MODEL 2502

SIGNAL PROCESSOR

Non-Contact Laser Doppler

"HIGH-END" DOPPLER
2 Ch LASER DOPPLER VELOCITY METER

Wide Speed Range, include "0" Velocity

For 2ch Measuring and Operation

with Powerful Analyzing Software

Specifications

Doppler Sensor MODEL 1502S		
Method	Laser Doppler system, back-scattering differential type	
MODEL 1503 **High accuracy** **L=50mm**	Focus distance	Optimal position at 50±2mm
	Measurement range 0 to ±220m/min(0 to ±3.6m/sec), at SF=16.7	
MODEL 1502S **High sensitivity** **L=100mm**	Focus distance	Optimal position at 100±4mm
	Measurement range 0 to ±540m/min(0 to ±9m/sec), at SF=7.2	
MODEL 1502S **High sensitivity** **L=200mm**	Focus distance	Optimal position at 200±8mm
	Measurement range 0 to ±930m/min(0 to ±15.5m/sec), at SF=4.3	
Accuracy	Within ±(0.2%+0.1m/min)	
Power supply	Supplied from MODEL 2502	
Laser output	Class 3B：40mWmax・CW・Laser Diode 780nm	
Beam spot size	Approx, 2mm long by 5mm side (oval)	
Dimensions Weignt	85(W)x40(H)x150(D), excluding projections Approx, 0.8kg	

Signal Processor MODEL 2502 <Velocity Measurement Section> (Common to both channels)		
Method		
Velocity indication	Digital indication in 5 decimal digits	
	Min. resolution	0.01(m/min)
	Unit	m/min, m/sec
	Cycle	Approx, 0.2sec, 1sec
Digital output	Data amount	65536 max (16bit)
	Sampling rate	0.1 to 100ms (1, 2, 5 step)
	Resolution	0.02 to 0.001(m/min) (Depends on the sampling period)る)
F/V output	: 0 to ±10V any desired full scale selectable for setting	Accuracy: ±5% FS LPF: 1Hz to 5kHz, selectable for setting
D/A output	12bit: 0 to ±10V	Accuracy: ±1% FS

<Wow & Flutter Measurement Section> (Common to both channels)	
Measurement range	0.15 to 10%rms (reffered to a band below fd/1000(Hz)) (0. 001% to 10% when FFT is employed)
Range	Five ranges of 0.1, 0.3, 1, 3, and 10%
Indication	rms, p-p
Accuracy	Within ±5% of full scale of each range
Frequency band	0.5Hz to 5kH (The low-pass filter attenuates frequency higher than the upper-limit frequency.)

Other Functions	
Internal memory	65536 data×6ch, obtainable simultaneously, Trigger function, A/D function, synchronous signal input
Panel preset function	This function allows ten different settings to be recalled and stored in the panel.
External interface	USB

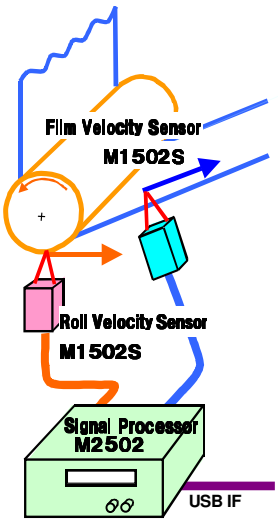
Displacement Measurement Section (Common to both channels)		
Method	Digital integration of the Doppler signal Data refresh rate: Every change of minimum bit in the signal.	
Range	0.001mm to 10m (23bit) In set gate or continue. (Single/Pass)	
Minimum resolution	Approx, 1μm, 2.4μm, 3.8μm (Depends on S.F. of sensor), Resolution=100/(6XS.F.) μm	
Display	Digital indication in 6 decimal digits	
	Min. resolution	: 0.001mm
	Unit	: mm・m
	Cycle	: Approx, 0.2sec, 1sec

Operations between 2 Channels	
Velocity operation	Format : A-KB, B-KA (K=0±10) Data amount : 65536 maximum Sampling period : 0.5～100ms (1,2,5 step) Resolution : 0.02～0.001m/min (Depends on the sampling period)
Velocity operation output	12bit D/A : ± 10V any desired full scale selectable for setting. Voltage accuracy : Within ±1% of the full scale Sampling period : 0.5 to 100ms (1,2,5 step)
Wow & Flutter operation	Format : A-B, B-A, B/A, A/B, (A-B)/A Data amount : 64000 maximum Sampling period : 0.1～100ms (1,2,5 step)
Wow & Flutter Output	The same as 12bit D/A of Velocity operation output

General Specifications	
Power supply	AC100－240V±10%, 50/60Hz, 200VAmax
Operating temperature range	0 to 40℃, without condensation
Storage temperature range	-10 to 60℃, without condensation
Dimensions Weight (MODEL 2502)	426(W)×148(H)×400(D)mm, Approx, 11kg

Options

Beam bender
The beam bender is an option to bend the direction from which the beam is received squarely. It is made to measure in using this according to the direction in which the sensor is not able to be installed. Moreover, it is made to measure by inserting the beam bender from the narrow gap.



Waveform Analysis Software

This new waveform analysis software is available for calculating and displaying data of velocity or displacement between 2 channels.
(The obtained data is 64,000 at the maximum, in each of 6-channels simultaneously.)
By using this software, the analysis of frequency and tiny difference in velocity or displacement are easier than using a spreadsheed software such as Excel.

Functions)
It can analyze graph data either on the upper graph and lower graph; each graph area have 4 data graphs for comparison between the channels and analysis.

Items)
velocity F/V (analog), VELO (digital), calculations of differences or ratio in velocity (format: A-B, B-A, B/A, A/B, and (A-B)/A) subtraction of displacements (format: A-KB), and FFT (frequency analysis), in A and B channel each.
And the obtained and calculated data is saved either in DAT file (for this software) or CSV file (for Excel).