VAST

VibroAcoustical
Systems and Technologies

VIBRATION MONITORING
AUTOMATIC DIAGNOSTICS
BALANCING
LASER ALIGNMENT

RUSSIAN
EXPORT CENTER

EXIAR
EXIMBANK OF RUSSIA

Made
in Russia

COMPANY MISSION
Optimization of industrial equipment maintenance by means of technical diagnostics systems introduction

COMPANY STRATEGY
Design, production and implementation of the world best systems for vibration diagnostics and vibration adjustment

OUR POLICIES
Reasonable prices, high quality of products and services, forehanded fulfillment of obligations, full responsibility for result

" TOTAL CONTROL "

Dear Customer, Partner, Friend!

A whole era has passed since the moment of creation of the first algorithms used for analyzing the causes of vibration of machines and mechanisms. For 30 years, the developers of our company have been sharpening methods of analysis and algorithms, have been creating equipment and software, have been innovating modern diagnostic methods into various industries such as energy, metallurgy, paper, oil industry, railway transport, etc.

Now, having brought all the unique knowledge embodied in the means and methods of diagnosis, we are ready to offer you the final product - a technology for a comprehensive assessment of state of the main and auxiliary equipment.

This technology is based on methods of early detection of incipient defects and control of their development by means of vibration diagnostics.

Application of the technology will allow reducing the equipment maintenance costs by approx. 30% due to:
- prevention of emergency situations;
- reduction of equipment maintenance;
- spare parts economy;
- reduction of maintenance personnel;
- Quality control of the executed repair work;
- reduction of energy consumption.

We value our partners, and we are always ready to provide technical and consulting support in vibration diagnostics, balancing and laser alignment of the equipment. There are Training and Service facility created to lend support to our partners. Also I want to express my gratitude to you, because every new client becomes our partner and it leads to mutually beneficial cooperation.

The highest mark for us is your trust!

Best regards,
Managing Director
VAST Association
V.V. Tulugurov

COMPANY PROFILE

VAST refers to diagnostic "school" of the Ministry of Shipbuilding Industry, which has been formed in 1960-1980s under the auspices of the Central Research Institute of Ship Electrical Engineering and Technology (CNII SET) for solving diagnostic problems of surface vessels and submarines of the Soviet Navy.

One of the executors of the state programs of the Ministry of Defense of the USSR «Diagnosis» and «Defense» was the 43rd division of CNII SET under the leadership of V.V. Malakhov. In this division, since the late 1960s, work has been carried out on vibration diagnostics and vibration reduction methods by A.V. Barkov, A.G. Shablinsky and other future specialists of VAST.

The company's own history begins since 1989, when a group of specialists with 20 years of experience in vibration research separated from the CNII SET.

The official birthday of the company is May 15th, 1990 – the date of registration of the first company – a small state enterprise, which was transformed into CJSC VibroAcoustic Systems and Technologies (VAST) in 1992, and in 1998, the Association VAST was organized.

Currently the enterprise is a national industry leader; developer and supplier of industrial equipment diagnostics and monitoring systems. For 27 years more than 2000 systems have been supplied and more than 5000 specialists in the sphere of vibration diagnostics have been trained.

OUR PROPOSAL

- Sales of equipment for technical diagnostics

- Full maintenance service (repair, metrological verification, calibration)

- Technical support

- Contractual maintenance of enterprises for the purpose of diagnostics, balancing and alignment of machines and equipment

- Research activity and development of methods for monitoring of equipment state, including special and unique machinery

- Technical audit of the diagnostics department

- Personnel training in the sphere of vibration – diagnostics, balancing, alignment according to GOST ISO 18436

- Certification of specialists in the field of IHC I and II level

- Conduction of on-site courses and seminars

VIBRATION ANALYZER DC-21

Vibration analyzer is used for obtaining detailed diagnostic information from the available vibration signal. Vibration analyzer makes it possible to determine the presence of a defect and the degree of its development. Based on this information maintenance plan and content of repair works could be justified.
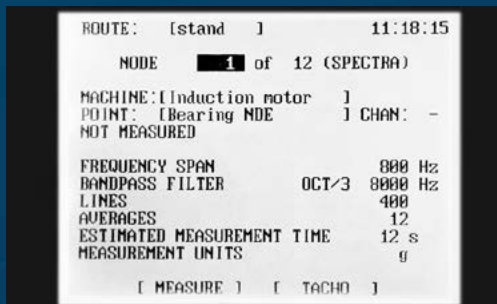
DC-21 stands out due to high reliability, exploitation simplicity and a wide range of diagnostic measurements. A large number of users expressed sympathy towards this device and for a long time it has been the flagship product of the VAST Association.
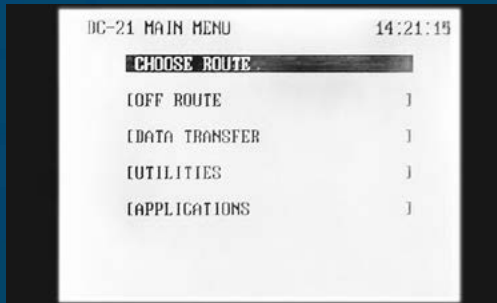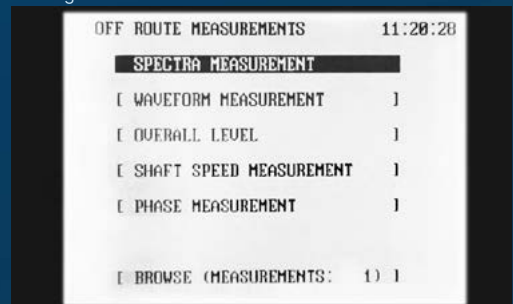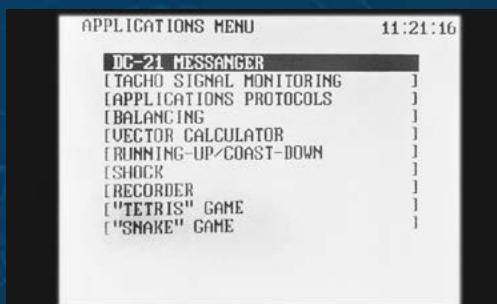

