



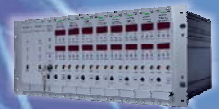
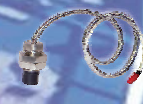
Rotating machinery monitoring expert

— DF Series

Eternal quality

Unremitting pursuit

Product Catalogue



- Sensor series
- Transducer series
- Monitoring instrument series
- Inspection instrument device series

2012



- The best industry rotating machinery monitoring sensors, instrumentation and Inspection equipment manufacturer
- On 1997, the domestic first equipment of international advanced level, have complete independent intellectual property rights of programmable TSI monitoring system put into use.
- On 1998, become Oriental Steam Turbine Group TSI instrumentation equipment manufacturer of OEM, DF series products throughout the country, to the world.
- On 2002, the introduction of new DF series, to the industry to promote, thousands of used in electric power, petroleum, chemical, steel, metallurgy, papermaking, pharmaceutical, aviation, aerospace and other industries, praised by the majority of users.
- On 2012, annex NE series brand, reshape the brand image, with DF series sales to nationwide customer
- **The complete series:** we have dozens of series: sensor, transmitter, Monitoring instrument system, measurement and analysis software, Inspection equipment, nearly a thousand kinds of specifications. people have me have, people I have excellent
- **Properties of the leading:** experienced R & D team, using the latest digital processing technology, all introduced high performance programmable TSI products, overtake world advanced level.
- **Excellent quality:** all imports of military plotting device, strict manufacturing process and perfect quality assurance system, building high quality products
- **Perfect service:** sales network throughout the country, for the majority of users to provide all-weather pre-sales, after sale service

Sincerely look forward to and you together, to revitalize national industry and work!



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DF31XX series of electric eddy current sensor system

DF31XX system overview

DF31XX Eddy Current sensor system, is based on our experience in Eddy Current sensor field for ten years, to win the director of the famous brand products at home and abroad, and application of a range of new technologies, new materials, new technology, to launch the latest generation of eddy current sensor, the performance of the system has reached the international advanced level.



- ◆ For the condition monitoring of rotating machinery protection specially designed
- ◆ Conform to Country JJG644-2003 Sensor verification regulation
- ◆ Strictly follow the API670 standard American Petroleum Association
- ◆ Perfect quality assurance system, Manufactured by best technology
- ◆ Users all over the country, shipped to several countries
- ◆ Widely used in electric power, petrochemical, metallurgical industries

Excellent performance

- ★ High temperature resistant, oil, water, gas and other harsh environment;
- ★ Non contact measurement, high sensitivity;
- ★ A wide linear range, fast response speed;
- ★ Strong anti-interference ability, high reliability;

Application fields

- ⊙ Rotating machinery shaft displacement, vibration, rotational speed, differential expansion, eccentricity parameters on-line monitoring and protection.
- ⊙ Machine size, thickness, roughness and other precision detection and automatic counting, limit and so on.

Product diversification

DF31XX eddy current sensor system, with full specifications and more varieties, to fully meet the different needs of users of the factory.

All domestic and international famous brands of electric eddy current sensor products, we can provide complete sets of dimensions and technical indicators fully compatible products.

Common specifications for models(eg. 8 eddy current sensor):

Probe: DF310802-000-050-10-00-02-00-00
 Extended cable: DF3108L-40-01-01-00
 Pre-amplifier: DF3108S-50-00-01

Linear measure range, linear scope, nonlinear error, sensitivity, measured min-surface:

Probes diameter (mm)	Linear measure range (mm)	Linear scope (mm)	Nonlinear error	Output sensitivity		Measured min-surface (mm)	
				-4~-20V or -2~-18V	4~20mA		
Standard measuring range	5	2	0.25~2.25	0.75%	8V/mm	8mA/mm	15
	8	2	0.25~2.25	0.75%	8V/mm	8mA/mm	20
	11	4	0.5~4.5	1.2%	4V/mm	4mA/mm	30
	18	6	0.5~6.5	1.2%	1.28V/mm	1.28mA/mm	50
	25	12.5	1.25~13.75	2%	1.28V/mm	1.28mA/mm	60
	50	28	1.3~27.5	2%	0.4V/mm	0.4mA/mm	110

Dynamic characteristics: Amplitude frequency characteristic: 0~1KHz Attenuation <1%; 0~10KHz error <±5%
 Phase frequency characteristics: 0~1KHz Phase error <10°, 0~10KHz error <±5%

DF31XX series of electric eddy current sensor system

DF31XX system composition

Eddy Current sensor system contense 4 parts:

- ▲ Eddy Current Probes
- ▲ Extended cable
- ▲ Preamplifier
- ▲ Installation accessories

Power supply: voltage output mode: -24V
Current output mode: +24V
Power supply current: >35mA

Eddy
Current
Probes



- ☆ Modified PPS material head, strength and better sealing;
- ☆ New self-locking connector, can effectively prevent the loose connections;
- ☆ Higher temperature, electrical stability, better high frequency cable;
- ☆ New stainless steel armour more soft and beautiful;
- ☆ New coil technology, widens the linear range sensor;
- ☆ Advanced anti seepage design, make oil easily along the cable penetration;
- ☆ Improved mechanical connection, the probe has a stronger tensile, torsional behavior.

Extended cable



- ◆ Corrosion resistant, oil resistant, waterproof, prevent leakage.
- ◆ Can withstand 300 cattle (75 pounds) of the pulling force.
- ◆ Once extension cable and cable length selected, can not increase or decrease.
- ◆ If there is no pipeline protection, recommended for the selection of armor to protect the cable.
- ◆ Proposed extension cable length and the total length of the probe are 5m or 9m.

Preamplifier



- ★ New exterior design, beautiful and light, have two kinds of installation (all without insulation, direct installation);
 - 1, compact DIN rail mounting base;
 - 2, traditional panel mounting base.
- ★ Aluminum shell, good anti jamming capability.
- ★ Import a press-fit terminal, convenient connection, reliable.
- ★ A special coaxial connector, the connection fastening, not easy to loose.
- ★ Innovative circuit design, stable operation, good interchangeability.
- ★ War industry manufacturing technology, in the harsh environment for a long time work.

Installation accessories



In the purchase of the mounting bracket, the need to provide relevant installation environment dimension and support basic parameters, such as: long, wide and high dimensional requirements.

DF5108 integration of eddy current sensor

DF5108 integration of eddy current sensor is based on our application of thick film integrated and micro encapsulation technology of DF31XX series eddy current sensor, the preamplifier and the probe are integrated, the introduction of a new type of electric eddy current displacement sensor products.

Performance characteristics

DF5108 integration of the eddy current sensor has the advantages of compact structure, convenient installation, simple maintenance is a cost-effective new eddy current displacement sensor.

