MODEL 2021

SIGNAL PROCESSOR

Non-Contact Laser Doppler Compliance FDA/CE marking

"INTERNATIONAL DOPPLER"

2 Channel Velocity/Wow-Flutter Measuring System

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1)this device may not cause harmful interference,and
(2)this device must accept any interference received.
including interference that may cause undesired operation.

CLASS 3B LASER PRODUCT
Complies with 21 CFR 1040.10 and 1040.11
except for deviations pursuant to
Laser Notice No.50,dated july 26,2001.

ACT ELECTRONICS MADE IN JAPAN

2CH LASER DOPPLER VELOCITY METER
MODEL1021 (DOPPLER SENSOR)
MODEL2021 (SIGNAL PROCESSOR)
MANUFACTURED April, 2005
MODEL2021 SERIAL NO. EMPD0101

ACT ELECTRONICS CORPORATION
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INVISIBLE LASER RADIATION
AVOID EXPOSURE TO BEAM
10mW MAX. CW LASER DIODE 780nm
CLASS 3B LASER PRODUCT
IEC 60825-1:2001

Safety: Confirming safety standards;

Designed and tested to comply with the laser safety standards, IEC/EN60825-1:2001 and FDA(CDRH). And also meets the requirements of the EU Low Voltage Directive (EN61010-1), EMC Directive(EN61326) and FCC(Part 15B)/CANADA EMI regulation(ICES-003).

Specifications

Wow & Flutter Measurement Section (Both channels)		
Measurement range	0.15 to 10 % rms(referred 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 system	rms, p-p	
Accuracy	Within ± 5% of full scale of each range	
Frequency band	0.5 Hz to 5 kHz (The low-pass filter attenuates frequencies higher than the upper-limit frequency.)	
Low-pass filter	Same as F/V output	
Wow-Flutter output (W&F output)	Voltage	: 1 V per full scale of each range
	Accuracy	: Within ±5% of full scale
	Output impedance: 1kΩ	

Doppler Sensor MODEL 1021 or MODEL 1022		
Measurement system	Laser Doppler system, back-scattering differential type	
MODEL 1021 High speed L=100mm	Focal distance	Optimal position at 100±4 ㎜
	Measurement range 4.3m/min to 3500m/min (0.07m/s to 58m/s)	
MODEL 1022 High speed L=200mm	Focal distance	Optimal position at 200±8 ㎜
	Measurement range 7.5m/min to 6000m/min(0.12m/s to 100m/s)	
Accuracy	Within ±0.2%	
Power Supply	Supplied from MODEL 2021	
Laser Output	Class 3B : 30mW MAX･CW･Laser Diode 780nm	
Beam spot size	Approx. 5mm wide by 2mm long, Collimated Beam (oval)	
Dimensions, Weight	74(W)x37.5(H)x150(D)mm, Approx, 0.6kg	

Operations between 2 Channels	
Velocity operation	Computes and indicates the velocity difference and velocity ratio of average velocities
Wow & Flutter operation	Computes and indicates the difference between and sum of Wow and Flutter in real time
Operation output	Outputs the velocity operation output and Wow & Flutter operation output in real time (ΔVELO output, MATH output)

Signal Processor MODEL 2021 <Velocity Measurement Section> (Both Channels)		
Input frequency	25MHz	
Velocity indication	Digital indication in 4 decimal digits	
	Unit	: m/min･m/sec
	Cycle	: Approx. 0.1 sec, 1 sec
	Averaging	: Average of 2 to 10 movements
Measurement accuracy	Depends on the measurement accuracy of the Doppler sensor	
Velocity output (F/V output)	Voltage	: 0 to 10 V, any desired full scale selectable for setting.
	Accuracy	: Within ±3% of full scale
	Low-pass filter	: 5Hz to 5 kHz, selectable
	Impedance	: 1kΩ
Averaging velocity output (D/A output)	12bit D/A output	
	Voltage	: 0 to 10 V, any desired full scale selectable for setting.
	Accuracy	: Within ±1% of full scale
	Sampling period	: 50ms, 500ms
	Averaging	: Average of 2 to 100 movements

General Specifications	
Power supply	AC100－240V･50/60Hz･200VAmax
Allowable power fluctuation	±10%
Electrification protection class	Class I
Altitude	2000m max.
Pollution degree	Degree 2
Installation category	Category II
Operating temperature range	0 to 40℃, without condensation
Storage temperature range	-10 to 60℃, without condensation
Dimensions and Weight	426(W)x148(H)x400(D)mm Approx, 11kg

Other Functions	
Panel preset function	This function allows ten different settings to be recalled and stored in the panel.