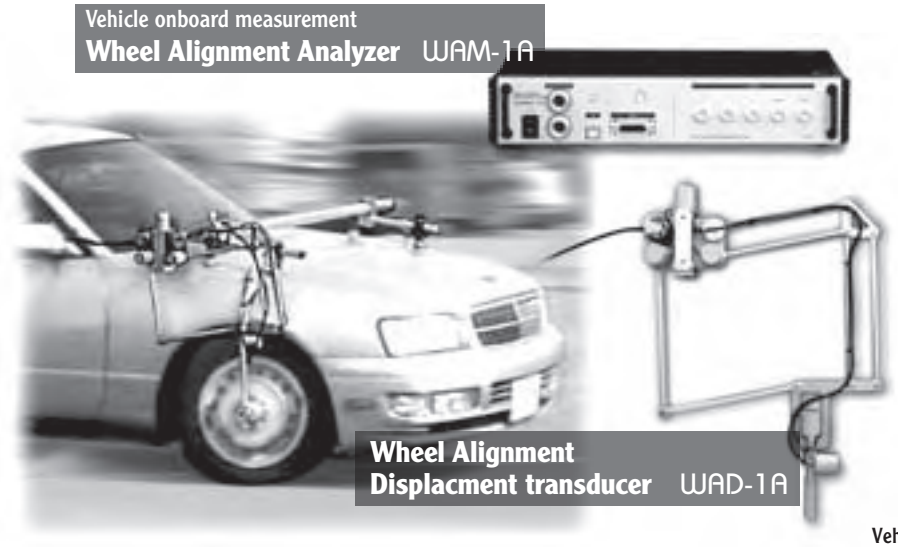
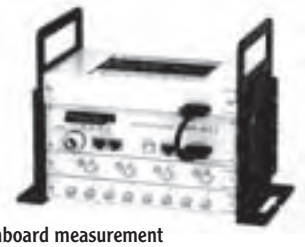
Wheel Alignment Measuring System WAD/WAM



- ***Wheel center orthogonalized three-direction displacement***
- ***Steering angle***
- ***Camber angle***
- ***Control up to 4 units simultaneously***