At present we have introduced the 8mm integration of eddy current sensor, and other specifications of the integration of the eddy current sensor also will come out in succession.

Widely used in rotating machinery, hydraulic turbine speed measurement of swing and vibration measurement, to pump rotation measurement, but also more suitable for various temperature is not high, compact installation, simple maintenance requirements.



Technical index

Frequency response: 0~10KHz (-3dB)
 The probe diameter: 8mm
 Sensitivity: 8V/mm
 Current range: 2000um
 The linear range: 0.7mm~2.7mm
 Nonlinear error: 0.75%
 Min-measured surface: Φ20mm
 Ripple: ≤ 20mV
 Temperature drift: ≤ 0.5%
 Output impedance: ≤ 500 Ω
 Insulation resistance: >25M Ω
 Grounding: floating
 Electromagnetic compatibility: accord with CE standard
 Leading-out mode: overall cable outlet
 Cable length : between the sensor and monitor or transducer, most 300 meters, when length increase, the frequency attenuation, refer to the user manual.
 Operating temperature: -10℃ to +85℃

Dynamic characteristics

Amplitude frequency characteristics:
 0~1KHz attenuation less than 1%;
 0~10KHz error less than ± 5%
 Phase frequency characteristic:
 0~1KHz phase error is less than -10°;
 0~10KHz error less than ± 5%

Output options

- 2~-18V voltage(-24Vdc power supply)
- 4~-20V voltage(-24Vdc power supply)
- 4~-20mA current(+24Vdc power supply)

Common models:DF5108-1-02-000-200-020-0

DF5108 has -2~-18V (-24V power supply) output, the sensitivity is 8V/mm, minimum thread specifications for M10*1 or 3/8"-24, can directly replace the Bruel & Kjaer\IN081\IN084\IN085 models such as integration of eddy current sensor.



DF360X series of magnetolectric speed sensor

Magnetolectric speed sensor for the measurement of bearing box, cabinet or the vibration of the structure (relative to free space, called absolute vibration) whose output voltage proportional to velocity and vibration, so it is also called speed vibration sensor; It can also easily put velocity integral to displacement by monitor or transducer; this can be comprehensive status evaluation measured on a rotating or reciprocating machinery; it is directly installed on the machine shell, use and maintenance is very convenient.



Working principle

DF360X series of magnetolectric speed sensor is a kind of inertial sensor, it use the electromagnetic induction principle to become the vibration signal to voltage signal. Measuring element by a seismic mass and a spring plate support measuring coil. Measuring element can move in a circular permanent magnet magnetic field. When the sensor is installed on the object to be measured with vibration, measuring the relative motion is generated between the coil and the magnetic field, cutting the lines of magnetic force, the measuring coil generates a voltage, the voltage value is proportional to the value of vibration velocity. Sensor requires no external power source, the two line structure, can be taken into account in the measurement of low frequency vibration, suitable for long time on-line monitoring or periodic measurement. According to the different industrial site. it can also provide a variety of output connections and the monitor or signal conditioning (transducer), test equipment connected.

Series classification

DF3601: fixed sensitivity, 2 output connections, including middle temperature and high temperature application version, explosion proof design. Can be directly replaced Bentley 9200\74712\47633 and CV851 speed sensor.

DF360X: optional sensitivity, 2 output connections, to meet user customization requirements, including the middle temperature and high temperature application version.

DF3604: fixed sensitivity, is different from the 3601 appearance and installation mode, only with the overall armored cable, comprising a middle temperature and high temperature application version, explosion proof design. Can directly replace the Philips PR9268\20 and PR9268\30 speed sensor.

For example: DF3601 magnetolectric speed sensor

Technical parameters

Frequency response: 4.5, 10~ 1000Hz (-3dB)
 Sensitivity: 20mV/mm/s (500mV/inch/sec)
 effective value \pm 5% (80Hz, speed of 10mm/s cases measured)
 Amplitude linearity: <3%
 Lateral sensitivity: <5%
 The largest measurable displacement: 2000 μ m (peak to peak)
 Shock resistance: resistance to 50g maximum peak acceleration
 Output resistance: \leq 600 Ω
 Insulation resistance: >200M Ω
 Grounding: floating
 Outlet: 1, top wire connector
 2, whole cable side appear

DF3605 ultra low frequency vibration sensor

Ultra low frequency vibration sensor is a kind of inertial sensor, it use the electromagnetic induction principle to convert the vibration signal to voltage signal, while using a low frequency extension circuit of the sensor itself mechanical structure inherent frequency is reduced, so that its output characteristics reached 0.5Hz or even lower. Sensor with vibration resistance, shock resistance, and good low frequency output characteristics, it can be installed directly on the object to be measured with vibration, suitable for large turbine generator unit and low speed rotating machinery (such as coal grinding machine vibration monitoring and machine), seismic monitoring, geological exploration, vibration analysis of structures, bridges, dams the vibration testing and roadbed long time or periodic testing areas.



Product classification

Ultra low frequency vibration sensor has two types: speed output and the displacement output of. The speed of the output of the output voltage is proportional to the velocity, displacement of the output voltage is proportional to the vibration displacement:

DF3605V: speed output, optional sensitivity,

1. connector top cable
2. overall direct cable outlet

DF3605S: displacement output, optional sensitivity,

1. connector top cable
2. overall direct cable outlet

According to the different industrial site, we provides a plurality of output connections between it and the second meter (monitor) or signal conditioning (transmitter), test equipment connected.

Technical parameters

Frequency response: 0.50 ~ 150Hz (-3dB)
Sensitivity: velocity peak value of 500mV/mm/s \pm 5%, or customized according to user requirements

Displacement peak 8mV/ μ m \pm 5%, or customized according to user requirements

Amplitude linearity: < 3%

Lateral sensitivity: < 5%

The largest measurable displacement: \pm 1000 μ m (peak value) (according to the different sensitivity range variable)

Output resistance: \leq 1000 Ω

Insulation resistance: > 20M Ω

Grounding: floating

Power supply: +24VDC, or customized according to user requirements

Output voltage: 16VAC

Outlet: 1 top wire connector

2 whole cable side outlet

Cable length : sensors to monitor or transmitter connecting the 300 meters long.

Length increase frequency attenuation, refer to the user manual.

Work and storage temperature: -30 $^{\circ}$ C ~+60 $^{\circ}$ C

Relative humidity: connector leading-out mode 95%, a condensing;

The whole cable leading-out mode 100%, can not be submerged in water.