Convenient user interface
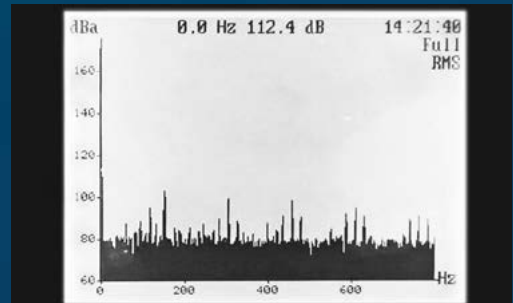
Measurement of spectral characteristics which allow to identify a defect

Route measurements. Route maps are configured on PC

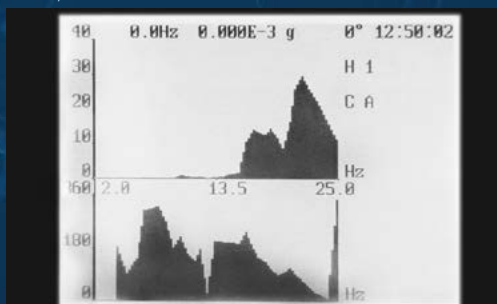Measurements of the overall level, envelope spectrum, auto spectrum, time signal, amplitude / phase

Application programs: balancing, run-up/coast-down, shock, recorder

Used for 1-,2-,3-plane balancing

The analysis of amplitude-, phase-frequency response characteristics during run-up (or coast-down) used for the study of resonances

Analysis of impulse excitation spectrum for structural natural frequencies identification

SPECIFICATIONS

INPUT

Number of channels
2 analog channels (consecutive)
Types of transducers
Accelerometer, current clamp,
tacho sensor, microphone
Frequency response 0,5 – 25600 Hz
Linear input from -3 to +3 V

TYPES OF MEASUREMENTS

The overall level, the envelope spectrum, auto spectrum,
time signal, amplitude / phase

APPLICATION PROGRAMS

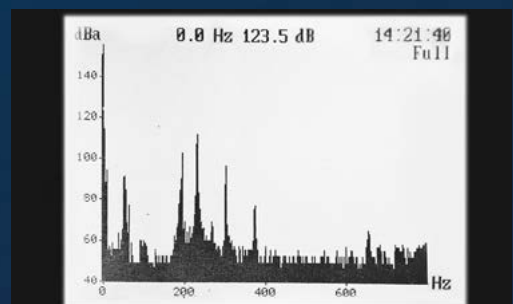Balancing, run-up/coast-down, shock, recorder

VIBRATION PARAMETERS

Measured values
displacement, velocity,
acceleration, electrical voltage and flow, rotational frequency.
Detector RMS, Peak, Peak-Peak, Peak-factor
Vibration measurement bandwidth
   According to GOSTs
   2..1000,
   10..1000,
   10..2000 Hz
   Additional:
   2..200, 3..300, 5..500, 10..5000
   500..2500, 625-1250, 1200..2500,
   2500-5000, 5000..10000, 10000..25000,
   17000-25000 Hz
Measurement range (RMS)
   acceleration from 0,05 to 1000 m/sec²
   speed from 0,1 to 100 mm/sec
   displacement from 1 to 1000 mkm

SPECTRUM ANALYSIS

Frequency span
25, 50, 100, 200, 400, 800, 1600, 3200,
6400, 12800, 25600 Hz
Bandwidth resolution 400, 800, 1600 lines
Dynamic range 70 dB, not less
Envelope detector with bandpass filters
   1/3 octave: 800-20000 Hz
   1/1 octave: 50-16000 Hz

GENERAL INFO

Port for data exchange com (RS-232), USB
Protection level IP65
(dust and waterproof)
Operating temperature -20/+50°C
Weight 0,8 kg
Size 109 x 206 x 35 mm
Battery life 15 hours (Li-Ion 1750 mAh)
Battery type Nickel-metal hydride, quick-changed
Charge Time max 2,5 hours
**Explosion Protection** 1 Ex ib II CT4 X

VIBRATION ANALYZER DC-23

THE FIFTH GENERATION OF VIBRATION ANALYZERS

DC-23 is a two-channel vibration analyzer of a new generation. The main know-how of the instrument is the simultaneous and synchronous data collection by two separate channels. The measurement algorithm of the device has also been radically revised-obtaining the results of all types of measurements with one time signal makes it possible to reduce the measurement time for diagnostics by 3-6 times in comparison with devices of previous generations.