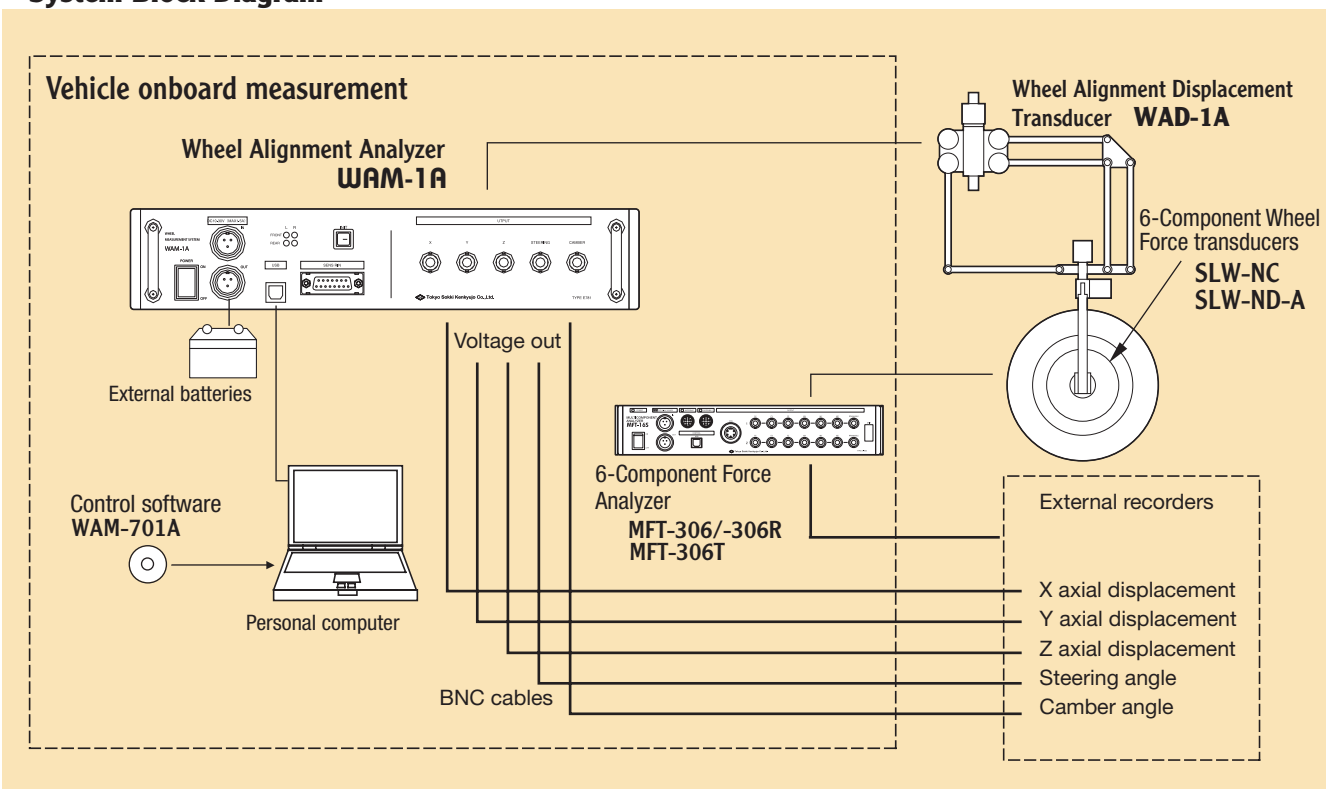


Vehicle onboard measurement
Multi-Recorder **TMR-200**

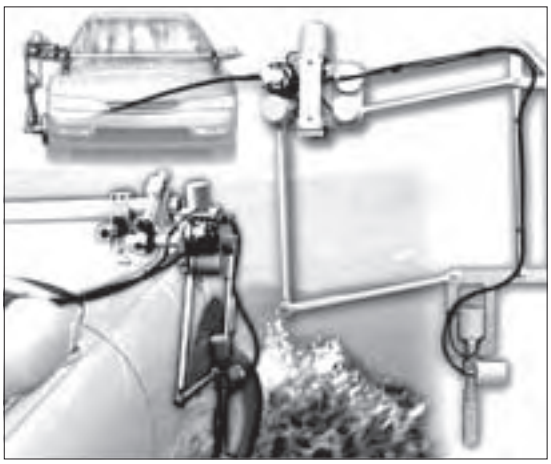
The Wheel Alignment Measuring System is composed of the Wheel Alignment Displacement Transducer WAD-1A and the exclusive analyzer WAM-1A. The Wheel Alignment Measuring System can also measure the steering angle and camber angle simultaneously in addition to the three-direction displacement of the wheel center by being installed to the 6-Component Wheel Force Transducer that measures the orthogonal three-direction load and the three moments around it that are passed to the tires from the road surface.