Environmental protection: connector leading-out mode protection class IP65;

The overall direct cable leading-out mode protection class IP67;

Shell material: 7075 (aviation aluminum anodizing)

High : 81~102mm

diameter: Φ 44mm

weight: 350g

DF3502 X series integrated vibration transducer

DF3502X series vibration transducer integration with MEMS piezoelectric element induced vibration velocity, the acceleration will be converted to a velocity through high precision integrated peak / RMS circuit, then the velocity peak / RMS is converted to the corresponding range of 4~20mA current output, very suitable for connection to the DCS, the PLC system, but also can provide the dynamic output signal, transducer characteristics of excellent; high precision measurement; and built-in temperature impact protection, overload, reverse wiring protection; optional multiple vibration range; configuring multiple mounting screw; the fan, pump, compressor, engine, generator, motor, fan, steam turbine, turbine supercharger rotating machinery for long time on-line vibration monitoring (casing, bearing box or body of the absolute vibration) ideal options . Suitable for medium temperature conditions of industrial field.



Performance characteristics

- ★ MEMS piezoelectric core, no movable parts, durable;
- ★ The whole process of integration, stability and reliability, strong anti interference capability;
- ★ The frequency response characteristics of fine, high measuring precision, wide application range;
- ★ Integral structure, convenient use, simple maintenance.

Product series

The DF3502X series is divided into the following types;

A DF3502D two wire integrated vibration converter

- 1 the whole cable outlet
- 2 terminal line
- 3 proof box outlet

B DF3502T three wire vibration transmitter integration

- 1 the whole cable outlet
- 2 terminal line
- 3 proof box outlet

Electrical characteristics

Power: two line circuit power supply: 15~30VDC
three line: 15~30VDC

Measurement range: velocity RMS / peak, the range optional

Band rate response: 10~1000Hz, ± 3dB

Sensitive direction: arbitrary direction / angle mounting

Lateral sensitivity: ≤ 5%

Current output and speed: effective value / peak is proportional to 4~20mA current

Accuracy : <± 3%:

Dynamic signal output: the internal sensor signal output buffer(BUF output)

Load capacity: ≤ 700 (line two) ≤ 500 (three line)

Grounding: the shell, the inner shield

Vibration limit value : 250g peak

Hit limit : 1000g peak

Electromagnetic compatibility: CE.

Pinout: 1 overall top wire cable
2 terminal line
3 proof box outlet

Work and storage temperature: -10 °C ~ +80 °C

Relative humidity: terminal leading-out mode of 95% non condensing;

The whole cable leading-out mode 100% can not be submerged in water.

Environmental protection: the overall level of security for IP67 cable leading-out mode, Cable terminal (terminal) can not be submerged in water;

Terminal outgoing: (equipped with a protective wiring assembly) protection Class IP65.

Flameproof approval:

- 1 : the national explosion-proof certification Explosion proof grade of Exd II CT4
- 2: the national explosion-proof certified intrinsically safe

Explosion proof grade of Exia II CT4
(loading requirements of Certified Safety Gate)

DF3502DX series integrated vibration transmitter with display

DF3502DX series integrated vibration transmitter with display, exception of DF3502X series pressure transmitter has all the characteristics of a colleague, also has the display function, users can choose according to the display of vibration intensity or displacement; greatly convenient for maintenance personnel to real-time understanding of the operation of equipment.



Performance characteristics

- ★ MEMS piezoelectric core, no movable parts, durable;
- ★ The whole process of integration, stability and reliability, strong anti interference capability;
- ★ The frequency response characteristics of fine, high measuring precision, wide application range;
- ★ Integral structure, convenient use, simple maintenance.
- ★ Highlight LED digital tube display, more easy to observe

Product series

The DF3502DX series is divided into the following types;

A DF3502D two wire integrated vibration converter

- 1 the whole cable outlet
- 2 terminal line
- 3 proof box outlet

B DF3502TX three wire vibration transmitter integration

- 1 the whole cable outlet
- 2 terminal line
- 3 proof box outlet

Electrical characteristics

Power: two line circuit power supply: 15~30VDC
three line: 15~30VDC

Measurement range: velocity RMS / peak, the range optional

Band rate response: 10~1000Hz, ± 3dB

Sensitive direction: arbitrary direction / angle mounting

Lateral sensitivity: ≤ 5%

Current output and speed: effective value / peak is proportional to 4~20mA DC current

Accuracy: <± 3%:

Dynamic signal output: the internal sensor signal output buffer (BUF output)

Load capacity: ≤ 700 (line two) ≤ 500 (three line)

Grounding: the shell, the inner shield

Vibration limit value : 250g peak

Hit limit : 1000g peak

Electromagnetic compatibility: CE.

Pinout: 1 overall top wire cable
2 terminal line
3 proof box outlet

Work and storage temperature: -10 °C ~ +80 °C

Relative humidity: terminal leading-out mode of 95% non condensing;

The whole cable leading-out mode 100% can not be submerged in water.

Environmental protection: the overall level of security for IP67 cable leading-out mode, Cable terminal (terminal) can not be submerged in water;

Terminal outgoing: (equipped with a protective wiring assembly) protection Class IP65.

Flameproof approval:

- 1 : the national explosion-proof certification Explosion proof grade of Exd II CT4
- 2: the national explosion-proof certified intrinsically safe

Explosion proof grade of Exia II CT4
(loading requirements of Certified Safety Gate)

DF610X series electromagnetic speed sensor

DF610X series magnetic speed sensor is a kind of cost-effective, extensive use of universal speed sensor. The DF610X series electromagnetic speed sensor can used From low cost of the consumer goods industry to aircraft engine high precision speed measurement and control field. From Low price universal to prevent oil heat resistant and other special specifications, can be selected according to use. Simple installation, low cost, low mechanical failure and other advantages, is a cost-effective rotation speed sensor.



Principle measurement

DF610X series electromagnetic speed sensor comprises magnetic steel, soft magnet and coil. Magnetic field (magnetic) issued by the magnet, by the armature, coil, the other end return from space magnet.

A ferromagnetic teeth through the end portion of the sensor, the reluctance of the magnetic circuit will change again, the coil will induce a voltage signal.

If is an involute gear, induction voltage should be sine wave.

According to the principle of electromagnetic induction, the sensor produces an alternating voltage signal, frequency of F is the number of gear teeth gear speed Z and N product, the measured frequency can be speed:

$$N = F * 60 / Z$$

★according to the principle of electromagnetic induction, the sensor produces an alternating voltage signal amplitude, and the gear through a speed proportional to the number of teeth, gear, speed faster, the signal amplitude is bigger, so the low speed signal amplitude is very small. But when the speed is very high, the coil magnetic field weakening effect is enhanced, but also causes the signal amplitude decreased. So the magnetolectric sensor is usually used for the frequency of 20Hz~ 10kHz speed signal measurement.

Performance characteristics

- ★because of it is a non-contact detection signal, it has the advantages of simple structure, good rigidity, no vibration, temperature, oil, dust and other effects.
- ★on the rotating body without load, measure safely
- ★no moving parts, service life longer
- ★needs no power source, simple installation, convenient adjustment;
- ★wide application range, high reliability, good performance.

