



Williams Controls

WCS-351677

Williams Customer Specification

Original Release: 06/16/08
 Uses Williams Sensor 134143

FEATURES

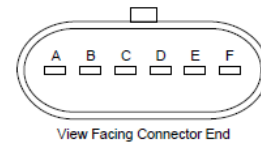
- 17° ± 2° Angular Rotation
- 30° ± 2° Pedal Angle
- FMVSS 124 and 302 compliant
- -40°C to +85°C operation
- Non-contact Sensor
- Dual Ratiometric APS output
- Independent, Isolated APS circuits
- Highly EMI resistant
- Metripak 150-series compatible connector
- Protected against Electrical Misconnection
- Electronics IP66 sealed
- Rubber Cover



APPLICATIONS

- Throttle with position sensor
- Used with on and off highway industrial/commercial applications.

Connector Pin Configuration



Pin	Function	Pin	Function
A	APS1	D	VCC2 (+5V)
B	GND1	E	GND2
C	VCC1 (+5V)	F	APS2

Mating Connector:

Packard Electric "Metri-Pack"
 Housing P/N 12066317
 Terminal P/N: 12103881

DESCRIPTION

The floor-mounted pedal is designed to provide a signal to the engine fuel control system in response to the driver's request for engine power. A sensor is employed which provides a voltage proportional to the angular displacement of the treadle.

CURTISS-WRIGHT	PROCEDURE NAME:	DEPT:	030				
	Williams Customer Specification Form						
DOCUMENT NUMBER:	WQF-030-021	Revision Level	A	Date Effective	11/13/07	DAF#	00396
QEMS Representative	Mary Knight	Process Owner	Michael Cooper	Department Manager	Scott Thiel		



ABSOLUTE MAXIMUM ELECTRICAL/MECHANICAL RATINGS

Supply Voltage (APS, IVS)	+/-5.5V
Output Current (APS, IVS)	+/- 10mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
APS1,2 short circuit duration to ground	20 minute max
APS1,2 short circuit duration to VCC	20 minute max
Downward Static Load Limit	1560 N measured 150mm from pivot
Side Static Load Limit	330 N measured 10 mm from the front edge

Operation of this device beyond absolute maximum ratings may result in permanent damage.

ELECTRICAL SPECIFICATIONS; PEDAL

- Over -40°C to +85°C temperature range, V_{CCx}= +5 V regulated unless noted

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNITS
V _{CC1,2}	APS Supply Voltage		4.5	5	5.5	V
I _{CC}	APS Supply Current			7	10	mA
V _{CT1}	CT Output, APS	θ = θ _{CT}	20	22	25	%VCC
V _{WOT1}	WOT Output, APS	θ = θ _{WOT}	81	84	86	%VCC
V _{CT2}	CT Output, APS	θ = θ _{CT}	9	11	14	%VCC
V _{WOT2}	WOT Output, APS	θ = θ _{WOT}	39	42	44	%VCC

MECHANICAL SPECIFICATIONS; PEDAL

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Pedal Start Angle	See Drawing	28	30	32	°
Pedal Angular Rotation	See Drawing	15	17	19	°
Pedal Assembly Weight			0.66		Kg Cycles
Life Expectancy; Cycles	Applied @ 1Hz	3 x 10 ⁶			

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DESIGN VERIFICATION TESTING (REGULATORY, MECHANICAL, ENVIRONMENTAL)

REGULATORY VALIDATION
FMVSS-124 RTI Certification - Per Federal regulations
FMVSS-302 Flammability - Per Federal regulations

MECHANICAL VALIDATION
Full Stroke Endurance/Durability - With periodically monitored electrical output
Ultimate Strength - With Force vs. displacement plots
Side Load Deflection