Frequency range is extended for up to 51200 Hz and frequency resolution - up to 51200 lines in Fourier spectrum. New two-channel measurements introduced.
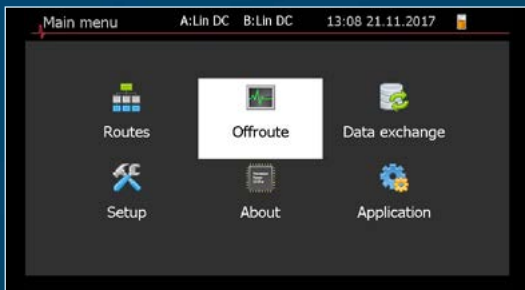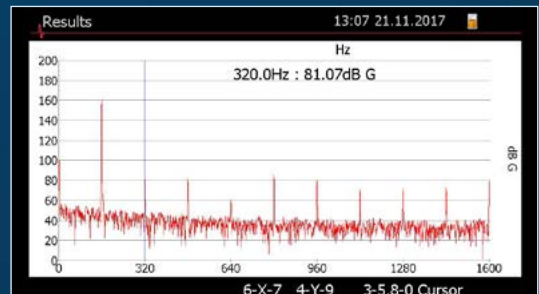

Modern user interface, color display
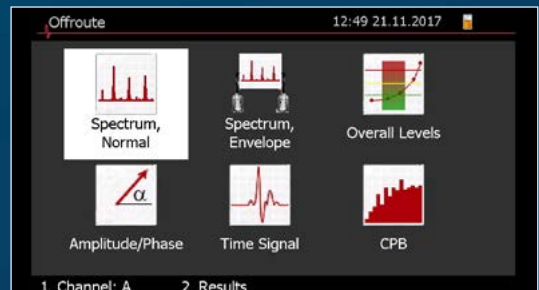
Off route measurements are available. Results are stored within device and can be transferred to PC

Route measurements. Route maps are configured in a PC

Measurement of the overall level, envelope spectrum, auto spectrum, time signal, amplitude / phase, cross spectra and orbits
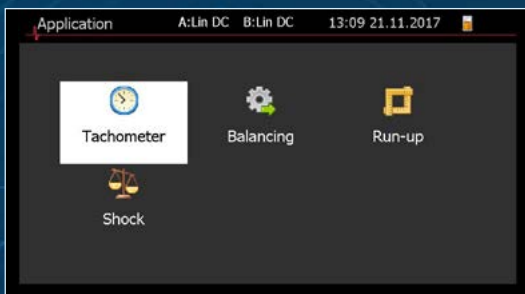
Application programs: balancing, run-up/coast down, shock
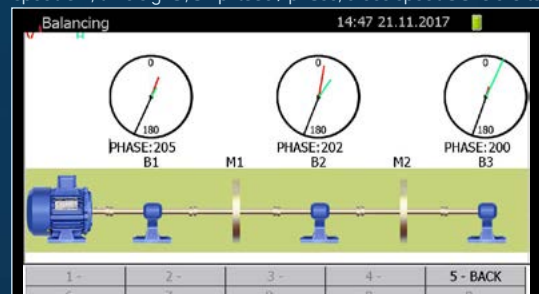
1-,2-,3-, 4 - plane balancing. Graphic interface
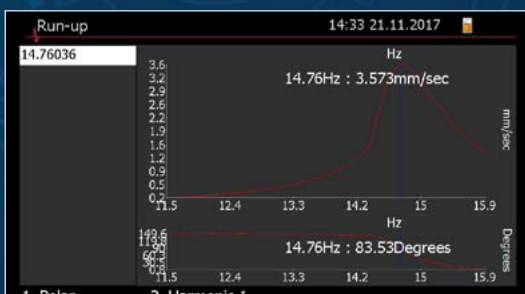
The analysis of amplitude-, phase-frequency response characteristics on run-up (or coast-down) for the study of resonances

Analysis of impulse excitation spectrum for structural natural frequencies identification

SPECIFICATIONS

INPUT

Number of channels
2 analog channels (parallel)
Types of transducers
Accelerometer, current clamp, tacho sensor,
microphone, proximity sensor
Frequency response 0,5 – 51200 Hz
Linear input from -5 to +5 V

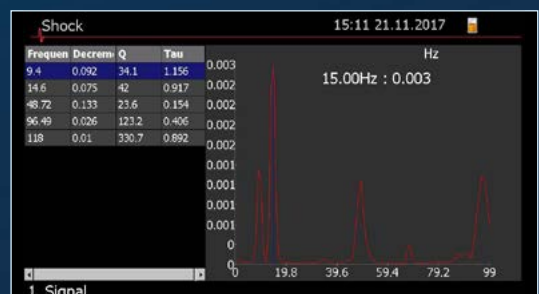**TYPES OF MEASUREMENTS**

The overall level, the envelope spectrum, auto spectrum,
time signal, amplitude / phase, cross spectrum, orbits,
the kurtosis coefficient, third octave spectrum

APPLICATION PROGRAMS

Balancing, shock, run-up/coast down

VIBRATION PARAMETERS

Measured values
Displacement, velocity, acceleration,
electrical voltage and flow, rotational frequency.
Detector RMS, Peak, Peak-Peak, Peak-factor
Vibration measurement bandwidth
   According to GOSTs
   2..1000, 10..1000, 10..2000 Hz
   Additional:
   2..200, 3..300, 5..500, 10..5000
   500..2500, 625-1250, 1200..2500,
   2500-5000, 5000..10000, 10000..25000,
   17000-25000 Hz
Measurement range (RMS)
   acceleration from 0,1 to 3400 m/sec²
   velocity from 0,1 to 6900 mm/sec
   displacement from 0,5 to 54900 mkm

SPECTRUM ANALYSIS

Frequency span
25, 50, 100, 200, 400, 800, 1600, 3200,
6400, 12800, 25600, 51200 Hz
Bandwidth resolution 400, 800, 1600, 3200, 6400,
12800, 25600, 51200 lines
Dynamic range 100 dB, not less
Envelope detector with bandpass filters
   1/3 octave: 800-50000 Hz
   1/1 octave: 50-32000 Hz

GENERAL INFO

Port for data exchange com (RS-232), USB
Protection level IP65
(dust and waterproof)
Operating temperature -20/+50°C
Weight 1 kg
Size 143 x 194 x 39 mm
**Battery life** 8 hours, not less
Battery type Li-ion
Charge Time 4,5 hours

DREAM VERSION 5

DREAM 5 software is an enterprise corporate control system, used for monitoring and diagnostics of rotating equipment.

