



±10 to ±45° Programmable Dual-Axis Tilt Switch
Part Number: 0729-1763-XX

Operating Specifications	
Communications	RS-232
Supply Voltage	6.5 V DC to 40 V DC
Supply Current	30 mA @ 12 V DC
Operating Range	±10° (narrow angle)
	±25° (mid-range)
	±45° (wide angle)
Linear Range	±25°
Axes of Measurement	2
Repeatability	≤0.1° (narrow, wide)
	≤18 arc seconds (mid)
Resolution	≤0.003° (narrow, wide) ≤1 arc second (mid)
Null Offset	≤5°
Cross-Axis Sensitivity	≤0.025° per degree
Long Term Stability/Drift	≤0.1°
Null Temperature Offset	0.006° per °C
Range Temperature Offset	0.1% per °C
Relay Output Ratings	2A, 220 V DC
Materials	Contains magnetic metals
Operating Temperature	-40 °C to 70 °C
Storage Temperature	-40 °C to 70 °C
Time Constant (63.2% of final output)	≤100 ms

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

Ordering Information	
Part Number	Description
0729-1763-01	Tilt Switch, Potted, 2 Axis, RS-232
0729-1763-03	Tilt Switch, Not Potted, 2 Axis, RS-232
2-9858-010	3 m (10') cable
2-9858-020	6.1 m (20') cable
2-8958-035	10.6 m (35') cable
2-8958-050	15.2 m (50') cable

Related Products	
Part Number	Description
0729-1736-99	Tilt Switch, ±35°, 2 Axis, Relay/RS-232
0729-1757-99	Tilt Switch, ±45°, 1 Axis, Open Collector
0729-1758-99	Tilt Switch, ±45°, 1 Axis, Open Collector
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

Description

The 0729-1763-XX RS-232 programmable tilt switch utilizes Fredericks 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.

Key Features and Benefits

- ≤0.1° repeatability, very high accuracy
- ≤0.1° long term drift with an extremely long life
- -40 °C to 70 °C operating temperature for industrial applications
- Live text and video chat technical support

Applications

- [Agricultural vehicles and machinery](#)
- [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.

RS-232 Settings

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

RS-232 Commands

'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

See the [0729-1763-XX operating manual](#) for the full list of commands



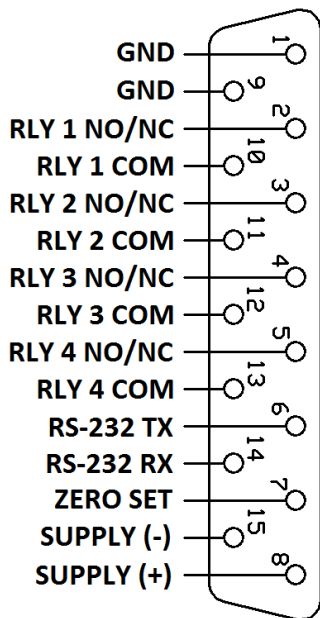
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Wiring Connections

Description	Color	Pin Number
Power input	Red	8
Common	Red	1
	Black	9
Zero Wire	Black	15
	Orange	7
Relay 1 (IN)	White	2
Relay 1 (COM)	Black	10
Relay 2 (IN)	Green	3
Relay 2 (COM)	Black	11
Relay 3 (IN)	Yellow	4
Relay 3 (COM)	Black	12
Relay 4 (IN)	Blue	5
Relay 4 (COM)	Black	13

(Setup via RS-232 link)

RS-232 Input	Black	14
RS-232 Output	Brown	6



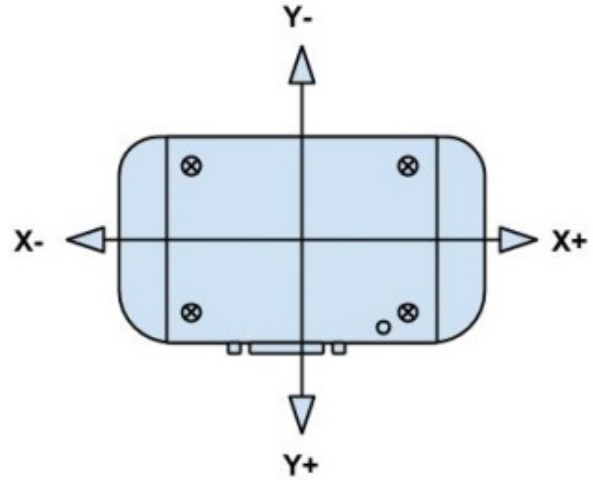
Mounting Notes

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.

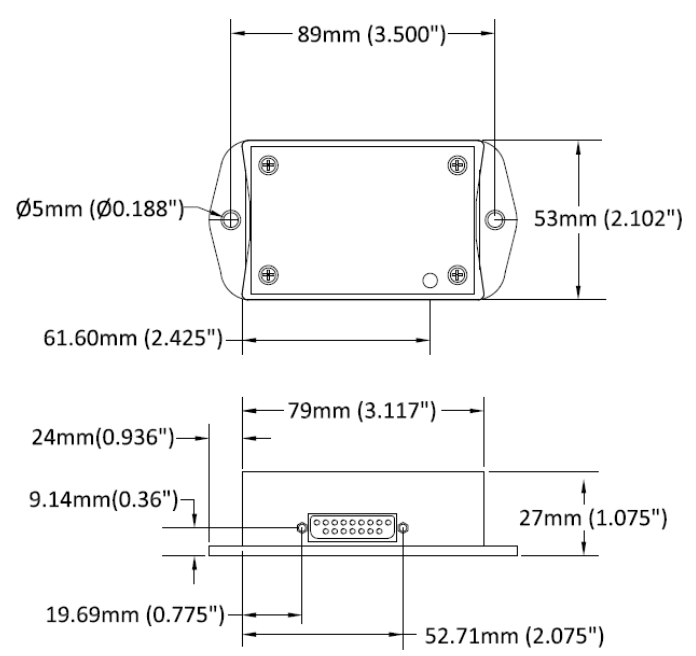
Certifications and Ratings

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

Direction of Measurement



Dimensional Drawings



Additional Documentation

- [Manual](#) 0729-1763-XX Instruction Manual
- [AN1001](#) Temperature Compensation of Electrolytic Tilt Sensors
- [AN1003](#) Configuring Tera Term for Use with TFC Tilt Products



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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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