

C911 / C911Basic / C911T (2-Channels) FFT Data Collector Signal Analyzer with Bearing Condition Option of Laser Shaft Alignment / Balancing)

The C911 offers a high performance 6400 lines, extra power and convenience of two-channel FFT data measurement and signal analysis by two accelerometers. It can be used in almost every industrial maintenance for quick monitoring and FFT signal diagnosis of machine condition. It also allows correction of dynamic imbalance machine with up to 8-planes mode. The analyzer is compact and weight around 800 gram. It is also IP 65 rugged housing with silicon protector to withstand for harsh environment.

The option of add-on laser alignment capability delivers a premium return on investment for C911-SA model.

C911 key feature includes:

- Overall values measurement Acceleration, Displacement & Velocity mode
- Time domain
- 32kHz FFT spectrum diagnosis (amplitude & enveloping)
- Bearing condition monitoring
- Balancing up to 8-planes
- RPM measurement
- Laser shaft alignment (optional)

Applications:

- Power generation
- Pulp & paper
- Petrochemical
- Oil & gas
- Pharmaceutical
- Processing industries
- Desalination plants
- Water Filtration Plants
- Shipping vessel
- Engineering services
- etc...



With C911, the automatic condition monitoring, signal analysis and expandable laser alignment capability has never been handy and convenient to maintenance personnel.

TECHNICAL SPECIFICATIONS C911

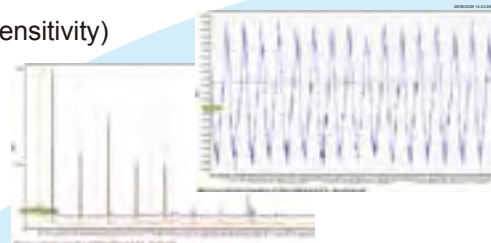
Measurement Channels

- 2 analog channels – charge mode amplifier (programmable sensitivity)
- 1 bearing probe / envelope detector input 1 tachometer input
- 2 (S, M) transducer input

Sample of Bearing Report

Date/Time	Tunings			Measurements		Results of diagnostics, recommendations	Bearing	Oil
	N (rpm)	Outer diam	Init level	dBm	dBc			
Mazak/Production Flr/Good Stk/0514 095219								
5/14/2007 10:24:00 A	200	80	7	24	16	The generation of defects of bearing. Satisfactory condition of lubricant. Partial additive of lubricant.	☹️	☹️
5/14/2007 10:27:04 A	1000	65	20	12	8	Good state of bearing, Good state of oil.	☺️	☺️
5/14/2007 10:29:56 A	2000	65	26	11	6	Good state of bearing, Good state of oil.	☺️	☺️
5/14/2007 10:31:28 A	5000	65	34	11	7	Good state of bearing, Good state of oil.	☺️	☺️
Mazak/Production Flr/Suspected Stk/0514 105401								
5/14/2007 10:56:06 A	200	80	7	22	14	The generation of defects of bearing. Satisfactory condition of lubricant. Partial additive of lubricant.	☹️	☹️
5/14/2007 10:57:34 A	1000	80	21	25	20	The generation of defects of bearing. Satisfactory condition of lubricant. Partial additive of lubricant.	☹️	☹️
5/14/2007 10:58:46 A	2000	80	27	25	20	The generation of defects of bearing. Satisfactory condition of lubricant. Partial additive of lubricant.	☹️	☹️
5/14/2007 11:00:30 A	5000	80	35	35	30	Significant defects.	☹️	☹️
5/14/2007 11:02:08 A	5000	65	34	27	23	The generation of defects of bearing. Satisfactory condition of lubricant. Partial additive of lubricant.	☹️	☹️
5/14/2007 11:03:52 A	3000	65	20	22	19	The generation of defects of bearing. Satisfactory condition of lubricant. Partial additive of lubricant.	☹️	☹️
5/14/2007 11:04:48 A	2000	65	26	21	16	The generation of defects of bearing. Satisfactory condition of lubricant. Partial additive of lubricant.	☹️	☹️
5/14/2007 11:05:16 A	1000	65	20	24	20	The generation of defects of bearing. Satisfactory condition of lubricant. Partial additive of lubricant.	☹️	☹️

Indications: ☺️ - good; ☹️ - satisfactory; ☹️ - bad; ☹️ - dangerous;
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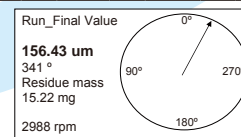
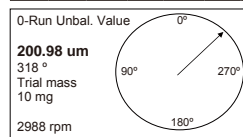
The ConSpect software allow user to create A, V, S data report, FFT Spectrum and also trending result report