Product series

DF610X series magnetic speed sensor with low resistance and high resistance version, amplifier (active) and no version, for different applications, divided into the following types:

- 1 DF6101 economy, low resistance, with signal wire
- 2 DF6102 low resistance, oil resistance, heat resistant (MP-935)
- 3 DF6103 low resistance, oil resistance, heat resistance and high temperature type, with signal wire
- 4 DF6104 economy, high speed measurement, signal line
- 5 DF6105 oil resistant, heat resistant, high speed measurement
- 6 DF6106 oil resistant, high temperature resistant, high speed measurement, signal line
- 7 DF6107 low resistance, precision, low speed measurement (active)

According to the different industrial site monitoring requirements, electromagnetic speed sensor and the second meter (monitor) or signal conditioning (transmitter), testing instrument combination, comprising a complete machine condition monitoring system.

Installation and measurement requirements

Installation: if the detection gear gap is smaller, the rotational speed is low, typically 0.5~1.2mm gap;

Measurements: detection of gear tooth profile of involute gear, recommended;

Detection of gear size: Modulus (M), it is decided to the size of the gear parameter values, as long as the modulus of the same gear, can be engaged.

Recommendations for the use of the modulus is 1 above, tooth width of 4mm gear;

Detection of gear material: the best use of strong magnetic material (which can be attracted by the magnet of the material)

DF81XX series single channel transmitter

DF8100 series single channel transmitter is designed specifically for small and medium-sized rotating machinery condition monitoring protection system, as a new generation of industrial FCS system the preferred site equipment

Excellent performance

1 high performance-price ratio. The site controller built-in sensor signal processing circuit, control relays, simply connect the sensor, it can realize the field monitoring and control protection.



2 high integration, good safety
3 full isolation design, immunity.
4 simple operation. Site installation, convenient connection, easy to use;

Technical index

1. types: standard single channel field controller
2. power: 24VDC, maximum power 5W;
3. measuring accuracy: $<\pm 0.5\%$
4. two level alarm relay output: SPDT, 5A/250VAC or 5A/24VDC resistive load; output isolation 4000VDC;
5. buffer output: for the original signal waveform display, record and analysis of fault diagnosis. Output impedance: 100 ohms;
6. recording output: each controller has 4~ 20mA standard current output;
7. remote alarm reset: when the alarm output set to maintain, in the transmitter to measure alarm, and site response, need to make the relay alarm lift remote operation;

Product series

1. DF8111 single shaft vibration transmitter (external amplifier)
2. DF8112 single shaft vibration transmitter (built-in amplifier)
3. DF8121 single bearing vibration transmitter
4. DF8131 single channel axial displacement transmitter (external amplifier)
5. DF8132 single channel axial displacement transmitter (built-in amplifier)
6. DF8141 single axis speed transmitter

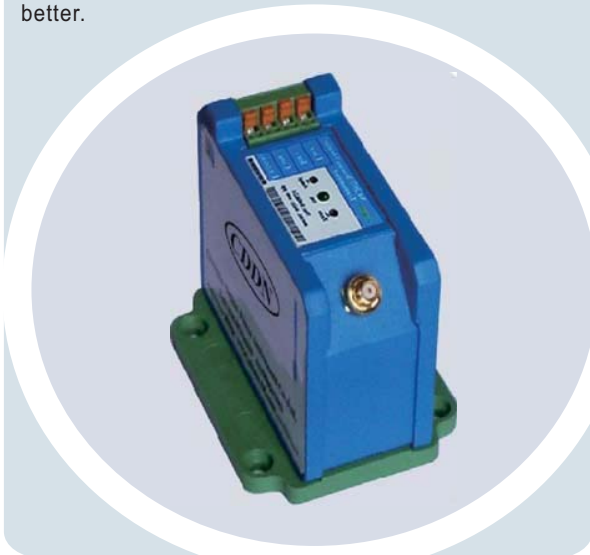
DF39XX series analog transmitter (signal conditioning)

DF39XX series analog transmitter, we introduced a new generation of high performance TSI transmitter.

DF39XX series analog transmitter, small volume, high precision, strong anti-interference ability, installation, commissioning and maintenance are very convenient, and can be widely used for the fan, water pump and other small and medium-sized machinery equipment, construction of low cost, high performance monitoring system.

Function description

- 1) DF39XX series analog transmitter, can be matched with various sensors, monitoring equipment shaft displacement, shaft vibration, speed, bearing vibration, thermal expansion and other operation parameters.
- 2) DF39XX series analog transmitter, internal integration of a variety of measurement circuit and a signal transmitting circuit, can be all kinds of parameters to be measured with high precision measurement, and converted to the corresponding to the full range of 4 - 20mA current output, can be used to connect to the DCS, PLC and data acquisition system.
- 3) DF39XX series analog transmitter also has the following functions:
 - ★ for various sensor provides DC operating power supply;
 - ★ LVDT sensor to provide precision excitation signal source;
 - ★ can be built-in electric eddy current sensor front-end circuit, the structure is more compact, system economy better.



Technical index

- 1) type: single channel transmitter, aluminum shell.
- 2) power: +24Vdc, three wire transmitter power 1W, Two wire transmitter maximum current 20mA.
- 3) buffer output: raw sensor signal output of the buffer (optional),
- 4) adjust potentiometer: two, for output calibration adjustment
Zero: zero adjustment
Ample: full scale adjustment
- 5) the current output: Standard 4-20mA current output, Current output accuracy: $\pm 1\%$ of full scale.
- 6) current output load: maximum 500 Ω
- 7) temperature: $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$.



Product series

According to industry needs, we introduce the following series of products:

- A. DF39XX three wire analog transmitter series
 1. DF3911 axial displacement transducer
 2. DF3931 thermal expansion transmitter
 3. DF3951 bearing vibration transmitter
 4. DF3961 shaft vibration transmitter
 5. DF3971 speed transmitter
- B. DF39XXE two wire analog transmitter series
 1. DF3931E thermal expansion transmitter
 2. DF3951E bearing vibration transmitter
 3. DF3961E shaft vibration transmitter
 4. DF3971E speed transmitter

DF2000 programmable turbine monitoring instrument system (TSI)

DF2000 system overview



DF2000 programmable rotating machinery monitoring and protection system, apply the latest digital signal processing technology, is a fully functional monitoring system. It and the American Bentley company 3500 monitoring system, the German company Epro MMS6000 system performance fairly, fully meet the requirements of API670, is currently recognized, excellent cost-effective mainstream rotating machinery monitoring and protection system.

