

Wheel force sensor

WFS AD7811-24K

Features

- High resolution: 1/4000
- High accuracy : +/- 0.1%
- High sampling rate: 10kHz
- Lightweight : 3.8kg



For the better accuracy

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WFS[Wheel force sensor]

For the better accuracy

High resolution / High accuracy High speed response

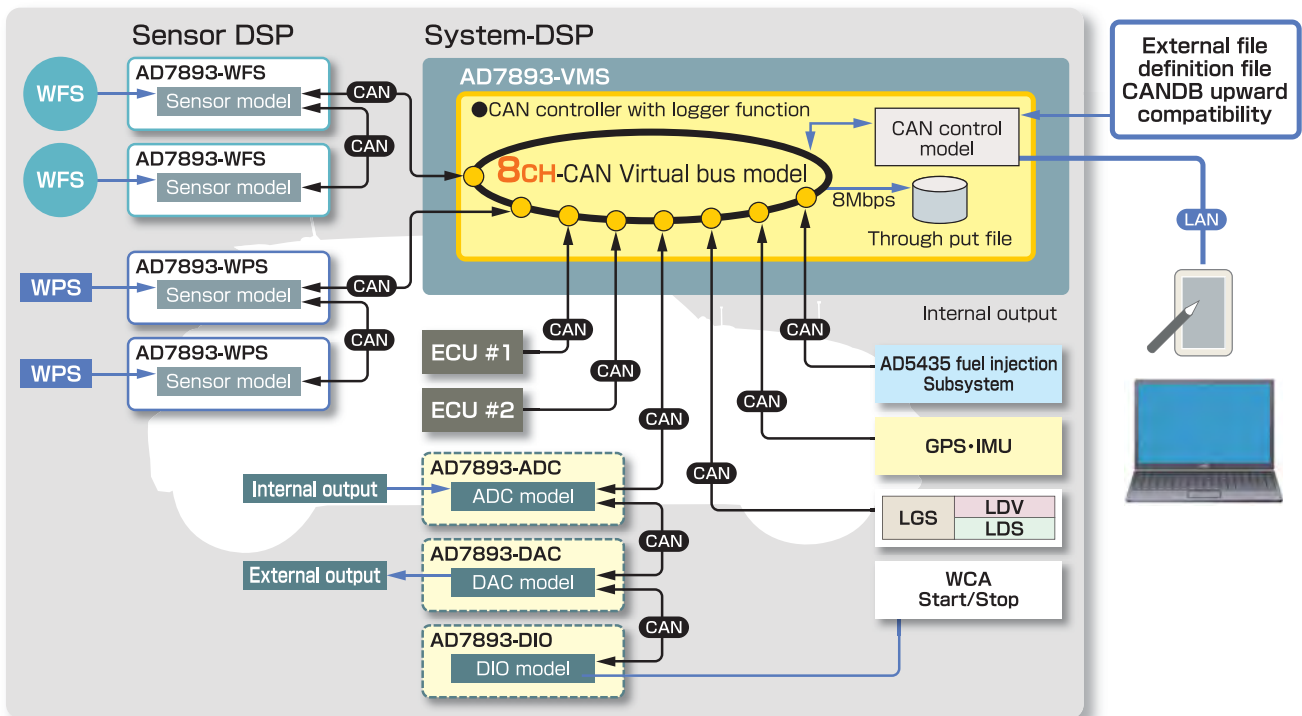
1/4000 resolution(6N), 0.1% accuracy for +/-24kN* measurement range for the precise force measurement and analysis.



Enhancement capability

Various data acquisition by 8ch CAN logger.

System example of 4 wheels measurement



AD7893-VMS(Optional) : CAN controller with data logger integrates the system. It saves CAN data as through put file on and offline.

Features

- 8 CAN boards
- CAN definition file : Data saved with various index.
- Through put file : Bandwidth is 8Mbps max
- Data appears in CAN board as port number, read time and ID. 64 bit data is stored to the file.



