EN3800 Multi-channel Online Vibration Monitoring & Protection System

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EN3800 system is an online vibration monitoring and protection device for rotating machinery. Its design is an integration of the best and latest technologies into a product that combines advanced design developments with the best features of those mechanical and electronic instruments already on the market.

The system combines monitoring and protection with engine set fault diagnosis and offers features that are superior to those of traditional online vibration monitoring instruments. The system is designed to be applicable to the online monitoring and protection of all large and medium sized rotating machinery, including steam turbines, water turbines, compressors, fans, motors and water pumps.

Main Technological Specification

Items	Specificians
Input Channels	4, 8, 12 and 16 vibration channel optional, one key-phase channel, three rotational speed channels
Input Signals	Displacement, speed sensor, standard current, voltage signal
Memory Medium	CF card (64M) and U Disk
Record Interval Time	1-60 second
Storage time when record interval is 1 second	4-channel＞200 hours, 8-channel＞150 hours, 12-channel＞120 hours, 16-channel＞100 hours
Display Resolution	10.4″real color, 640×480 dot matrix
Transduce Output	Vibration channel number ＋4, relative relation can be set
Alarm Grade	2 Grades
Alarm Relay Number	4-channel: 8, 8-channel: 12, 12- and 16-channel: 16
Alarm Contact Capacity	0.5A/220V，AC

Screen Protection Time	0-499 minutes (no protection when “0” is set)
Communication Mode	RS232/RS485-MODBUS、Ethernet
Power Supply	220V±10%AC
Working Environment	0-40 Relative humidity <80%
Power dissipation	45W
External Dimension	288mm×288mm×390mm
Installtion Mode	Card dish pack
Opening Size	200mm×200mm

Classification

	Standard	Customized
	EN3800-01 4-channel EN3800-02 8-channel EN3800-03 12-channel EN3800-04 16-channel	* Client and server computers software, English version. * Data storage through USB. * Low speed variable parameter measurement of 4-20mA. * Over-speed protection (two-out-of-three sensor logic). * Server data management software. * Server vibration analysis and fault diagnosis software. * MODBUS communication, etc.

Main Function

The main graphic display mode of EN3800 is as shown in the right figure. Bar graphs for all the channels (half channels each on the upper and the lower screen segments) will be dynamically displayed on the left side of picture. Each channel will be labeled with its channel name, unit, alarm value, danger value, actual value and data scale.

In addition an “OK” status light and “Byp” (Bypass) status light will be displayed for each channel.

主画面显示

The EN3800 system has many display options, such as main tableau display, vertical trend curve display, horizontal trend

curve display, large digit display, bar chart display, waveform and spectrum display, orbit of shaft centerline display, recall display, etc.

For bar chart display, digit display and curve display, the channel number displayed in a tableau can be defined; for waveform and spectrum display, the channel number set is, with the option to display waveform or spectrum only, waveform number and analysis high limit of spectrum; for orbit of shaft centerline display, the combination of channel pairs and waveform number.

曲线垂直趋势显示

曲线水平趋势显示

数字显示

棒图显示

间隙电压显示

转速趋势显示

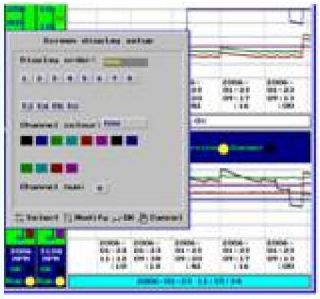
波形和频谱显示


轴心轨迹显示

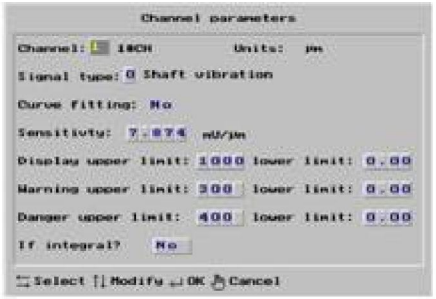
追忆功能显示

Many other display functions have been added to the EN3800 system, such as real-time calendar, clock display, channel name display, unit display, alarm limit display, signal scale graph display, “OK” status display, time coordinate imitating record paper movement display, storage percentage display, alarm indicator, danger indicator and protection indicator display.

