

## Dual Axis Tilt Switch with Relay Output

Part Number: **0729-1763-XX**



### Operating Specifications<sup>1</sup>

<b>Communications</b>	RS-232
<b>Supply Voltage</b>	6.5 V DC to 40 V DC
<b>Supply Current</b>	30 mA @ 12 V DC
<b>Operating range</b>	±10° (narrow angle) ±25° (mid-range) ±45° (wide angle)
<b>Linear Range</b>	±25°
<b>Axes of Measurement</b>	2
<b>Repeatability</b>	≤0.1° (narrow, wide) ≤18 arc seconds (mid)
<b>Resolution</b>	≤0.003° (narrow, wide) ≤1 arc second (mid)
<b>Null Offset</b>	≤5°
<b>Cross-Axis Sensitivity</b>	≤0.025° per degree
<b>Long Term Stability/Drift</b>	≤0.1°
<b>Null Temperature Offset</b>	0.006° per °C
<b>Range Temperature Offset</b>	0.1% per °C
<b>Operating Temperature</b>	-40 °C to 70 °C
<b>Storage Temperature</b>	-40 °C to 70 °C
<b>Time Constant (63.2% of final output)</b>	≤100 ms

### Physical Characteristics

<b>Housing</b>	ABS Plastic
<b>Electrical Connections</b>	DB15 male connector
<b>Weight</b>	82 grams (without potting)
<b>Length</b>	79.76 mm (3.14")
<b>Width</b>	53.34 mm (2.10")
<b>Height</b>	27.31 mm (1.08")
<b>Hole Center</b>	91.22 mm (3.59")

### RS-232 Commands<sup>2</sup>

'x'	Output linear X value (0 to 65535)
'y'	Output linear Y value (0 to 65535)
'c'	Output X value in degrees
'd'	Output Y value in degrees
'e'	Change and save trip delay
'f'	Change and save return trip delay
'h'	Change and save hysteresis value
'g'	Change and save relay polarity
'1' to '4'	Set the selected axis trip point
'n'	Save current position as zero
'+'	Increase the filter value
'-'	Decrease the filter value

### Certifications and Ratings

- IP66
- CE certified to CFR 47 FCC Part 15 Subpart B, EN 55011:2009/A1:2010, EN 61326-1:2006

### Description

The **0729-1763-XX** RS-232 programmable tilt switch utilizes Fredericks TrueTilt™ wide range, mid-range, or narrow range electrolytic tilt sensors and four output relays with user-settable trip points. Its robust plastic housing and epoxy potting provide excellent durability and environmental protection. This tilt switch has superior tolerances and unit to unit performance. Its small profile and economic design make it an ideal solution for a versatile range of applications in all sectors.

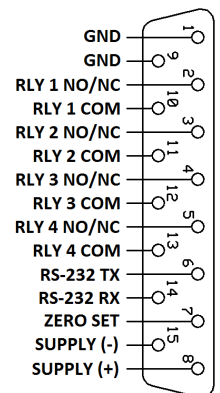
### Applications

- Aerial lift platform leveling monitor or control
- Crane boom angle measurement
- Robotic controls
- Satellite dish alignment
- Solar panel position and elevation control
- Wheel alignment systems

View a full list of applications on The Fredericks Company website at [www.frederickscompany.com](http://www.frederickscompany.com).

### Wiring Connections<sup>3</sup>

Description	Color	Pin Number
<b>Power input</b>	Red	8
<b>Common</b>	Red	1
	Black	15
<b>Zero Wire</b>	Orange	7
<b>Relay 1 (IN)</b>	White	2
<b>Relay 1 (COM)</b>	Black	10
<b>Relay 2 (IN)</b>	Green	3
<b>Relay 2 (COM)</b>	Black	11
<b>Relay 3 (IN)</b>	Yellow	4
<b>Relay 3 (COM)</b>	Black	12
<b>Relay 4 (IN)</b>	Blue	5
<b>Relay 4 (COM)</b>	Black	13
<b>(Setup via RS-232 link)</b>		
<b>RS-232 Input</b>	Black	14
<b>RS-232 Output</b>	Brown	6