Performance characteristics

1. DF2000 monitoring system all function parameters can be passed " DF2000 programmable instrumentation system configuration software " to programming configuration, installation, commissioning and maintenance is simple, the operation is very convenient.
2. DSP based high performance digital processing technology, the sensor and the instrument measuring circuit, frequency response, temperature drift and anti jamming ability are improved greatly, and all the parameters are digital setting, make the system of high accuracy of measurement, the protection action is more accurate and reliable.
3. Several frames can be interconnected via a bus into a system, RS485 interface supports the Modbus protocol, thereby realizing the DF2000 monitoring system with DCS, PLC or other control system in seamless connection.
4. high performance of hardware design and software programming of abundant function, such that each monitor can be suitable for a variety of application needs, users can greatly reduce spare parts inventory.
5. powerful data acquisition, recording, analysis, make equipment personnel can obtain more information, more information processing tools, which can more accurately grasp the operation of equipment, to provide a reliable guarantee for the safe and efficient operation of equipment.

System composition

Df2000 programmable turbine monitoring instrument system includes:

1. DF2000/03 chassis frame;
(can accommodate up to nine monitors)
2. DF2000/01 power module;
3. DF2000/02 communication module;
4. DF2000 programmable instrumentation system configuration software;
5. DF2000 series function monitor is continue to develop and launch, has introduced the function of monitor:

DF2002 axial displacement monitor;
DF2022 relative expansion monitor;
DF2032 thermal expansion monitor;
DF2012 speed monitor;
DF2042 eccentricity monitor;
DF2052 bearing vibration monitor;
DF2062 shaft vibration monitor;
DF2082 valve displacement monitor;
DF2018 overspeed protection monitor

DF2600 programmable rotating mechanical overspeed protection system

DF2600 system overview

DF2600 programmable rotating mechanical overspeed protection system, the application of the latest digital signal processing technology, is a highly reliable, rapid response to the redundant tachometer system, specifically for rotary mechanical overspeed protection.

DF2600 overspeed protection system completely satisfies the American Petroleum Institute, API670 standard and API672 standard on over-speed protection, with the United States of America BENTLY company 3500/53 overspeed protection system, the German company EPRO DPOS speed measurement system performance same, is the leading cost-effective electronic over-speed protection system domestic.



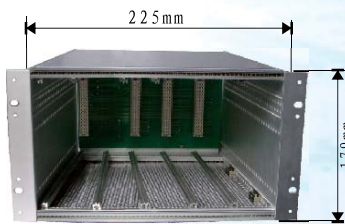
System composition

DF2600 programmable overspeed protection system, consists of the following five parts:

1. DF2600/03 box frame

DF2600 system box by German RITTAL company standard industrial instrumentation box.

Box frame, a total of 4 slot position. The first position from the left is 16TE wide, insert system module; the remaining three position is 8TE wide, can insert three DF2618 overspeed protection monitor.



Appearance size	Width: frame 259mm, space 40TE;
	Height: 4U=179mm; depth: 305mm;
Hole size	Width: 226±1mm; height: 180±1mm;
	Deep: the control cabinet depth less than 400mm.

2. DF2600/01 system module
DF2600/01 system module built-in UPS power supply and Mitori Ni logic voting and control circuit.

3. DF2000 programmable instrumentation system configuration software

DF2600 overspeed protection system parameter configuration and operation management, through the "DF2000 programmable instrumentation system configuration software", relevant content. "DF2000 programmable instrumentation system configuration software" the corresponding chapters.

4. DF2618 overspeed protection monitor
System configuration 3 independently DF2618 overspeed protection monitor.

DF2800 programmable hydroelectric turbine monitoring instrument system (HTSI)

DF2800 system overview



Performance characteristics

1. based DSP high performance digital processing technology, digital measurement, the DF2800 measuring system frequency response characteristic greatly exceeded the traditional analog, digital instrument, it is particularly suitable for low speed water turbine state monitoring.
2. based DSP high performance digital processing technology, the system of linear, temperature drift and anti jamming ability are improved greatly, and all the parameters are digital setting, make the system of high accuracy of measurement, the protection action is more accurate and reliable.
3. DF2800 monitoring of all parameters of a system can be achieved by " DF2000 programmable instrumentation system configuration software " configuration, installation, commissioning and maintenance is simple, easy to operate.
4. more frames can be interconnected via a bus into a system that supports the Modbus protocol, RS485 interface, realize the system with DCS, PLC or other control system in seamless connection.
5. high performance hardware and software programmable function, a monitor can be adapted to various needs of users is greatly reduced, spare parts.
6. powerful data acquisition, recording, analysis, make equipment personnel can obtain more information, more information processing tools, which can more accurately grasp the operation of equipment, to provide a reliable guarantee for the safe and efficient operation of equipment.

DF2800 programmable hydroelectric turbine monitoring instrument system (HTSI), is based on DF2000 programmable TSI system, according to the hydroelectric generating unit monitoring and protection needs and launched a new monitoring system, which can be widely used in each kind of Hydrogenerator condition monitoring and protection, such as axial flow fixed, Pelton impact type and so on.

DF2800 programmable HTSI system, continuous measurement and monitoring of high head and low head units of various parameters, for early diagnosis of problems existed in the set to provide information, in order to reduce the forced shutdown, improve equipment safety operation level.

System configuration

According to application needs, DF2800 programmable hydroelectric turbine monitoring instrument system have two kinds of configuration:

1, the standard configuration:

1. DF2800/03/01 standard chassis frame;
2. DF2800/01 power supply module (double);
3. DF2800/02 communication module;
4. DF2000 programmable instrumentation system configuration software;
5. The DF2800 series function monitor (up to 8).

2, the economic configuration:

1. DF2800/03/02 chassis frame;
2. DF2800/01 power supply module (single);
3. DF2000 programmable instrumentation system configuration software;
4. The DF2800 series function monitor (up to 9).



DF2000 programmable instrumentation system configuration software

DF2000 programmable instrumentation system configuration software (hereinafter referred to as the "DF2000 configuration software") can be used for the following programmable instrumentation system of programming and configuration and operation management:

1. DF2000 programmable turbine monitoring instrument system (TSI);
2. DF2600 programmable rotating mechanical overspeed protection system;
3. DF2800 programmable hydroelectric turbine monitoring instrument system (HTSI)



Function description

1. Parameter Programming configuration:

DF2000 series programmable monitoring instrument of all monitored parameters are available through the software to set and save, including:

- ▲ The signal input linear compensation, temperature compensation, frequency compensation and digital filter parameters;
- ▲ The controller module measuring function and working way, range, indicating unit;
- ▲ The alarm protection limits, alarm delay time, the relay control logic and the output form;
- ▲ Standard analog current, voltage output form and precision correction.

2. data display and record analysis:

- ▲ A real time digital data, bar graph display, waveform display, operation status indication;
- ▲ The start, stop and characteristic data records, statistics and trend records (special order);
- ▲ A simple FFT analysis for fault diagnosis of vibration, provide basic information (special order).