Complex and unique algorithms which are incorporated into the modules of automatic diagnostics of DREAM software were developed by the best research workers of the VAST Association. DREAM software is the world's first system for automatic diagnostics of rotating equipment for vibration and is considered to be one of the best in class.
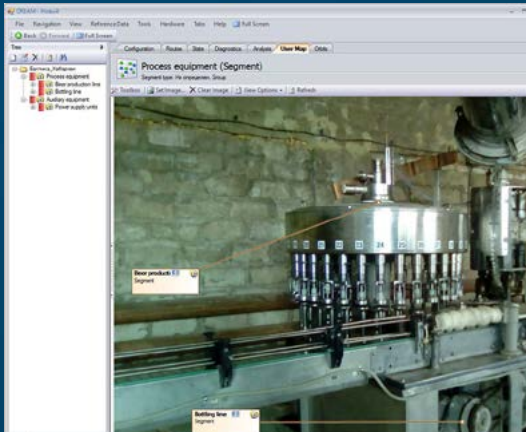

The program has a user-friendly interface. After brief training, your personnel will be able use most of the program's functions easily, perform diagnostics and generate reports on the state of the equipment.

For carrying out automatic diagnostics, for example, of bearings, you need to know their geometric dimensions (for calculating the characteristic frequencies of defects). The program contains huge bearing database with most common bearing types and their parameters. In case of absence of your specific bearing model in the database, it is possible to create it manually.
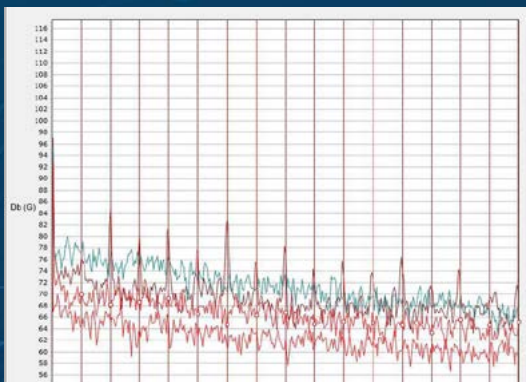
The program has wide range of tools for manual equipment diagnostics: harmonic rows, lateral(side) harmonics, overall level in the band; selection of the envelope filter, etc.
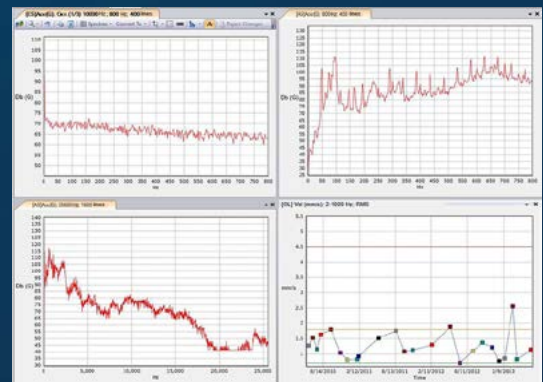
Diagnostic and monitoring measurements as a whole allow to estimate the technical state of the object quite accurately
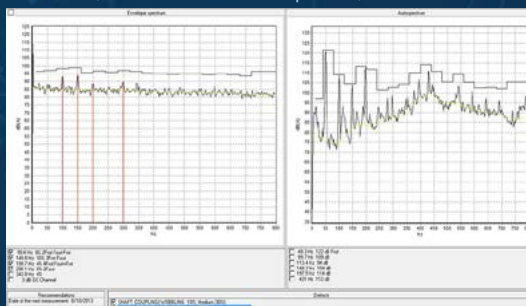
The «diagnostics» panel provides information regarding found defects, their levels, recommendations for maintenance and the date of the next measurement.

There is a possibility to add custom thresholds to both overall level measurements and spectrum.

FEATURES

SERVICE

- vibration monitoring of machines and equipment
- vibration analysis
- automated diagnostics of technical condition
- automated long-term state forecast
- manual vibration analysis and technical diagnostics
- issuing service recommendations
- transition to condition-based maintenance
- automated reporting
- interaction with ACS MRO

DATABASE CONFIGURATION

Hierarchy Level not limited
Measurement Setup
- automatically according to GOST-ISO standards
- automatically according to the specifications of the machines
- custom

VIBRATION MONITORING

Types of monitoring
- according to GOST-ISO 10816 etc.
- Spectrum in different frequency bands
- vibration levels and other parameters
Threshold settings
- automatic thresholds setup according to GOST-ISO
- automatic thresholds setup according to the specification of the machine
- custom threshold setting
Monitoring based diagnostics
- Determination of any events by exceeding the thresholds
- Detecting the state of the machine by events