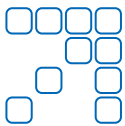
Sample C911 - Balancing Report

Company:	Laser Technology
Site:	Mittel Incineration Plant
Machine Config.:	Blower
Number:	MB 223
Speed:	1500 rpm
Power:	50Kw
Bal. By:	J. M
Remarks:	

File name: BBC_Power plant /trial bal/BALANCE/BB (2008/06/07 11:34:18 - Balancing)
Measured unit for amplitude and weights: um & mills grams

Plane	Point	0_Run		Trial_Run		Initial Wght Info	Compens. Value		Influe. Coefficient		Corr. Values		Corrected Wght Info		Run_Final Value	
		Amp	Deg	Amp	Deg		Wght	Deg	Amp	Deg	Amp	Deg	Wght	Deg	Amp	Deg
1	1	200.98	318°	269.73	351°	10	200.80	318°	11.69	60°	33.32	275°	15.22	85°	156.43	341°
1	2	107.46	349°	152.91	22°		107.46	349°	8.59	65°	45.39	100°				





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TECHNICAL SPECIFICATIONS

Device Measurement range / Accuracy

RPM 10...20 000 rpm / $\pm 1^\circ$ / ± 1 rpm
 Displacement 5000 μ m (p-p) / $\pm 2\%$
 Velocity 1000 mm/s (rms) / $\pm 2\%$
 Acceleration 1000 m/s² (peak) / $\pm 1\%$

FFT Spectrum

Fmin 2Hz
 Fmax 125 Hz ... 35 kHz, selectable
 Lines 100 ... 6400
 Window Rectangular and Hanning

Operating modes

Vibration:

- Overall values: vibration (acceleration, velocity, displacement), shock pulse (roller bearing condition), RPM
- Signals: FFT spectrum (amplitude, envelope), time-signal.

Balancing - Dynamic balancing up to 8 planes, max.14 points.

Tachometer – Speed.

Alignment - Optional program for C911-SA model.

Memory

System flash memory 2MB
 Data file storage capacity >1000 files
 2GB SD card (or micro, mini SD with adaptor),
 Standard file system (FAT).
 USB interface, "mass storage device".

Display

Graphic LCD w/ back-lite

Supply

NiMH, exchangeable (4.8V / 2.1Ah).
 Device. charge time < 3 hours
 Operating duration.> 8 hours of 50% usage

Temperature range

Storage-20°C to 70°C
 Operation-10°C to 55°C

Relative humidity

10 ... 90%

Protection class

IP65, chassis with silicon protector against drop shock.

Carrying Case - No. 1

Package weight & dimensions
 Approx. 456 x 355 x 133mm
 Package Gross weight 6 kg (excludes SA components)

Standard Delivery C911 Package Components

- C911 Analyzer w/built-in rechargeable battery
- Accelerometer, 2pcs
- Accelerometer magnetic stud, 2pcs
- Accelerometer measuring tip, 2pcs
- Tachometer w/3m cable attached
- Luminous marker
- Magnetic mounting stand for tachometer
- Bearing condition probe w/ cable attached
- USB PC com cable, 1.5m
- AC charger, 230V/50Hz
- ConSpect PC software & operating manual in CD-ROM
- Calibration & Quality certificates
- ABS carrying case (1) w/ form inserted

Characteristic frequencies FFT spectrum

Defect	Frequency	Amplitude	Threshold exceeding limit with Advice
Outer ring roll f _{sp} =	19.65	17.56	Insignificant defects
Heterogeneous radial stretch 2*f _{sp} =	39.81	0.05	Defects are not detected
Outer ring skew 2*f _H =	104.81	0	Defects are not detected
Outer ring deterioration f _H =	52.40	0	Defects are not detected
Bubbles (splits) on outer ring f _H =	52.40	0	Defects are not detected
Inner ring deterioration f _{sp} =	19.65	17.56	Insignificant defects
Bubbles (splits) on inner ring f _B =	90.51	0	Defects are not detected
Balls and separator deterioration f _c =	7.49	0	Defects are not detected
f _{sp} -f _c =	12.93	0	Defects are not detected
Bubbles (splits) on balls f _{rx} =	5.56	0	Defects are not detected
Roll surfaces defects f _H +f _B =	142.92	0	Defects are not detected
f _H +f _{sp} =	72.82	0	Defects are not detected
(f _{sp} -f _c)*(z+1) =	103.45	0	Defects are not detected
Ring sliding in place f _{sp} =	19.65	17.56	Insignificant defects

