

Williams Controls **Twist Throttle**WM-D10

- Suitable for industry-standard 1" handlebar
- · Non-contacting throttle sensor
- 90° counter-clockwise, 20° clockwise rotational range
- Dual-redundant output signals
- · Custom programming available
- Dedicated 5V and 0V supply, per output
- In-built vibration isolation
- Environmentally robust IP67



The WM-D10 provides an electronic, twist-throttle solution for a wide range of handlebar applications including Motorcycles, All-Terrain Vehicles (ATV) or Personal Recreational Vehicles (PRV).

The throttle utilises non-contacting, Hall-effect sensor technology to provide a dual-redundant-output architecture, with the second signal being a fixed relation to the main drive signal. A vehicle's Electronic Control Unit (ECU) can therefore perform comparisons between the throttle's two outputs, in order to ensure it is operating correctly. Both outputs are linear and are directly proportional to absolute sensor shaft rotation. In addition, each output has its own 5V and ground supply connections, thereby implementing a truly dual-redundant system. Incorporation of a vibration damper means the throttle sensor maintains a consistent signal

strength no matter how, or where, the vehicle is being driven.

The throttle has a rotation range of 90 degrees counterclockwise, and a 20 degrees clockwise rotation to allow control of a cruise control function. The final rotational information can be programmed to meet a customer's exact requirements.

The design of the WM-D10 means it is exceptionally robust across a wide range of environmental conditions, including: water immersion, pressure washing, salt spray, a variety of chemicals, dust and mud; while connection to the unit is via an industry-standard integrated connector or flying lead.

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS

SUPPLY VOLTAGE (Vcc1, Vcc2) -6.0Vdc to 6.0Vdc

OUTPUT CURRENT 10mA

OUTPUT SHORT-CIRCUIT DURATION TO GND Indefinite

OUTPUT SHORT-CIRCUIT DURATION TO Vcc Indefinite

TEMPERATURE

OPERATING TEMPERATURE -20°C to 85°C

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Symbol	Parameter	Conditions	Minimum	Typical	Maximum	Units
VCC1, VCC2	APS Supply Voltage		4.5	5	5.5	V
IDD1, IDD2	APS Supply Current	Per APS circuit			10	mA
Vcc1	Cruise Cancel Output1, APS1	Θ = Θcc	20	22	24	%VDD
VCC2	Cruise Cancel Output2, APS2	Θ = Θcc	9	11	13	%VDD
VCT1	CT Output, AP31	OCT1 ≤ O ≤ OCT2	33.8	35.8	37.8	%VDD
Vст2	CT Output, AP32	OCT1 ≤ O ≤ OCT2	15.9	17.9	19.9	%VDD
Vwot1	WOT Output, APS1	$\Theta = \Theta$ WOT	82	84	86	%VDD
VWOT2	WOT Output, APS2	$\Theta = \Theta$ WOT	40	42	44	%VDD
Vor1	Output 1 Limit for Range	Θ > ΘOr2	90	92	94	%VDD
Vor2	Output 2 Limit for Range	Θ > ΘOr2	44	46	48	%VDD
Vor3	Output 3 Limit for Range	Θ > Θ0r1	12	14	16	%VDD
Vor4	Output 4 Limit for Range	Θ > Θ0r1	5	7	9	%VDD
Tcc	Cruise Control Torque	Θ = Θcc	-0.8	-0.65	-0.5	Nm
TAPPLY	Apply Torque Half Way to WOT	$\Theta = \Theta$ WOT/2	-	REF	-	Nm
TRELEASE	Release Torque Half Way to WOT	$\Theta = \Theta$ WOT/2	-	REF	-	Nm
Тст	Apply Torque Out of CT	$\Theta = \Theta_{ML2}$	0.2	0.325	0.45	Nm
	Hysteresis	$@\Theta = \Theta$ wot/2; Trelease /Tapply	0.25	0.425	0.6	-
Тwот	Torque at WOT	$\Theta = \Theta$ WOT	0.4	0.525	0.65	Nm

REGULATORY VALIDATION

FMVSS-302 FLAMMABILITY Per US federal regulations FMVSS-124 RTI CERTIFICATION Per US federal regulations

ENVIRONMENTAL

SEALING IP67

For further specifications, please contact Curtiss-Wright.



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