AUTOMATED DIAGNOSTICS

Types of diagnostics
- Unit (nodal) diagnostics
- machinery diagnostics as a whole based on the diagnosis of all nodes
- machinery diagnostics with the recommendation «operation is permissible» or «operation is not recommended»
- integrated assessment based on vibration monitoring and diagnostics
- the ability to define multiple diagnostics for a single node
Automated diagnostics modules
- plain bearings
- rolling bearings
- gearbox, including differentials
- chain and belt drives
- shafts and couplings
- impellers of pumps and fans
- Electropumps
- impellers of turbines and compressors
- Electromagnetic system of electrical machines(engines and generators)
Diagnostics results
- Safe operation period
- the type and level of development of each defect
- maintenance recommendations
- expert inference for each node and the machine as a whole

EVERY SOFTWARE MODULE DETECTS UP TO 14 DIFFERENT TYPES OF DEFECTS

- assembly and installation defects that can be eliminated immediately and thereby the service life of the equipment will be increased, for example, misalignment of bearing parts, static clearance eccentricity in the electric machine, imbalance, coupling misalignment, etc.
- exploitation defects, for example pump cavitation caused by incorrect mode of equipment operation, which can be changed thus prolonging the resource of the equipment.
- runout defects, for example, cavities, cracks on the rolling surfaces of the bearing parts, runout of gear teeth, etc. Such defects can not be eliminated, but in this case the purpose of diagnosis is extension of service life of the equipment and at the same time ensuring operational safety and quality of products

VIBRATION METER CM-21

Vibration meter CM-21 is designed to measure acceleration, velocity, displacement, rotation speed and temperature of equipment nodes for the purpose of control and monitoring of equipment state.

Small dimensions, small weight, reliability and multifunctionality - that is why our customers choose CM-21 vibration meter.

CM-21 is designed to measure acceleration, velocity, displacement, rotation speed and temperature.
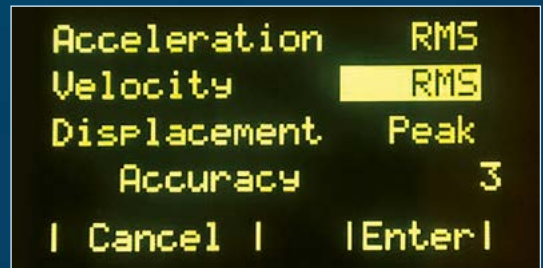
There is a wide choice of detectors: RMS, Peak, Peak-Peak, Peak-Factor
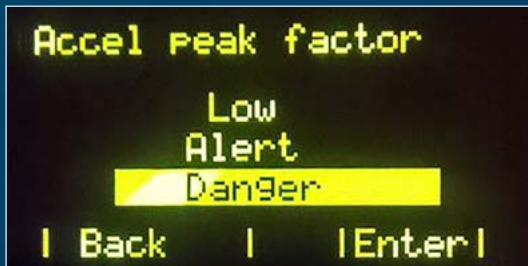
Thresholds setting for any measurement

The built-in pyrometer measures the temperature at a distance up to 1 m
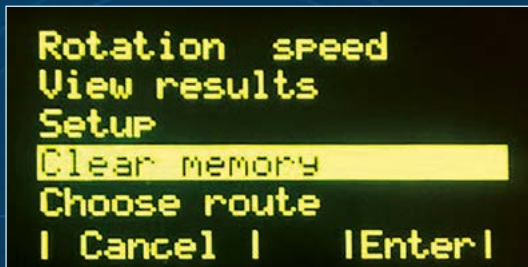
The device has built-in memory, which allows you to conduct route measurements
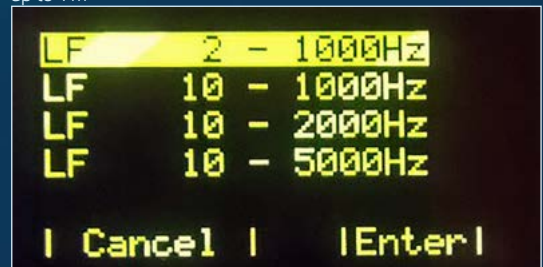
A very large selection of low-frequency and high-frequency filters
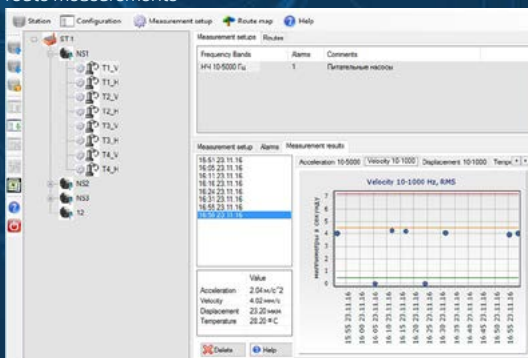
Software for monitoring and creating route maps. Included in a delivery set
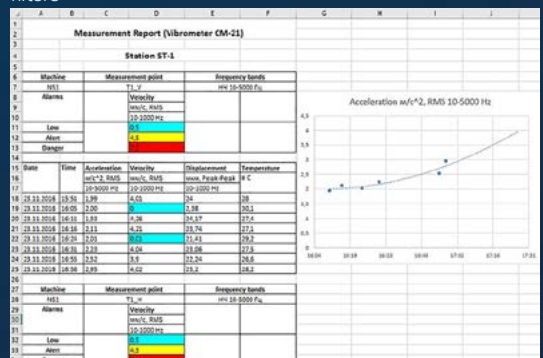
VibroLevel software allows you to create and save Microsoft Excel reports automatically