WFS(Wheel force sensor) with AD7893-WFS

Features

- AD7893-WFS for signal processor
- Rotary trance type transceiver and rotary encoder installed inside the bearing
- Linear link type supporting unit
- Other sensor as Doppler sensor or positioning sensor is additionally installable
- WFS and AD7893-WFS are united one by one



Digital signal output

Analog digital conversion resolve the noise problem.



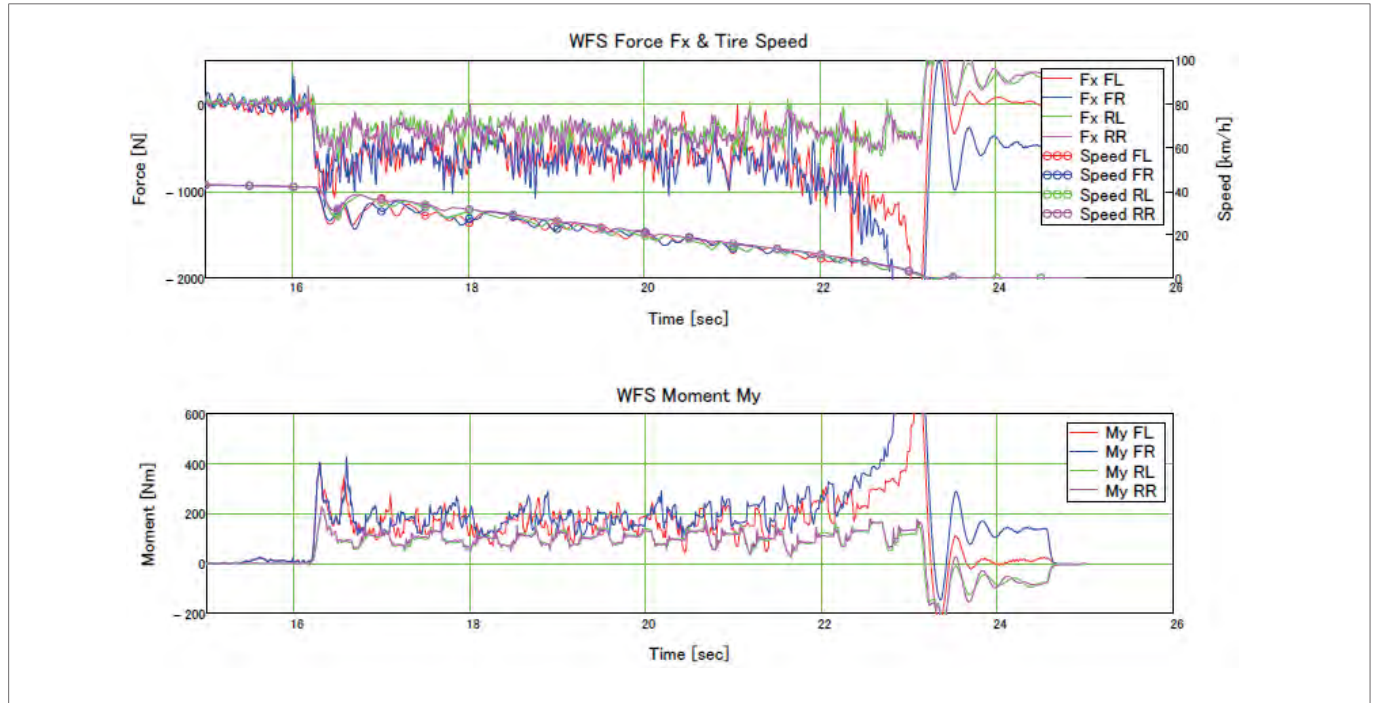
Light weight

With 3.82kg weight of sensor and 3.66kg light weight carbon wheel, measurement data will close to that with wheel mass only.

