)
- Aerial lift and work platforms, boom lift, crane, forklift, scissor lift, and telehandler/telescopic handler operator safety and tip over prevention

View the full list at [www.frederickscompany.com/markets](http://www.frederickscompany.com/markets).

### Relay Output Description

The relay is (closed or open) when un-tripped and (closed or open) when tripped. This relay polarity can be reversed using digital communications or pre-programmed at the factory. The relay is SPDT and rated for 2A at 30 V DC.

### RS-232 Settings

<b>Baud Rate</b>	9600
<b>Data Bits</b>	8
<b>Parity</b>	None
<b>Stop Bits</b>	1

### Electrical Connections

<b>Red</b>	Supply (7 V DC to 30 V DC)
<b>Black</b>	Supply (-)
<b>Orange</b>	Zero wire
<b>Green</b>	Relay (C)
<b>Violet</b>	Relay (NO)
<b>Blue</b>	Relay (NC)
<b>Brown</b>	RS-232 receive (RX)
<b>Yellow</b>	RS-232 transmit (TX)



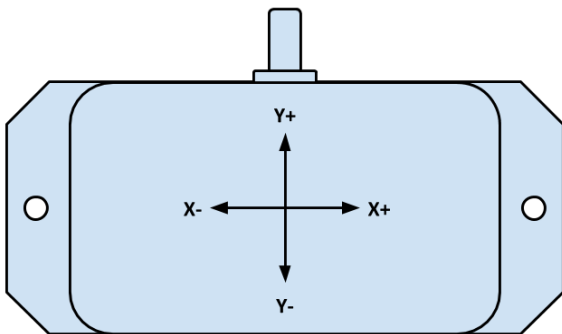
**±35° Programmable Dual-Axis Tilt Switch**  
**Part Number: 0729-1736-99**

RS-232 Commands (commands are case sensitive)	
'?	Show a list of all commands
'set'	Enter setup mode
'x'	Change x axis trip angle
'y'	Change y axis trip angle
'+'	Increment selected axis trip angle by 0.1°
'-'	Decrement selected axis trip angle by 0.1°
's'	Save selected trip angles
'z'	Set and save a new zero position
'd'	Change and save trip delay (0 to 9)
'r'	Change and save return delay (0 to 9)
'p'	Change and save relay polarity (0 to 9)
'h'	Change and save hysteresis value (1 to 8)
'f'	Change and save filter value (0 to 9)
'q'	Show all settings
Esc	Cancel the current command

**Mounting Notes**

The 0729-1736-99 and all tilt switches in this series must be mounted horizontally (parallel to the surface of the earth and perpendicular to the force of gravity). For best performance, isolate the unit from vibrations when mounting it.

**Direction of Measurement**



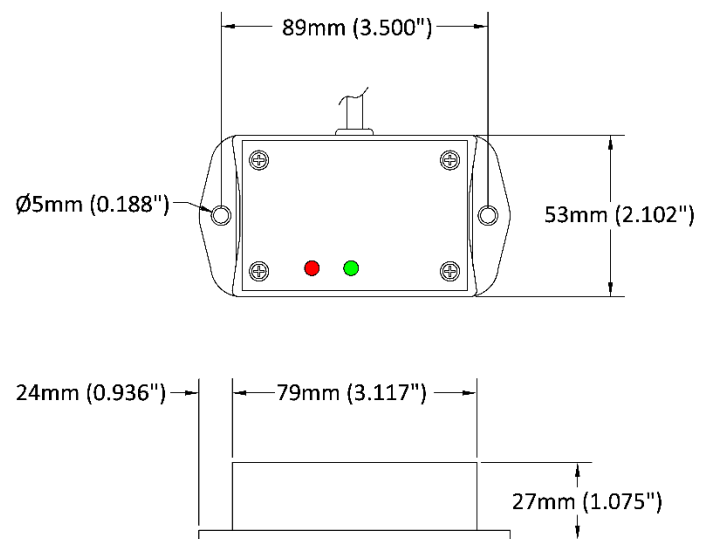
**Certifications and Ratings**

- RoHS Compliant
- IP66

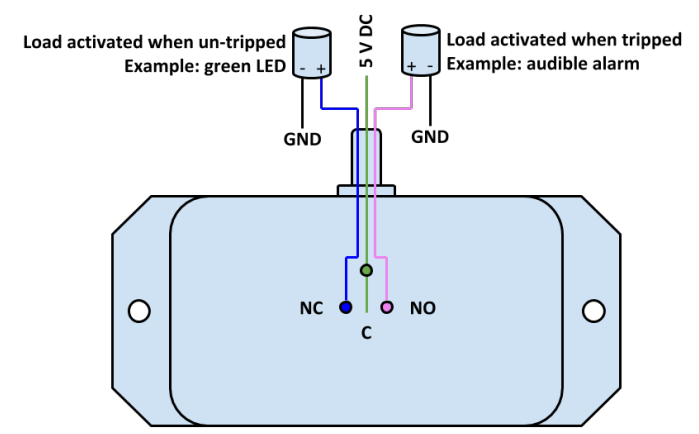
**Additional Documentation**

Manual	<a href="#">0729-1736-99 Instruction Manual</a>
AN1001	<a href="#">Temperature Compensation of Electrolytic Tilt Sensors</a>
AN1003	<a href="#">Configuring Tera Term for Use with TFC Tilt Products</a>

**Dimensional Drawings**



**Wiring Example**



Notes on this example:

1. This assumes the default polarity for the relay (setting of 0). If the relay polarity is changed through RS-232 communications or by the factory at the time of order (setting of 1), the load connected to the violet wire will be activated in the un-tripped state and the load connected to the blue wire will be activated in the tripped state.
2. Always be sure to observe the load polarity before connecting it and ensure that the 0729-1736-99 relay current rating of 2A at 30 V DC is not exceeded.



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**Company Information**

**Specialty Manufacturing Services That Promise Precision** - Since 1935, The Fredericks Company has been a global provider and U.S. designer and manufacturer of the highest performance tilt and vacuum measurement products on the market, with manufacturing processes that ensure the reliability of our products.

**Tilt Measurement Products and Sensors That Set Standards** - Fredericks' comprehensive tilt measurement product portfolio offers [electrolytic tilt sensors](#), [inclinometers](#), and [tilt switches](#). Engineered to outperform competing technology, our tilt sensors are accurate and repeatable with excellent resolution. Our tilt measurement products have no planned obsolescence and serve industries ranging from [construction](#) and [RV leveling](#) to aerospace applications and everything in between.

**A Partnership That Prioritizes Uptime, Lead Time, and Service** - Fredericks guarantees customer satisfaction and our "not too big, not too small" operation is what enables us to offer a true partnership experience. Our dedicated representatives and engineers offer exceptionally responsive service and the fastest lead times in the industry, knowing that uptime is the key to your success. With anytime access to our leadership team and solutions that enhance your products, you will feel the Fredericks difference.

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