SPECIFICATIONS

SENSORS

Transducer type
External: accelerometer, tacho sensor
Built-in: pyrometer

VIBRATION

Measured values
displacement, speed,
acceleration, rotational speed, temperature.
Detector RMS, Peak, Peak-Peak, Peak-factor
Frequency control range 2-25000 Hz
Frequency measurement range 2-5000 Hz
Error in diapason 2-5000 Hz, 5%
Vibration measurement bandwidth
    According to GOST ISO 10816-3-2002:
    2-1000, 10-1000, 10-2000, 10-5000 Hz
    Additional:
    2-200 Hz, 10-200 Hz, 50-300 Hz, 300-1800 Hz, 2-3000 Hz, 10-3000 Hz,
    2-10000 Hz, 1,8-10 kHz, 6,4-25 kHz, 10-25 kHz, 15-25 kHz.
Measurement range (RMS)
    acceleration from 0,1 to 1000 m/sec^2
   **velocity** from 0,1 to 1000 mm/sec
    displacement from 1,0 to 10000 mkm

TEMPERATURE

Range from -40°C to +350°C
Accuracy +/-4°C

ELECTRONIC STETHOSCOPE

Volume regulated, 9 levels
Output for ear phones vibration signal
Earphones type industrial, noise-proof

ROTATIONAL SPEED

Range of rotational speed
from 120 to 39000 rpm (external rpm sensor)
Accuracy +/-1%
Distance from object up to 200 mm

GENERAL INFO

Graphical display 128X64 OLED,
does not change its properties under negative temperatures
Keyboard membrane, with tactile effect
Port for data exchange USB
Output for earphones vibration signal
Data storage over 10000 measurements
Protection level IP65
Range of operating temperature -20/+50°C
Relative humidity -90 %
Weight 300 g
Size 126 x 80 x 24 mm
Battery life 15 hours (Li-Ion 1750 mAh)
Battery type built-in Li-Ion 1750 mAh, optional 3500 mAh
Charge Time 2 hours – adapter, 8 hours – PC USB port
Explosion Protection 1 Ex ib II CT4 X

SMD-4M

The SMD-4M systems allow to continuously measure, accumulate and control wide range of vibration and current parameters (as well as other processes) and record initial signals due to operator's commands or by an event. The obtained values of vibration parameters are used to diagnose and forecast the technical condition of the unit. Synchronous recording on all channels of the system at once allows to significantly increase the reliability of the diagnosis, and high measurement speed makes it possible to assess the technical condition of the unit in rapidly changing transient processes (e.g. acceleration/runout).

As long as the statistics is obtained, the system program automatically selects threshold values for the selected monitoring values, thus simplifying life of the diagnostician. The system can be installed on the whole object or individual nodes without stopping it. The work of the system after its deployment and incorporation does not require operator or diagnostician involvement.

It is possible to operate the system and receive measurements results online via the operator's remote workstation using the Ethernet network, Wi-Fi, or using built-in input/output devices, if they are included in the system. Also, any information can be transmitted via GSM-network in the form of messages.

The SMD-4 system is designed for continuous monitoring of the unit condition with rotation nodes by their vibration, and, if necessary, by current of the electric drive, temperature and other signals and parameters. It can be supplemented with modules of diagnostics and forecast of the residual resource of different types of unit due to the trends of developing defects.

The system allows to control the current condition of the unit from the first rotor rotations at the start to the complete stop and combines the capabilities of detecting the incipient defects to optimize the maintenance processes and the possibility of instant identification of the developed defects for operational control of the unit.

The SMD-4 system belongs to the class of unattended self-tuning information systems. All the thresholds which define the boundaries of the condition of the object are determined and adapted automatically, but if necessary they can be set manually. Continuous control (monitoring) of the condition is also possible in automatic mode of the system operation in all operation modes of the unit, diagnostic - in preselected typical modes. Specialists involvement is only required at the stage of linking system to the unit and commissioning works.

The SMD-4 systems are delivered in 2 types - stationary and mobile (portable). The configuration of each system is selected based on the customer needs.

The main sphere of system application with the provision of condition control and diagnostic functions is machines and units with rotation nodes, which use electric motor or turbine as a drive and operate at rotation speeds ~ 4 rpm to 40,000 rpm.
They include:
· fans, blowers and rotary-type compressors,
· centrifugal, axial and screw pump units,
· generating units with turbo or electric drive,
· mechanical transmissions (gear, belt, chain),
· rotary drives, including adjustable ones

VIBRATION SENSORS

The main vibration sensors used in the SMD-4 are vibration acceleration sensors (accelerometers) with a piezoceramic element insulated from the frame and a standard ICP-power supply. The typical conversion factor is 100 mV / g with the maximum peak value of the measured acceleration is 50 g. The normalized sensor frequency response is 0.5 - 10,000 Hz, for relative measurements the sensor is used up to 25 kHz, the dynamic range - no less than 100 dB. The range of external temperatures is from -40 to +125 degrees Celsius. The ICP-sensor power supply is provided by the BIAS unit.

MEASURING CURRENT TRANSDUCERS

Measuring transducers with or without magnetic core (Rogowski coil) can be used to measure the power current in an electric machine. The required frequency response of the AC measuring transducer is from 2 to 10,000 Hz, power for most sensors is not required. The required dynamic range of the current sensor is not less than 100 dB. The upper temperature limit at the mounting point of the current sensor (with electronics) to the power cable of the machine is 125 degrees Celsius.