3 system management:

- ▲ The setting means of communication and interface parameters;
- ▲ A user identification, operation records, error and online help;
- ▲ The online examination and diagnosis instrument failure, support remote debugging and diagnostics (special order).

Significant characteristics

- 1, Chinese Windows interface, designed for Chinese design;
- 2, parameter settings are digital input, fast and accurate;
- 3, function setting only needs to click the mouse, intuitive and convenient;
- 4, with the portable PC, field operation easily



DF90XX series disc device programmable monitoring instrument

The DF90XX series programmable disk monitoring instruments in the field of TSI, our decades of professional experience, using the latest international technology of digital signal processing, has strong function, high reliability, is recognized at home and abroad the optimal cost-effective disk rotating machinery monitoring and protecting instrument series.

The DF90XX series programmable disk monitoring instrument, with its unique industry leading technology, refine on excellence and efficient quality services, has been widely used in electric power, metallurgy, steel, petrochemical, aerospace and other industries, in a steam turbine, turbine, generator, gas turbine, compressor, fan, oxygen machine a variety of large and medium-sized, pumps and other rotating machinery condition monitoring and protection in the field of long good reputation.



Product series

DF90XX programmable rotating machinery monitoring instruments series of as many as 10 disc mounted instrument, but will also introduce more new monitor to meet a variety of rotating machinery condition monitoring and protection needs. Has been widely used in the monitor model:

- 1 DF9002 axial displacement monitor;
- 2 DF9022 relative expansion monitor;
- 3 DF9032 thermal expansion instrument;
- 4 DF9011 precision transient speed monitor;
- 5 DF9012 speed monitor;
- 6 DF9013 zero speed monitor;
- 7 DF9014 reversal protection monitor;
- 8 DF9015 single channel speed monitor;
- 9 DF9042 eccentricity monitor;
- 10 DF9052 bearing vibration monitor;
- 11 DF9062 shaft vibration monitor;
- 12 DF9043 water machine swing monitor;
- 13 DF9063 water machine vibration monitor;
- 14 DF9064 water machine vibration monitor.

Performance characteristics

- 1, DF90XX programmable series monitoring instrument for all functional parameters can be passed " DF9000 programmable monitoring instrument configuration software " to programming configuration, installation, commissioning and maintenance is simple, the operation is very convenient;
- 2, based DSP high performance digital processing technology, the sensor and the measuring circuit, frequency response, temperature drift and anti jamming ability are improved greatly, and all the parameters are digital setting, make the system of high accuracy of measurement, the protection action is more accurate and reliable.
- 3, high versatility of the hardware design and software programming of abundant function, such that each instrument can be suitable for a variety of applications requiring, spare parts inventory can be greatly reduced.

DF98XX series of wall-mounted intelligent monitoring instrument

DF98XX wall hanging type intelligent monitoring protection instrument, with our professional experience in the field of application of TSI for decades, the latest international digital signal processing technology, has the characteristics of strong function, high reliability, is currently the best recognized at home and abroad of the disc mounted rotating machinery monitoring and protection instrument series.

DF98XX wall hanging type intelligent monitoring protection instrument, with excellent quality of its leading technology, refine on the only industry and efficient quality service, has been widely applied to electric power, metallurgy, iron and steel, petrochemical, aerospace and other industries, in the turbine, turbine, generator, gas turbine, compressor, fan, oxygen machine, pumps and other large and medium sized rotating machinery condition monitoring and protection in the field has long good reputation.



Product series

DF98XX wall-mounted programmable monitoring instrument series has a variety of monitor, but also will launch more new monitor to meet the various needs of rotating machinery condition monitoring and protection. Has been applied to monitor model:

- 1 DF9801 single channel axial displacement monitor;
- 2 DF9811 single channel speed monitor;
- 3 DF9814 reverse protection monitor;
- 4 DF9831 single channel thermal expansion instrument;
- 5 DF9852 two-channel bearing vibration monitor;
- 6 DF9862 two-channel shaft vibration monitor;



Performance characteristics

1. DF98XX programmable series monitoring instrument for all functional parameters can be passed "DF9000 programmable monitoring instrument configuration software" to programming configuration, installation, commissioning and maintenance is simple, the operation is very convenient;
2. DSP based high performance digital processing technology, the sensor and the measuring circuit, frequency response, temperature drift and anti jamming ability are improved greatly, and all the parameters are digital setting, make the system of high accuracy of measurement, the protection action is more accurate and reliable.
3. high performance of hardware design and software programming of abundant function, such that each instrument can be suitable for a variety of applications requiring, spare parts inventory can be greatly reduced.

DF9200 static displacement inspection device

★Special material specimen and special specifications probe mounting clamp need, when ordering please specify, we will provide you the special custom

DF9200 static displacement inspection device

★**recommended as a standard laboratory equipment configuration.**

Standard test piece: material is 42CrMo, diameter 105mm.

The maximum displacement: 0-50mm

Displacement standard: 0-50mm dial indicator.

inspection accuracy: $\pm 0.01\text{mm}$.

The mounting fixture: optional diameter of 5mm, 8mm, 11mm, 18mm, 25mm, 50mm

The probe mounting clamp and non-standard fixture.

Scope of application: inspection linearity range below 50mm eddy current sensor;

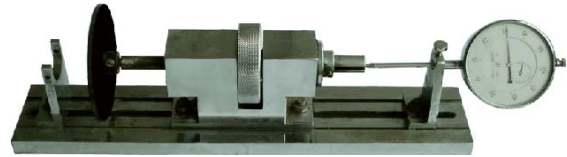
The linear range of 50mm following LVDT linear variable

differential transformer;

Inductance displacement sensor and proximity switch.

Standard configuration:

- 1, DF9203 static displacement inspection device
- 2, 42CrMo specimen disc
- 3, 50mm dial indicator
- 4, 8mm in diameter, 11mm, 25mm, 50mm probe mounting clamp
- 5, operation manual



DF9204 high precision static displacement inspection device

★**recommended as a standard laboratory equipment configuration.**

Standard test piece: material is 42CrMo, diameter 105mm.

The maximum displacement: 0-20mm

Displacement standard: 0-25mm LCD digital dial gauge.

Inspection accuracy: $\pm 0.001\text{mm}$.

The mounting fixture: optional diameter of 3mm, 5mm, 8mm, 11mm, 18mm probe mounting clamp and non-standard fixture.