Full Stroke Cycles	3 x 10 ⁶ Cycles
Cycle Rates	1 Hz
Overpressure Load	130 N

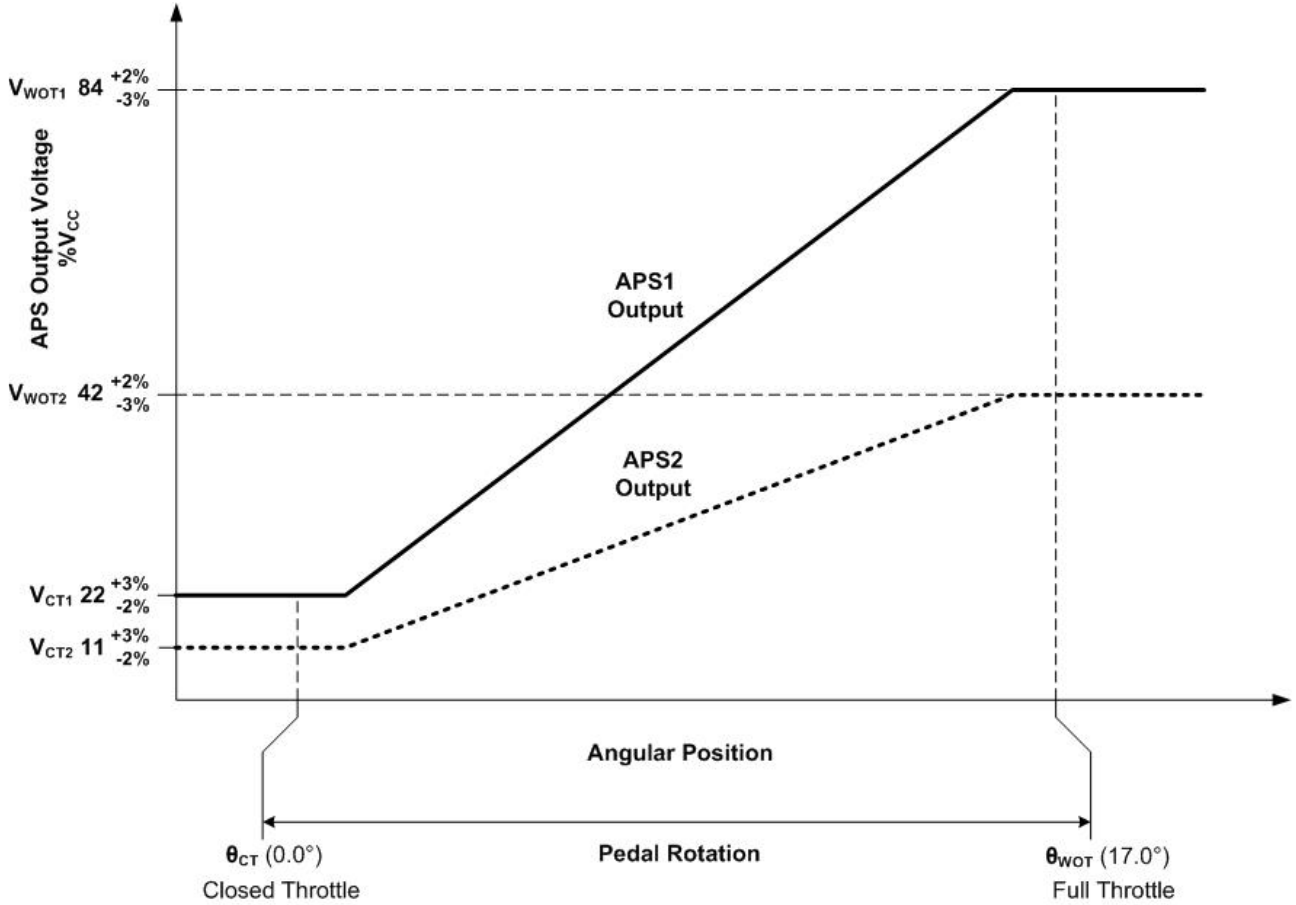
PEDAL ENVIRONMENTAL VALIDATION: (REFER TO WILLIAMS SPEC WDS-010)

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
Mechanical Vibration	Random broadband 5-500 Hz, 4.0G's
Mechanical Vibration	Swept sine resonant frequency
Salt Spray Exposure	ASTM B-117 96 Hr cycled
Dust Exposure	24Hr Exposure, pedals cycled
Chemical Exposure	Diesel fuel, brake fluid, antifreeze, and plastic protectant exposure.
Pressure Wash	250 psig detergent at +75°- 40 minute exposure, 00.5 rpm 1000 psig water at +75°C - 40 minute exposure, 0.05 rpm
Mechanical Shock	SAE J1455 One meter drop to concrete with additional harness drop test

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TYPICAL OUTPUT CHARACTERISTICS