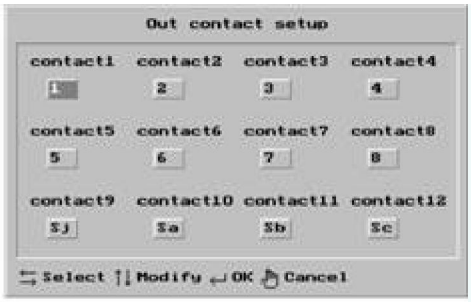
The operation including screen protection, system clock setup, alarm mode setup, channel parameter setup, data transformation, alarm statistics etc. can be defined in the setup procedure.In the channel parameter setup, the items that can be set are: sensor type and sensivity, high and low limit display, alarm high and low limit, danger high and low limit, with or without speed sensor integration, curve fitting for different expansion measurements, etc. As shown in transducer output, the relationship between output contact and vibration and speed channels can be set.
A 4-20mA transducer output corresponds to the low and high display limit respectively. In alarm and “OK” restore delay setup status (Figure 8), the alarm delay time and “OK” restore delay time of each channel can be set. In “OK” voltage range setup status (Figure 9), the normal voltage range of sensors of each channel can be set.



画面显示颜色设置



通道参数设置



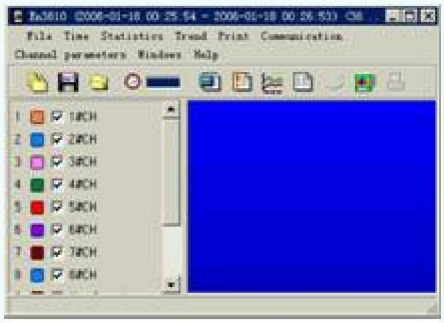
变送输出设置

When the input of channel exceeds the normal range, the system will give a “Not OK” signal and the channel will exit monitoring to avoid giving a false alarm.
In setup status, the EN3800 provides online hints and help messages for each step.

EN3800 provides one or more USB interfaces，the data in the internal electronic disk of an EN880C series meter can be transmitted to and stored in a U disk.
The data in a U disk can be stored in the hard disk of a PC or analyzed by the PC.The visible screen can all be copied to form a graph file in a display state or a setting state so as to see the effect of the visible screen and to form various reports.
Generally，ENVADA can provide upgrade software through Email or post for the user to modify or add some functions of EN3800.

The EN3800 has superb built in instrument functionality based upon a state of the art package including display, memory, data recording, recall and statistics functions. Under some circumstances, an server is needed to support functions and Envada provides data management software and vibration analysis and fault diagnosis software for our customers.

The server computer vibration and fault diagnosis software can manage, analyze and diagnose the vibration data in EN3800 through a LAN composed of EN3800 and a server coupled by Ethernet.



上位机数据管理软件

The EN3800 input terminals can be connected to numerous different signals, including eddy current sensor signals for measuring rotational speed, key phase, shaft vibration, axial shift, expansion difference, throw, and eccentricity, signals based upon the rotational speed that measure casing vibration, signals from sensors that provide voltage outputs and meet appropriate accuracy requirements, and signals from a Low Voltage Displacement Transducers(LVDT) for measuring casing expansion。

If a customised function is needed, please inform ENVADA of the requirements before purchase. For the measurement of rotational speed and key-phase, please specify sensor type and the number of teeth.

Please contact ENVADA before ordering and ENVADA will provide free technical consultancy as the detailed configuration of the EN3800 depends upon the quantity and nature of measuring points defined by the user.