RPM SENSORS

Typical eddy current or magnetic speed sensors (frequency response 0.5-1000 Hz) with one pulse per rotation can be used in the system, forming a synchronizing voltage pulse of any polarity with a voltage of 1-30 V with a leading edge up to 10 ms. For eddy current sensors produced by VAST Association, a power source is included in the BIAS. Determination of the rotational speed of the unit with a static voltage regulator can be performed on the current spectrum in one of the measuring channels of the SMD-4 system, taking into account the correction for the number of pole pairs and the slip frequency in units with an asynchronous motor

STRUCTURE

The SMD-4 systems have a network structure (Fig. 1).
It consists of:
· measuring transducers (sensors),
· measurement and signal analysis units (BIAS), united by a common measuring network Ethernet
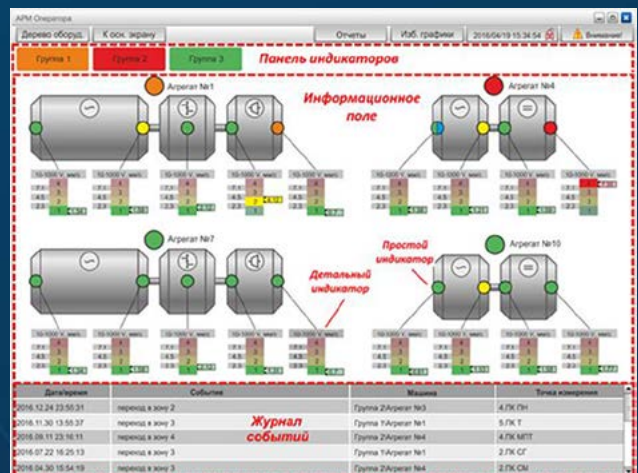
An example of an operator display. Equipment with vibration measurement points and its condition is shown on the screen. The event log reflects the condition transition of the unit from one zone to another, according to the preset thresholds.
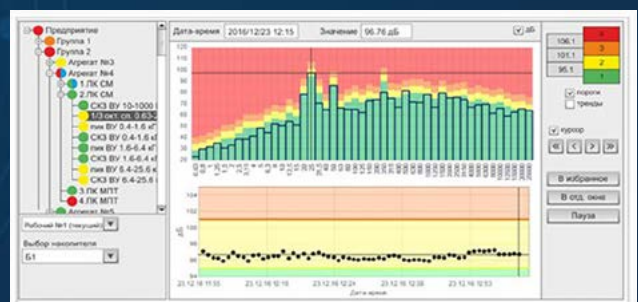
An example of a diagnostician display. Diagnostician has access to more detailed info on each node. It is possible to conduct any diagnostic measurement at any point of control. The vibration time signal is recorded continuously and stored in the buffer for a certain time. When the unit moves from one condition to another, it is possible to look at the spectra, and find out the cause of the vibration growth.

SPECIFICATIONS

DBMS PostgreSQL (or SQLite)
Maximum size of DB no limits
Operational system
OC Windows 7-10, Linux (Ubuntu, Mate, Lubuntu) version 16.04,
Armbian (for ARM computers)

Representation
linear/dB; average, Peak, Peak-factor, RMS, Peak-Peak

Measured values
(displacement, velocity,
Acceleration), temperature, electric current etc.

Interval of measurements
Any 0.125 sec - fold

Time of diagnosis
(when using the diagnostic module)
from 1 second

Dynamic range
100 dB, not less
Passband filters
0,5-51200, 0,7-300, 2-1000, 10-1000, 10-2000,
25-100, 100-400, 100-5000, 400-1600, 1600-6400,
6400-12800, 6400-25600, 25600-51200 Hz
Spectrum
Frequency span, Hz: 6, 25, 100, 400, 1600, 6400, 12800, 25600, 51200
Bandwidth resolution: 100, 200, 400, 800, 1600, 3200, 6400, 12800, 25600
Envelope spectrum bandwidth
1/3 octave band filter, central frequency, Hz:
400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000,
6300, 8000, 10000, 12500, 16000, 20000, 25000
Fractional octave band filter, frequency ranges, Hz:
25-100, 100-400, 400-1600, 1600-6400, 6400-12800, 6400-25600,
25600-51200
Bandwidth resolution 100, 200, 400, 800, 1600, 3200, 6400, 12800, 25600 lines
Cross spectra
waterfall
amplitude / phase
time signals
Error
≤ 3% in bandwidth 2 Hz - 10 kHz.
Coefficient of nonlinear distortion
≤ 0.1%

Operating conditions
temperature -20 to + 60 ° C
humidity 0 to 95%
operational life - 10 years, not less

Access to the system
from the operator's workplace via Ethernet or via built-in I / O interfaces
(keyboard, touchpad / mouse, monitor)

**Information messages transmission**
via GSM network

VIBROLAZER

Laser alignment systems are used to reduce vibration and extend the operational life of equipment. Accurately aligned unit has much better energy efficiency indicators and less stress on the couplings and bearing joints. The system can be used for aligning shafts of electric motors, pumps, reducers, compressors and other industrial equipment.

DISPLAY BLOCK

Ergonomic design, light weight, shockproof performance. Degree of protection IP67. The unit has a built-in camera with a resolution of 5MP.
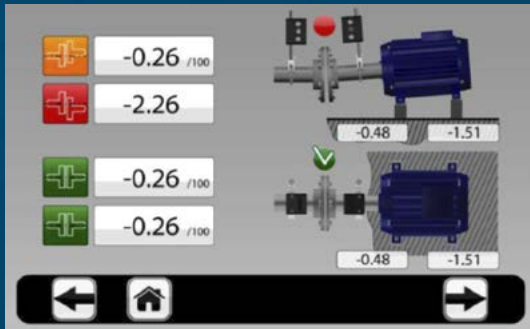
INTERFACE

User-friendly and intuitive interface. Using 3D graphics, detail instructions and online measurements make alignment as simple as possible. Specialists of any level are able to master this device in a few hours.