### Benefits

- Low power consumption
- Extremely long life
- Minimal drift over lifetime compared to MEMS devices
- Excellent resolution and repeatability
- Superior performance in extreme temperatures and environments
- Excellent customer support

<sup>1</sup> See The Fredericks Company website for a list of term definitions

<sup>2</sup> See Operating Manual for a full list of commands

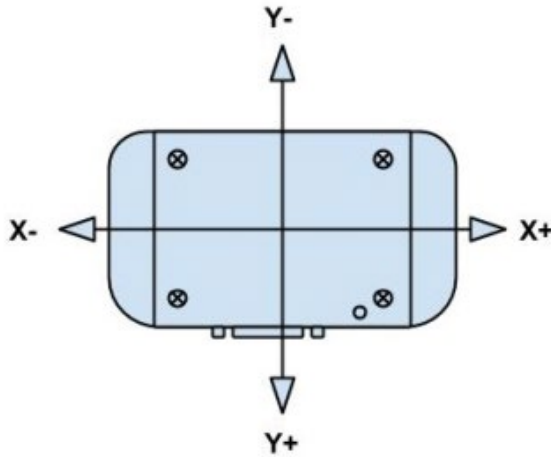
<sup>3</sup> Connections shown using a TFC 2-9858-XXX cable

## Dual Axis Tilt Switch with Relay Output

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### Direction of Measurement



### RS-232 Settings

<b>Baud Rate</b>	9600 (selectable up to 115200)
<b>Data Bits</b>	8
<b>Parity</b>	None
<b>Stop Bits</b>	1

### Mounting Notes

The 0729-1763-XX 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.

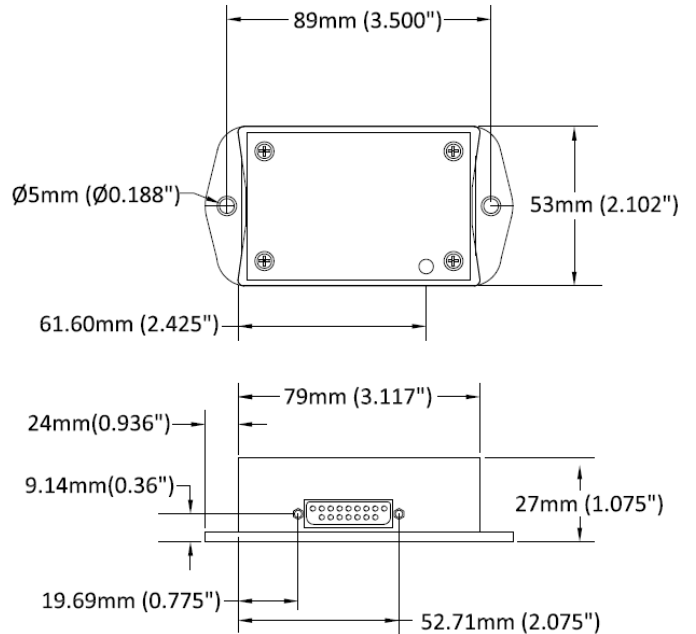
### Related Products

**0729 series inclinometers** - These inclinometers utilize Fredericks TrueTilt™ wide range electrolytic tilt sensors. They have a variety of outputs including analog, RS-232, and RS-485. These inclinometers have a low profile and a robust plastic housing with epoxy potting to provide excellent durability and environmental protection.

**6200 series signal conditioners** - These signal conditioners can be configured with any Fredericks electrolytic tilt sensor. They have a variety of outputs including analog, PWM, RS-232, RS-485, and SPI. The electrolytic tilt sensor and signal conditioner are provided separately or as an assembly with the sensor already installed at the customer's request.

See The Fredericks Company website at [www.frederickscompany.com](http://www.frederickscompany.com) for a full list of products.

### Dimensional Drawings



### Ordering Information

<b>Tilt Switch Plastic Housing Potted</b>	0729-1763-01
<b>Tilt Switch Plastic Housing Not Potted</b>	0729-1763-03
<b>Cable</b>	2-9858-0XX
10 ft (3 m)	10
20 ft (6.1 m)	20
35 ft (10.6 m)	35
50 ft (15.2 m)	50

### Contact Us

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