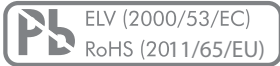
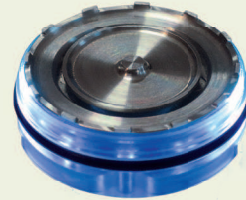


MULTI ROTARY SWITCH MULTI WHEEL**PRELIMINARY****SPECIFICATIONS**

MINIATURE ENCODER WITH 8+1 JOYSTICK FUNCTION FOR ONE-FINGER CONTROL, IP66 SEALED

- 12 detents Hall effect sensed encoder with magnetic indexing
- Center button with 8 joystick directions and center push function
- 1 Mio encoder revolutions, 500k joystick actuations
- Full metal front-end, clear or black
- LED backlit illumination (RGB)
- 3 VDC supply, UART output, LED control interface
- 6 positions ZIF or soldering pads connection
- -20 to +70°C, IP66 sealed

**MULTI WHEEL****POSSIBLE CUSTOMIZATIONS**

- Front-end shape and color
- Connectors, cabling and pinning
- IP67 or IP68 sealing

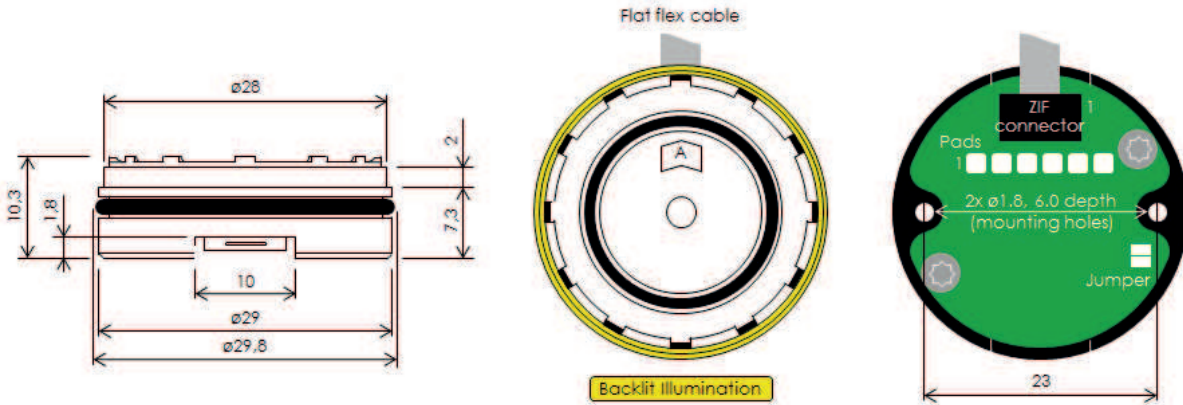
TYPICAL APPLICATIONS

- Test & measurement for outdoor environments
- Cockpit (aviation, transport, construction, etc.)
- Industrial controls

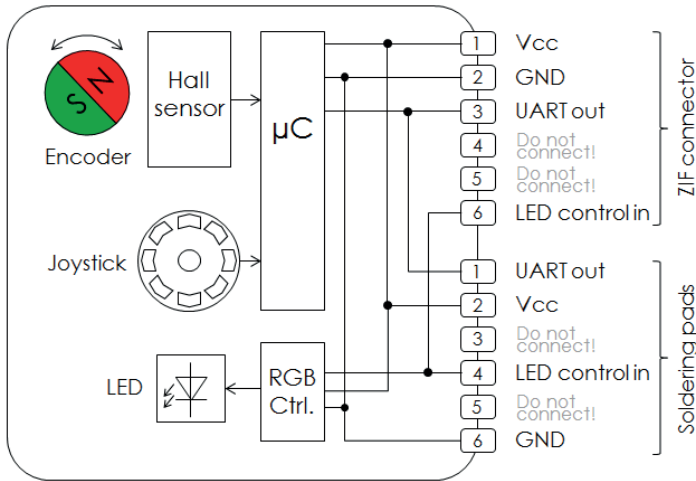
PRELIMINARY

DRAWINGS

DIMENSIONS (mm)



CIRCUITRY AND PIN ALLOCATION



DESCRIPTION

Multi Wheel can be mounted from the front or rear using 2 self-tapping screws (supplied), driven into the plastic body. The outer O-ring provides proper front panel sealing. Connections are made via a 6 position ZIF connector or via available solder pads.