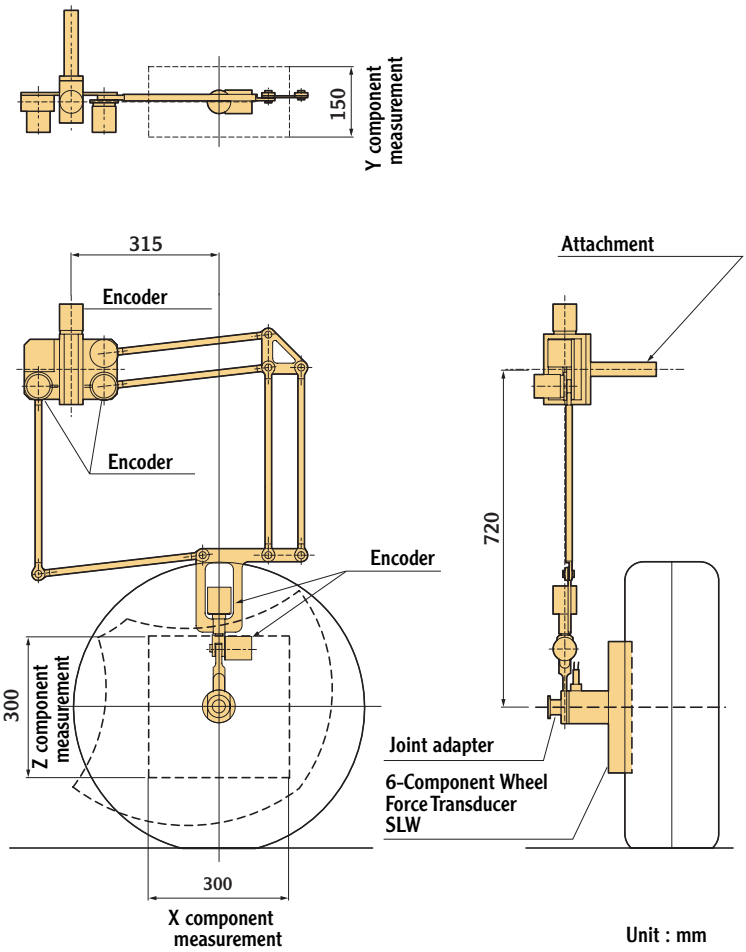
Measurements are output in voltage format in real time through the car-mountable analyzer. The exclusive Wheel Alignment Analyzer WAM-1A, which is USB-connected to a PC, is responsible for everything from settings to measurement. Control up to 4 units simultaneously with the included control software WAM-701A. Voltage output is also supported by the optionally-available Multi Recorder TMR-200, which allows waveform monitoring using the display unit TMR-281.

System Block Diagram



Wheel Alignment Displacment transducer WAD-1A





The Wheel Alignment Displacement Transducer is combined with the Wheel Alignment Analyzer WAM-1A to measure each displacement in the wheel center's X, Y, and Z axes while driving, as well as the changes in steering angle and camber angle. After the Wheel Alignment Displacement Transducer is installed to a fixed point on the car, the end of the displacement transducer is linked to the head of the wheel (6-Component Wheel Force Transducer SLW) to make it follow the movement, which allows the rotary encoder to measure the angle changes of the link corresponding to the wheel movement. The Wheel Alignment Analyzer WAM-1A outputs displacements and angles in voltage form in real time. The displacement transducer is also equipped with the slip-ring support function required to maintain the reference position of the 6-Component Wheel Force Transducer (SLW) in a constant position.

Protection ratings : IP 54 equivalent

Specifications

	WAD-1A		
Displacement component*1	X axis (front/back)	Y axis (right/left)	Z axis (up/down)
Measurement range	±150mm	±75mm	±150mm
Measurement accuracy*2	±1mm	±2mm	±1mm
Angle component*1	Steering angle	Camber angle	
Measurement range	±30°	±10°	
Measurement accuracy*2	±0.3°	±0.3°	
Temperature range	-10 ~ +80 °C		
Input/output cable	ϕ9mm Multi-conductor shielded polyurethane cable 5m		
Weight	4.2 kg. Unsprung weight : 2 kg		
Accessory	Joint adapter for SLW force transducer		
Peripherals	Attachment Mount bar		

*1: Movement of the slip-ring case head of the 6-Component Wheel Force Transducer SLW-NC
*2: Depends on how it is combined with Wheel Alignment Analyzer WAM-1A

