

Williams Controls Rotary Position Sensor

WM-830

- **No-contact, Hall-effect technology**
- **Internal shaft**
- **Measurement angle 48.5°**
- **5V supply**
- **Dual-redundant outputs**
- **Fail-safe outputs**
- **Voltage or PWM output options**
- **Environmentally robust**
- **Packard Electric 'Metri-Pack' 150 series connector**



The WM-830 is a cost-effective rotary sensor utilising proven Hall-effect technology to ensure accurate and reliable measurement of angular position.

Mechanical engagement with the rotating portion of the sensor is via a slotted cavity, while the electrical output span corresponds to a rotation of 48.5°.

Operation is from a 5V supply, typically derived from the electronic control unit to which the sensor is connected. Dual on-board circuits are electrically isolated from each other, so providing truly independent voltage outputs – one at 50% the level of the other – thereby allowing the host electronics to detect output errors. Further integrity

is provided as the outputs enter pre-defined states in the event of connection errors to the sensor. PWM output options are also available on request.

A robust mechanical design offers exception levels of performance with respect to water and dust, shock, vibration and temperature, meaning the sensor is ideal for use in hostile, on- and off-highway vehicle environments.

Connection to the WM-830 is via the industry-standard, Packard Electric 'Metri-Pack' 150 series of connectors, which offer high-reliability performance across all operating conditions.

SPECIFICATIONS

ANALOG VOLTAGE CIRCUIT

OPERATIONAL SUPPLY VOLTAGE (V _{CC1} , V _{CC2})	4.5-5.5V
NON-OPERATIONAL SUPPLY VOLTAGE (V _{CC1} , V _{CC2})	24V to -12V
SUPPLY CURRENT	15mA
OUTPUT CURRENT	15mA
OUTPUT SHORT-CIRCUIT DURATION TO GND	Indefinite
OUTPUT SHORT-CIRCUIT DURATION TO SUPPLY	Indefinite
OUTPUT SHORT-CIRCUIT DURATION TO BATTERY	20 minutes maximum
VCC SHORT-CIRCUIT DURATION TO BATTERY	20 minutes maximum

TEMPERATURE

OPERATING TEMPERATURE	-40°C to 85°C
STORAGE TEMPERATURE	-40°C to 105°C

ELECTRICAL SPECIFICATIONS

Symbol	Parameter	Conditions	Minimum	Typical	Maximum	Units
V _{CC1} , V _{CC2}	Supply Voltage		4.5	5	5.5	V
I _{CC1} , I _{CC2}	Supply Current	Per circuit	4	7	10	mA
V _{OUT1}	Analog Voltage, Θ_1	$\Theta < \Theta_1$	20	22	24	%V _{CC}
	Analog Voltage, Θ_2	$\Theta > \Theta_2$	82	84	86	%V _{CC}
V _{OUT1}	Analog Voltage, Θ_1	$\Theta < \Theta_1$	9	11	13	%V _{CC}
	Analog Voltage, Θ_2	$\Theta > \Theta_2$	40	42	44	%V _{CC}

MECHANICAL

MEASUREMENT ANGLE	48.5°
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ENVIRONMENTAL VALIDATION

THERMAL CYCLE / STRESS	SAE J1455 -40°C to 85°C
THERMAL SHOCK	-40°C to 85°C
HUMIDITY	120 hour exposure at 95% humidity from 27°C to 75°C
VIBRATION	Random broadband 5-500Hz, 4G
SALT FOG	ASTM B-117 96 hour exposure
DUST EXPOSURE	24 hour exposure cycled
CHEMICAL EXPOSURE	Diesel fuel, brake fluid, anti-freeze and plastic protectant exposure
MECHANICAL SHOCK	SAE J1455 one meter drop to concrete
EMI RESISTANCE	SAE J1113-1 and E-mark compliant

REGULATORY VALIDATION

FMVSS-302 FLAMMABILITY	Per US federal regulations
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MECHANICAL VALIDATION

FULL STROKE CYCLES	10 million
CYCLE RATE	2Hz

CUSTOM OPTIONS

	Contact Curtiss-Wright for more details
MEASUREMENT ANGLE	15-360°
PWM OUTPUT	200-1500Hz