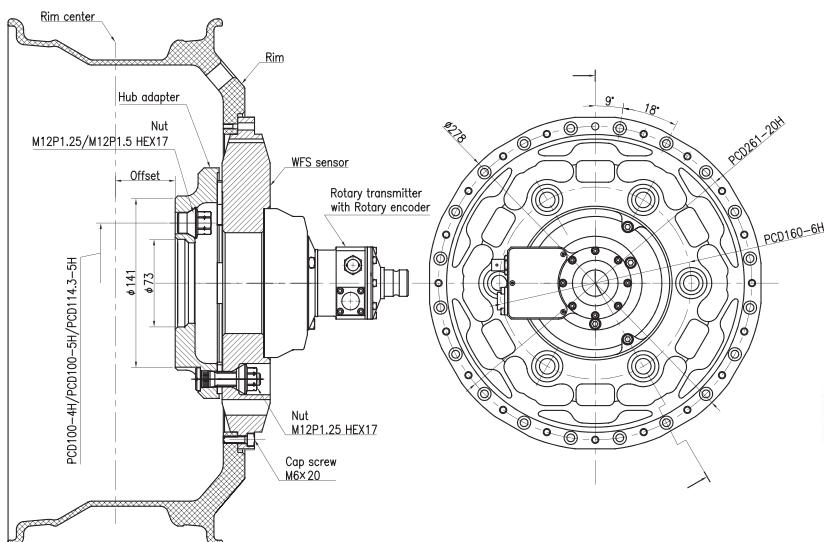


Data

Case : ABS full Braking at low friction road (Wet road)

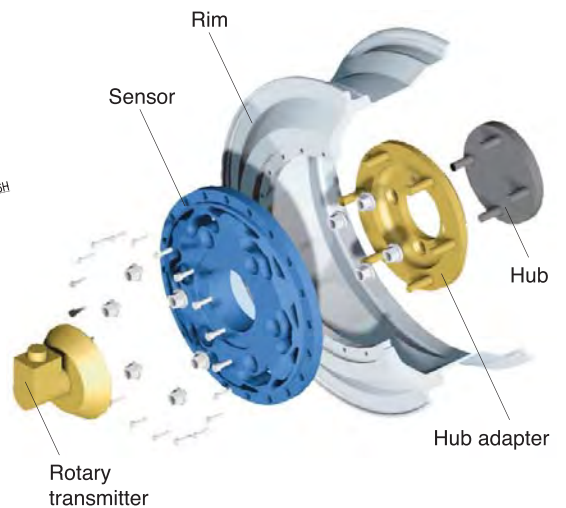


Overview for 6 Component Force Sensors



Overview of sensor and support tool

Isometric drawing



Specifications
Sensor

Items	Specification	Note
Coordinate direction	X: Driving/braking	
Fx	±24kN	
Fy	±15kN	
Fz	±24kN	
Nominal load	±8kN	
Camber torque (Mx)	±4.5kNm	
Brake torque (My)	±7.2kNm	
Steer torque (Mz)	±4.5kNm	
Bending resistance	±2.19kNm	Bending fatigue test
Acceptable rim size	12 to 19inch	
Acceptable hub size	4H PCD100/5H PCD114.3/5HPCD100	
Acceptable off set		Depends on the customer's specification request
Total error	±0.1%	Including non-linearity and hysteresis At the maximum load
Modulation error	±0.5%	At the maximum load
Resolution	1/4000	At the maximum load
Angular resolution	1024/360deg	Tire rotary encoder
Temperature guarantee range	-20 to +80°C	
Operating temperature range	-40 to +100°C	
Zero temperature effect	0.005%/°C	At the maximum load
Span temperature effect	0.005%/°C	
Weight	3.82kg	Reference number

AD7893-WFS

Items	Specification	Note
Measurement/Calculation		
6-component force calculation	Digital model calculation	
Calculation sampling	10kHz	
Measurement item	X-force Fx(N), Y-force Fy(N), Z-force Fz(N), X axis moment Mx(Nm), Y axis moment My(Nm), Z axis moment Mz(Nm)	
Low pass filter	4th Butterworth Selectable cut-off frequency (1/2/5/10/20/50/100/200/500/1000/2000/5000/None Hz)	
Display		
Display Item	Measurement item mentioned above	
Data output		
Output devise	CAN	
Output sampling rate	Selectable from 1/2/5/10/20/50/100/200/500/1000 Hz	
Exterior		
Dimension	W97mm×H97mm×L208mm	
Power supply	AC100V	DC12VAC adaptor
Operating temperature range	5 to 40°C	
Operating humidity range	5 to 90%RH	No condensation
Weight	1.2kg	