Wheel Alignment Analyzer WAM-1A

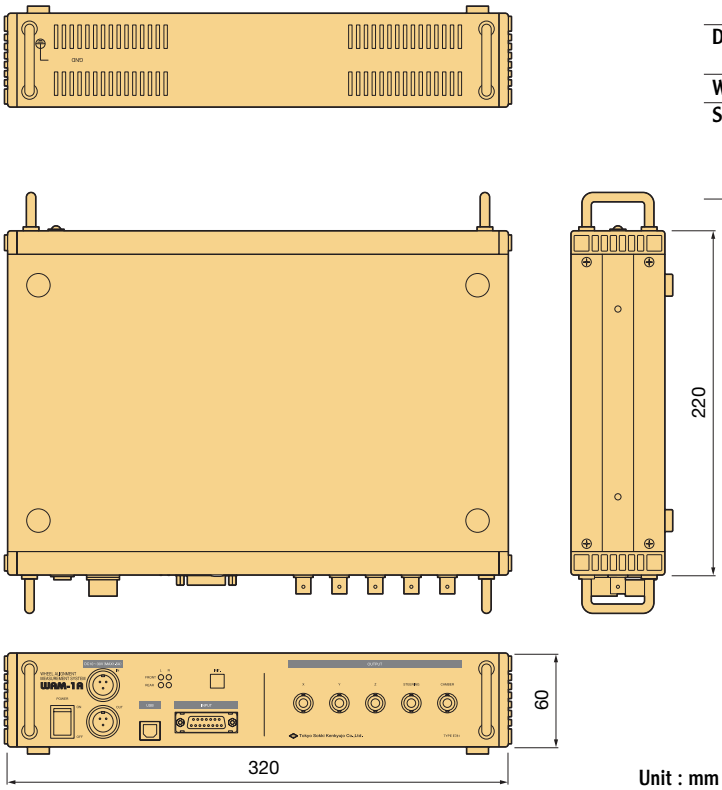
- ***Small and lightweight - Reduction of installation area***
- ***Alignment Displacement Transducer data and analyzer settings can be set using a PC***
- ***Control software (WAM-701A) included***
- ***Control up to 4 units simultaneously***

The Wheel Alignment Analyzer is combined with the Alignment Displacement Transducer (WAD-1A) to measure each displacement in the wheel center's X, Y, and Z axes while driving, as well as the steering angle and camber angle. Measurements are output in voltage form in real time.

Specifications

Applicable transducers	Wheel Alignment Displacement Transducer WAD-1A
Sampling frequency	100Hz
Measurement range	
X/Y/Z displacement	Select either ±250mm or ±125mm
Steering/Camber angle	Select eiter ±50° or ±25°
Offset	-100 ~ +200mm
Voltage output	
Output	0 ~ 5V, or ±5V
Accuracy	0.3%FS
Stability on span	0.03%FS/°C
Stability on zero	Displacement: ±50µm/°C Angle : 0.01 deg./°C
S/N ratio	46dBp-p or more
Calibration	
Output	When set to 5V : -5V, 0V, +5V When set to 0 ~ 5V : 0V, +2.5V, +5V
Accuracy	0.3%FS
Low-pass filter	20Hz, PASS
Interface	USB 1.1
Power supply	DC10~30V, 1.5A MAX.
Operating environment	0 ~ +50°C, 85%RH or less (no condensation allowed)
Dimension	320(W) x 60(H) x 220(D) mm (excluding projecting parts)
Weight	2.5 kg.
Standard accessory	Operational manual Control software WAM-701A DC power cable CR-10 USB cable CR-6182

Outer view



Unit : mm

Wheel Alignment Analyzer Control Software WAM-701A

This control software is used for the Wheel Alignment Analyzer to set various measurement conditions and to control the monitor display, initial operation, calibration output, etc.

Specifications

File operation	
Displacement transducer data read	Read the displacement transducer dimension data from a file
Analyzer setting file read	Read the analyzer's settings from a file
Analyzer setting file save	Write the analyzer's settings to a file
Software exit	Exit the control software
Setting	
Displacement transducer data setting	Set the displacement transducer dimension data
Measurement range	X, Y, and Z axis displacement: Select either ±250 or ±125 mm Steering angle, camber angle: Select either 50 deg. or 25 deg.
Voltage output	±5 V. Select between 0 and 5 V
Low-pass filter	Select either 20 Hz or PASS
Offset	Input the offset value manually Setting range: -100 ~ +200 mm
Wheel position	Set the box No. and axle shaft position (FL, FR, RL, RR)
Box number	Set the box No. to the analyzer
Monitor display	Select either one-wheel monitor, two-wheel monitor, four-wheel monitor
Initialization	Initialize
Calibration/Voltage output	Select either + full scale output, - full scale output, or zero output
List	List of the displacement transducer manufacture number, analyzer manufacture number, displacement transducer dimension data, full scale, voltage output, low-pass filter, and offset
Reconnection	Reconnect the analyzer
Version information	Display version information of the control software and analyzer's firmware