Scope of application: Inspection linearity range below 20mm eddy current sensor;

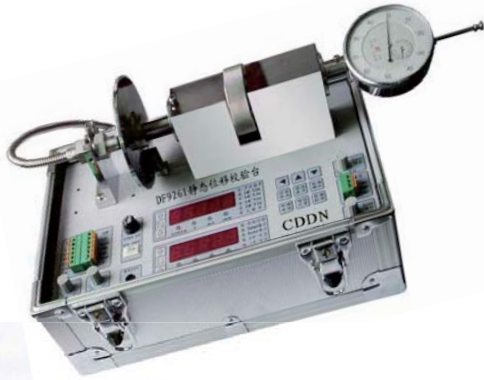
Inductance displacement sensor and proximity switch.

Standard configuration:

- 1, DF9204 static displacement prover
- 2, the 42CrMo specimen disc
- 3, 25mm LCD digital dial gauge
- 4, the diameter of 3mm, 5mm, 8mm, 11mm probe mounting clamp
- 5, operation manual



DF9261B static displacement inspection device



DF9261B static displacement inspection device is a new generation of digital calibration instrument we introduced, mainly used for the calibration of static characteristics of displacement sensor.

DF9261B static displacement inspection device based on DSP advanced digital processing technique, integrated package of equipment function, construct a perfect function, performance of the advanced displacement sensor calibration platform, suitable for field test and calibration.

Recommended DF9261B static displacement inspection device for test room or standard calibration equipment.

Performance characteristics

★rich functions, one instrument integrates DC regulated power supply, digital multimeter, digital dial gauge, data recorder, standard voltage source, current source equipment function, without any other device, can realize the test of various displacement sensor and instrument calibration system.

★exquisite structure, convenient portability, accurate measurement, stable operation, very suitable for checking the equipment in the industrial scene and standard laboratory.

★well-designed process, convenient operation; digital design, simple maintenance; more built-in RS232 interface and corresponding measurement software, and PC connection, check the results to save, print and other management can be easily completed.

Application range

1, the static characteristics of the displacement sensor calibration:

Including: eddy current displacement sensor; Inductance displacement sensor and proximity switch.



2, performance test displacement measuring instrument.

3, system calibration system for measuring displacement.

Dimensions: aluminum alloy body, long 320mm, wide 200mm, high 200mm.

Quality: 4Kg.

DF9261B static displacement inspection device

★need special material specimen and special specifications probe mounting clamp, we will made especially for you when ordering please specify.



★DF9261B static displacement inspection device

Displacement: 0 ~ 52mm (max);
 Displacement of reference: 0 ~ 50mm precision displacement sensor;
 Accuracy:± 0.01 mm;
 A 0~50mm indicator for reference.



DF9261B standard configuration

- 1, DF9261B static displacement inspection device 1 pcs
- 2, 42CrMo disc specimen 1 pcs
- 3, 50mm dial indicator 1 pcs
- 4, the diameter of 8mm, 11mm, 25mm, 50mm probe mounting clamp 4 pcs
- 5, special communication cable 1 pcs
- 6, the DF9261 control software CD 1 pcs
- 7, DF9261 operations guide 1 pcs

Technical indicators

Input power: 220Vac, 50Hz, maximum power 15W
Signal input: can connect two eddy current displacement sensor input, output voltage sensor, current too.

Input voltage range: -24V to +24V

Current input range: 0 ~ +25mA

DC power: positive, negative DC dual power supply for two eddy current displacement sensor provides (both independent and adjustable)

Positive power supply: 0~+24V adjustable, maximum current 50mA

Negative power supply: 0~-24V adjustable, maximum current 50mA

Measurement indicator: the two highlight 5 LED digital display window, respectively, and the output displacement sensor

Displacement: pointing accuracy is± 0.01mm

The voltage indication: accuracy of± 0.01 V

Current indication precision:± 0.01 mA

Standard test piece disk : 105mm diameter, material: 42CrMo

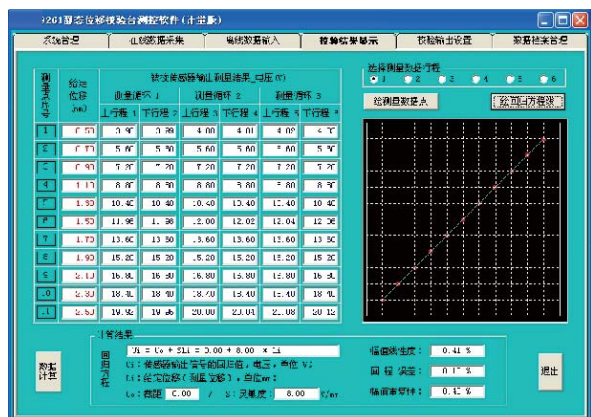
The probe mounting clamp: optional diameter of 5mm, 8mm, 11mm, 18 mm, 25mm, 50mm probe mounting fixture, special specifications can be customized probe mounting clamp.

Communication interface: RS232, baud rate is 9600bits/S

Environmental conditions: dust-proof, moisture-proof (95% no condensation)

Working temperature: 0~40 °C

Storage temperature range: -30~75 °C



DF9272 speed inspection device



Performance characteristics

- ★has the advantages of small volume, light weight, portable speed a real

All drive, control components are integrated in a portable aluminum alloy box body, a person can easily carry.

- ★stable rotation, small vibration, low noise, safety and environmental protection

The highest speed, little vibration, only a slight wind noise, rotating parts and a protective cover is closed, the use of safety.

- ★wide speed range, high precision, high performance to meet all

- ★built-in standard signal source, one machine with multifunction, wide range of application

- ★abundant function, simple operation, automatic calibration

All parameters in the whole digital set, special operation on the keyboard to a point that, Windows version of the operating software, through PC easy to complete printing equipment operation, data record, report.

Function description

DF9272 speed inspection device, has two kinds of calibration methods:

1, manual calibration

Can be manually set any speed, gear wheel speed by a speed sensor produces standard, induction signal, to inspect sensors, instrumentation and measurement system.

2, automatic calibration

Through the "DF9272 control speed tester software", according to the need of calibration, set the zero speed test, speed test, reverse test, uniform speed speed operation mode, according to the set mode operation or standard of output pulse signal, to inspect sensors, instrumentation and measurement system.

DF9272 speed inspection device is combined with the world-class high precision digital motor and the excellence of our control and testing technology perfect, inspection is suitable for all kinds of speed sensor, instrumentation and measurement system, particularly suitable for field test and calibration.

Recommended DF9272 speed inspection device as the standard calibration laboratory equipment.

Technical indicators

Input power: 220Vac, 50Hz, maximum power 500W.

Signal input: access two sensors (eddy current, magnetic, magnetic reluctance type.)

Input voltage range: -24V ~ +24V;

Input current range: 0 ~ +25mA.

Power output: can provide DC positive, negative working power for the two eddy current displacement sensor, each output is adjustable;

Positive power supply: 0~+24V, 50mA max;

Negative power supply: 0~-24V, 50mA max.