MEASURING BLOCKS

The use of CCD detectors with a length of 30 mm, allowing to conduct high-precision measurements. Degree of protection IP65. Connection to the main unit via Bluetooth. Fastening to shafts - with chains or on magnetic racks.

FUNCTIONAL

Horizontal alignment, vertical alignment, soft paw. The distance between the detectors is up to 10 m.

SPECIFICATIONS

DISPLAY BLOCK

Degree of protection IP 67
Weight 500 g
Frame size 220 mm x 143 mm x 14 mm
Display color TFT with backlight
Display size 8-inch diagonal
Display resolution 1280 x 800 pixels
Operating temperature -20 ° C to + 60 ° C
Battery 8000 mA
Built-in memory 64 GB
Built-in camera 5 Mp (main), 2 Mp (frontal)
Shock resistance withstands multiple drops from a height of 1.2 m

MEASURING BLOCKS

Material anodized aluminum
Dimensions 90 mm x 60 mm x 32 mm
Laser radiation diode laser with wavelength of 635 nm, class II
Laser power <1 mW
Distance between blocks up to 10 m
Receiver window size 30 mm
Detector type digital - CCD detector
Detector resolution 0.001 mm
Measurement roughness 0,3% ± 7μm
Digital inclinometer 0,1 °
Degree of protection IP 65
Operating time up to 20 hours
Bluetooth 4.0
Operating temperature from -20 ° C to + 60 ° C

Barkova N.A.,
Candidate of Technical Sciences,
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«NWTC «

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EDUCATIONAL CENTER

Non-governmental educational institution of additional professional education «North-West Training Center», founded by «Association VAST» Ltd., was established in 2001 for primary training and advanced training of specialists in vibration diagnostics of rotating equipment.

The North-West Training Center conducts courses of advanced training for specialists with secondary vocational and higher education in diagnostics of operated machinery and equipment, as well as professional retraining of specialists upon retraining program «Instruments and methods for quality control and diagnostics of machines and equipment». Successfully completed the relevant training program students get certificates and diplomas.

TRAINING PROGRAMS:

Principles of vibration diagnostics

Condition control and machines diagnostics

Vibrodiagnostic method of nondestructive control (training upon the program «Technical diagnostics (vibration monitoring, diagnostics and balancing) of rotating equipment» and preparation for certification in State agency)

Technical diagnostics (vibration monitoring, diagnostics and balancing) of rotating equipment (72 hours)

Technical diagnostics (vibration monitoring, diagnostics and balancing) of rotating equipment (80 hours)

Vibration control, monitoring and diagnostics of machines and equipment

Vibration monitoring and diagnostics of machines and equipment

Basics of balancing of rotary equipment

TRAINING COURSE FOR RAILWAYS SPECIALISTS

«Vibration control of the units and locomotives condition» for the 1st level of qualification specialists according to GOST R ISO 18436-2 and PKB CT.06.0050

«Vibration diagnostics of rotary locomotives equipment» for the 2nd level of qualification specialists according to GOST R ISO 18436-2 and PKB CTC.06.0050

«Condition Monitoring And Diagnostics Of Machines (Vibration diagnostics and vibration alignment of rotating equipment of locomotives)» for the 3rd level of qualification specialists according to GOST R ISO 18436-2 and PKB CT.06.0050

STANDS FOR TRAINING

Stands can be used for balancing, alignment training.
For purchase inquiries, please contact the Sales Department
of the VAST Association.

INDUSTRY SOLUTIONS

OIL AND GAS INDUSTRY

Diagnostics of submersible pumps, fans, electric motors, reducers and other auxiliary equipment.
Clients: Gazprom, Lukoil, Transneft, Antipinsky refinery, Bashneft and others.

RAILWAY

Diagnosis of diesels, bearing joints of the wheel-motor unit, gearing transmissions.
Clients: Russian Railways, Belarusian Railways, KM Tranco, Kamkor locomotive.

PULP AND PAPER INDUSTRY

Diagnostics of paper machines and other rotating equipment.
Clients: Arkhangelsk Pulp and Paper Mill, ILIM, Karelia PALP, GOZNAK, Mondi, PPM Kama, etc.

METROPOLITAN

Diagnostics of escalators, fans and other equipment with rotating nodes.
Clients: St. Petersburg Metro, Moscow Metro.

FOOD

Diagnosis of fans, conveyors, reducers, electric motors, pumps and other auxiliary equipment.
Clients: British American Tobacco, MARS, Heineken, Baltika, JTI, Efes, Commonwealth of Soya, etc.

CHEMPROM

Diagnostics of pumps, fans, electric motors, reducers and other equipment.
Clients: Phosagro, Sibur, KazanOrgSintez, Nevinnomyssky Azot, KAUSTIK GC NIKOCHEM, Maksam.

METALLURGY

Diagnostics of stands, rolling mills, draft fans, reducers and other rotating equipment.
Clients: Severstal, Norilsk Nickel, Magnitogorsk Metallurgical Plant, ArcelorMittal, Vyksa Steel Works, KSP Steel, EVRAZ, Navoi Mining and Metallurgical Combine, Novolipetsk Steel, Sredneuralsky Copper Smelting Plant, etc.

ENERGETICS

Diagnostics of turbines, generators, electric motors, pumps, smoke exhausters and other equipment.
Clients: TGC, Atomenergoremont, Balakovo NPP, Belovskaya GRES, Berezovskaya GRES, Votkinskaya HPP, Inter RAO, Konakovskaya GRES, Kostromskaya GRES, Leningradskaya NPP, Mosenergo, Petrozavodskaya CHPP.