A high quality, low-ripple power supply is required to ensure proper Hall sensor operation (see spec). The communication interface incorporates a UART output and a LED control input with proprietary protocol (LED driver/controller on-board, see spec).

When operating Multi Wheel, each encoder step or joystick actuation generates an 8 bit command over the UART interface (see communication spec). There is no communication in idle mode. The LED illumination is controlled independently.

Activating the on-board solder jumper (see product notes), directs the device into demo mode where LED color changes with each actuation (UART operation is unaffected in demo mode).

PRELIMINARY

SPECIFICATIONS

MECHANICAL RATING

Indexing Resolution:	12 detents (magnetic indexing)
Switching torque:	1 Ncm (+/- 30%, over temperature range and life)
Directional push force:	1 N (+/- 30%, over temperature range and life)
Center push force:	3 N (+/- 30%, over temperature range and life)
Encoder life:	1 Mio revolutions (over temperature range, at 120 RPM max.)
Joystick life:	500k actuations (over temperature range, at 2 Hz max.)
Connector:	ZIF (6 positions, 0.5 mm pitch, top contacts) and soldering pads (6 positions, 2.54 mm pitch)

ELECTRICAL RATING

Operating voltage (Vcc):	2.7 to 3.3 VDC (stabilized, 20 mV _{pp} max. ripple)
Current consumption:	30 mA max. (at 3 VDC and room temperature, backlit illumination off, steady state)
UART output interface:	38.4k baud, 1 byte non-inverted, even parity, 1 stop bit. UART remains silent when unit is not actuated.
LED control interface:	Skyworks AS ² Cwire interface (AAT3129 RGB controller/driver; see data sheet)

MATERIALS AND FINISHES

Front-end:	Alluminium, anodized, matt
Housing:	Polycarbonate, transparent
Outer seal (O-ring):	ø1.5 mm, NBR70
Inner seal (gasket):	EPDM closed cell foam rubber

ENVIRONMENTAL RATING

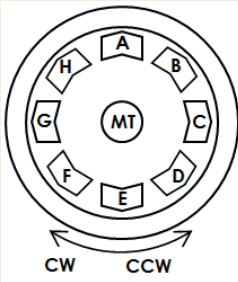
Temperature ranges:	-20 to +70°C max. operating, -55 to +85°C max. storage
Humidity:	90% relative humidity max., non-condensing (against front panel, MIL-STD-202G, method 103B, condition B)
IP sealing:	IP66
Dielectric strength:	1,000 VDC during 60 sec. (MIL-STD-202G, method 301)

PACKAGING

Packaging:	Single piece packed (ESD shielded bag)
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COMMUNICATION

UART OUTPUT INTERFACE:

ACTION		COMMAND
	Joystick	A
		B
		C
		D
		E
		F
		G
		H
		CP (center push)
		Return to steady state
Encoder	One step CCW	1xdec
	One step CW	2xdec

A command is sent at every changing encoder or joystick situation!

LED CONTROL INTERFACE:

FUNCTION	ADDRESS	DATA
Red intensity	17	1 to 16 (16=highest intensity)
Green intensity	18	1 to 16 (16=highest intensity)
Blue intensity	19	1 to 16 (16=highest intensity)
Overall intensity	20	1 to 16 (1=highest intensity)
Mode	21	1 or 2 (1= individual intensity updated immediately, 2= update after overall intensity is written)

Skyworks AS²Cwire protocol; each message consists of an address, followed by a data command. The address or data transmission contains a certain number of positive pulses (> 50 ns, 0.3 to 75 µs low-time). After address or data is submitted, the LED control input is held high for latching (> 500 µs). When LED control is held low for >500 µs the RGB controller shuts down. For further details see the Skyworks data sheet of AAT3129.

PRELIMINARY

ORDERING CODE

MW - - - - -

FUNCTION

1 Standard; 12 detents, 8+1 joystick

ILLUMINATION

RGB RGB

FRONT-END; SHAPE AND COLOR

CLR standard shape, clear
BLK standard shape, black