Standard Wheel List

Rim		Hub Adapter			Offset			
Rim Size	Rim Part Number	PCD-H	Attachment Method	Hub Adapter Part Number	No Spacer	Spacer:5mm	Spacer:10mm	Spacer:20mm
14×5.5	D307259-10	100-4H	M12 Dedicated Nut P1.25/1.5	D308153	+45	+40	+35	+25
		100-5H	M12 Dedicated Nut P1.25/1.5	D308155A	+45	+40	+35	+25
		114.3-5H	M12 Dedicated Nut P1.25/1.5		+45	+40	+35	+25
15×5.5	D307259-11	100-4H	M12 Dedicated Nut P1.25/1.5	D308153	+50	+45	+40	+30
		100-5H	M12 Dedicated Nut P1.25/1.5	D308155A	+50	+45	+40	+30
		114.3-5H	M12 Dedicated Nut P1.25/1.5		+50	+45	+40	+30
15×6.0	D307259-04	100-4H	M12 Dedicated Nut P1.25/1.5	D308153	+50	+45	+40	+30
		100-5H	M12 Dedicated Nut P1.25/1.5	D308155A	+50	+45	+40	+30
		114.3-5H	M12 Dedicated Nut P1.25/1.5		+50	+45	+40	+30
15×6.5	D307259-03	100-4H	M12 Dedicated Nut P1.25/1.5	D308153	+50	+45	+40	+30
		100-5H	M12 Dedicated Nut P1.25/1.5	D308155A	+50	+45	+40	+30
		114.3-5H	M12 Dedicated Nut P1.25/1.5		+50	+45	+40	+30
16×6.0	D307259-05	100-4H	M12 Dedicated Nut P1.25/1.5	D308153	+50	+45	+40	+30
		100-5H	M12 Dedicated Nut P1.25/1.5	D308155A	+50	+45	+40	+30
		114.3-5H	M12 Dedicated Nut P1.25/1.5		+50	+45	+40	+30
16×6.5	D307259-01	100-4H	M12 Dedicated Nut P1.25/1.5	D308153	+50	+45	+40	+30
		100-5H	M12 Dedicated Nut P1.25/1.5	D308155A	+50	+45	+40	+30
		114.3-5H	M12 Dedicated Nut P1.25/1.5		+50	+45	+40	+30
17×6.5	D307259-09	100-4H	M12 Dedicated Nut P1.25/1.5	D308153	+50	+45	+40	+30
		100-5H	M12 Dedicated Nut P1.25/1.5	D308155A	+50	+45	+40	+30
		114.3-5H	M12 Dedicated Nut P1.25/1.5		+50	+45	+40	+30
17×7.0	D307259-06	100-4H	M12 Dedicated Nut P1.25/1.5	D308153	+50	+45	+40	+30
		100-5H	M12 Dedicated Nut P1.25/1.5	D308155A	+50	+45	+40	+30
		114.3-5H	M12 Dedicated Nut P1.25/1.5		+50	+45	+40	+30
17×7.5	D307259-12	100-4H	M12 Dedicated Nut P1.25/1.5	D308153	+40	+35	+30	+20
		100-5H	M12 Dedicated Nut P1.25/1.5	D308155A	+40	+35	+30	+20
		114.3-5H	M12 Dedicated Nut P1.25/1.5		+40	+35	+30	+20
17×7.5	D307259-02	100-4H	M12 Dedicated Nut P1.25/1.5	D308153	+55	+50	+45	+35
		100-5H	M12 Dedicated Nut P1.25/1.5	D308155A	+55	+50	+45	+35
		114.3-5H	M12 Dedicated Nut P1.25/1.5		+55	+50	+45	+35

Note : Preparation of other rim size is negotiable
Carbon rim weight : 3.66kg

 Safety Warning!	● For proper use, read the instruction manuals carefully before use.
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●Appearances and/or specifications subject to improvement without notice.
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