Standard gear wheel (polar wheel): 60 involute gear, 20, 3, 1 circular tooth four; 60 involute tooth for magnetoelectric, reluctance, eddy current and so on many kinds of speed sensor; 20, 3, 1 circular tooth for reluctance type, eddy current speed sensor measurement and rotating square to measure.

Sensor installation accessories: configuration installation accessories can be installed a variety of commonly used speed sensor is arranged on the installation accessories, M10X1, 3/8-24, M16X1, M18X1.5, etc. no thread probe mounting holes, each mounting hole in the speed gear radial and axial each have multiple, axial with three groups of Kong Ke directly mounted rotating direction probe measurements.

Communication interface: RS232 serial port, baud rate is 9600bits/S. Communication cable configuration and control software, to achieve a variety of automatic calibration parameter programming.



Quality: 8Kg.
Dimensions:
aluminum alloy box
High: 250mm,
width:300mm;
Deep:200mm

DF9272 speed inspection device



Product series

DF9272 speed inspection device has four kinds of specifications:

★DF9272A speed inspection device

Speed range: 0 ~ 5000r/min (clockwise);
0 ~ -5000r/min (unclockwise).

Measuring accuracy: 0 ~ 100r/min, ±0.1 r/min;
100 ~ 5000r/min, ±1 r/min;

Standard signal: rectangular pulse output, is used to directly to the instrument signal, digital setting signal parameters;

Output speed range: 2~5000r/min;

Output speed accuracy:
2~100r/min, ±0.1 r/min;
100~5000r/min, ±2r/min;

Standard width: -20~+20V;

★DF9272B speed inspection device

Speed range: 0 ~ 7500r/min (clockwise);
0 ~ -7500r/min (unclockwise).

Measuring accuracy:
0 ~ 100r/min, ± 0.1 r/min;
100 ~ 7500r/min, ± 1 r/min;

Standard signal: rectangular pulse output, is used to directly to the instrument signal, digital setting signal parameters;

Output speed range: 2~7500r/min;

Output speed accuracy:
2~100r/min, ± 0.1 r/min;
100~7500r/min, ± 2 r/min;

Standard width: -20~+20V;

★DF9272C speed inspection device

Speed range: 0 ~ 10000r/min (clockwise);
0 ~ -10000r/min (unclockwise).

Measuring accuracy:
0 ~ 100r/min, ± 0.1 r/min;
100 ~ 10000r/min, ± 1 r/min;

Standard signal: rectangular pulse output, is used to directly to the instrument signal, digital settings for all signal parameters;

Output speed range: 2~5000r/min;

Output speed accuracy:
2~100r/min, ± 0.1 r/min;
100~10000r/min: ± 2 r/min;

Standard width: -20~+20V;

★ DF9272D speed inspection device

Speed range: 0 ~ 15000r/min (clockwise);
0 ~ -15000r/min (unclockwise).

Measuring accuracy:
0 ~ 100r/min, ± 0.1 r/min;
100 ~ 10000r/min, ± 1 r/min;
10000~15000r/min, ± 2 r/min;

Standard signal: rectangular pulse output, is used to directly to the instrument signal, digital settings for all signal parameters;

Output speed range: 2~5000r/min;

Output speed accuracy:
2~100r/min, ± 0.1 r/min;
100~15000r/min: ± 3 r/min;

Standard width: -20~+20V;

Standard configuration

1, DF9272A (B, C, D) speed inspection device	1 pcs
2, the sensor installation accessories	1 pcs
3, special communication cable	1 pcs
4, the DF9272 control software CD	1 pcs
5, DF9272 Operations Guide	1 pcs

DF9282B vibration inspection device

★You need to install special specifications sensor attachment, please specify when ordering, we will be made especially for you



DF9282B vibration inspection device is based on our DF9282 vibration inspection device system, the advanced digital control technology, the portable vibration calibration instrument products of the latest.

Dynamic calibration of DF9282B vibration inspection device for eddy current sensor, magnetolectric speed sensor, piezoelectric acceleration sensor, vibration sensor and the supporting monitoring instrument, test system, suitable for field test and calibration.

Recommended as a standard laboratory inspection equipment.

Technical indicators

Input power: 220Vac, 50Hz, maximum power 500W.

DC power supply: for all kinds of velocity, acceleration, displacement vibration sensor and transmitter provides DC power supply;

★supply for BENTLY piezoelectric sensor too.

Frequency : 10Hz--400Hz adjustable. The internal signal source frequency error of $\pm 2\%$;

The vibration magnitude and precision (80Hz in 200g load, lower):

Acceleration: 0~80m/s² (PK), ± 0.3 m/S²;

Speed: 0~100 mm/s (RMS), ± 0.3 mm/s;

Displacement: 0~1500um (pk-pk), ± 3 um.

Signal distortion: 3%.

The maximum sensor quality: 2000g.

The output signal can be output vibration standards: the standard sine signal. Frequency and amplitude signal can be given digital.

Sensor mounting accessories:

1), eddy current sensor vibration measuring installation accessories; standard specimen material: 42CrMo

2), EPRO, PR9268 sensor installation accessories;

3), connected with a fixed acceleration, speed sensor M8/M5, M10/M5 stud bolt;

Environmental conditions: dust-proof, moisture-proof (95% no condensation).

Environment: no strong electromagnetic interference and vibration.

Working temperature: 0~40 °C .

Storage temperature range: -30~75 °C .

Performance characteristics

- ★has the advantages of small volume, light weight, portable vibrator real;
- ★vibration force is large, the similar foreign products more than 10 times;
- ★output amplitude, high precision, adjustable frequency;
- ★connection PC, verification, storage, printing, make smooth reading;
- ★completely humanized design, convenient adjustment, simple operation.

Standard configuration

- 1, DF9282B vibration calibration table 1 pcs
- 2, the sensor installation accessories 1 pcs
- 3, the DF9282 control software CD 1 pcs
- 4, special communication cable 1 pcs
- 5, DF9282B Operations Guide 1 pcs



Dimensions: aluminum alloy box
High 280mm, width 280mm; deep 180mm.
Quality: 8Kg.



DF7500 eddy current sensor mounting bracket



DF7100 preamplifier, transducer installation box



DF7600 speed sensor mounting magnetic seat



DF7200 waterproof type preamplifier, transducer installation box



DF7700 eddy current sensor mounting sleeve



DF7300 explosion-proof type preamplifier, transducer installation box

Agents and sales, technical support services:

- 1, the German Philips TSI system authorized agent
- 2, thermal vibration, speed inspection device
- 3, to replace imported eddy current sensor, vibration velocity transducer
- 4, vibration, displacement, temperature, liquid level, pressure transducer
- 5, technology development, technical services and consulting
- 6, electrical and mechanical products import and export business agent



Quality is our consistent pursuit

User satisfaction is our eternal goal

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