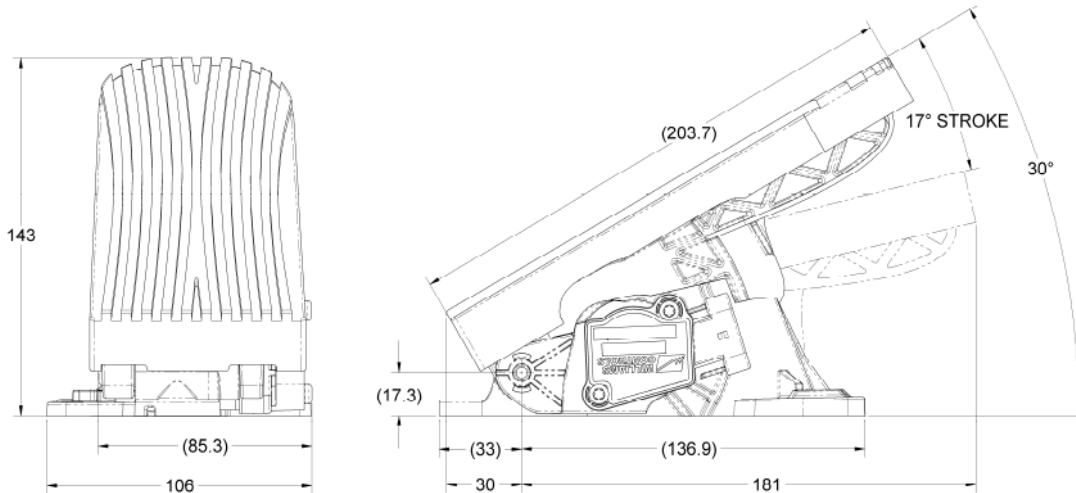
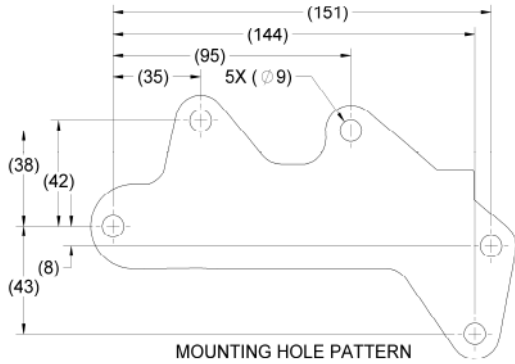


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MECHANICAL DIMENSIONS AND CHARACTERISTICS (FOR REFERENCE ONLY)

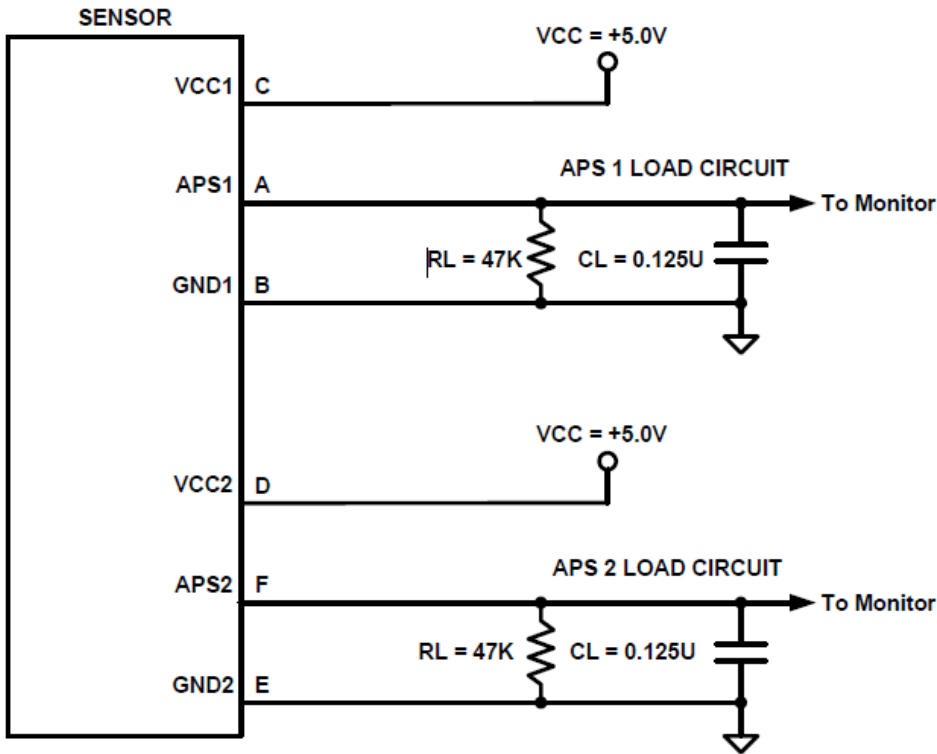
Measurements in mm



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APPLICATIONS INFORMATION:



REFERENCED DOCUMENTS

- Williams Controls DWG #351677
- Williams Controls DWG #134143
- Williams Controls Specification #WDS – 010 (A, B)
- Williams Controls Specification #WCS – 134143
- FMVSS-124 & FMVSS-302
- SAE J1455

REVISION HISTORY

Rev	Date	ECN#	Checked	Approved	Changes/Comments
A	06/16/08	42114	Chris M	LAR	Initial Release

USA
 Portland
 Oregon
 T: +1.503.684.8600
 cwig.us@curtisswright.com
 www.cw-industrialgroup.com

Europe
 Garching
 Germany
 T: +44.89.5404.100.0
 cwig.de@curtisswright.com
 www.cw-industrialgroup.com

Asia
 Shanghai
 China
 T: +86.213.3310670
 cwig.cn@curtisswright.com
 www.cw-industrialgroup.com

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