

Measurement management and significance of electronic instruments and meters

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Abstract: Electronic instrumentation is widely used in industry. In order to reduce the damage rate of equipment and reduce the cost of enterprises in this area to strengthen the management of testing equipment is imminent. The production of products to consumers satisfied with the products, enhance the competitiveness of enterprises is essential. Therefore, in the daily use of related equipment, the staff should supervise the measurement management system and pay attention to the cycle management, strengthen the measurement management, so as to develop targeted maintenance program, fundamentally improve the level of instrumentation. Based on this analysis of electronic instrumentation measurement and measurement of measurement significance.

Key words: electronic instrumentation; metering management; metrological testing

1. The status of China's electronic instrumentation

In the process of industrial production, electronic instrumentation plays an important role in the quality of the product is an important guarantee. China's measurement equipment in the control and accuracy is also lacking, cannot meet the needs of large enterprises in the production process, and the lack of corresponding equipment, measuring equipment, and cannot be a good way to assist the electronic instrumentation measurement process¹. Compared with foreign metering equipment, China's equipment is the most lacking is the reliability and stability of measuring instruments, a lot of instrumentation after a long period of time becomes not very stable, the accuracy of the error, resulting in Enterprise product quality underground, reducing the competitiveness of enterprises, affecting the corporate image. The main reason for these problems is that China's long-term rely on imports of these high-tech content, do not pay attention to their own research and development, and

other enterprises to manufacture these measuring instruments do not pay attention to supervision, resulting in low quality products, affecting our overall level.

2. The significance of electronic instrumentation measurement test

Metrological testing in our traditional society has emerged, such as life used to measure the food bucket. With the continuous development of science and technology, measurement and testing equipment in precision, accuracy and sensitivity have been on the full development. The measurement and testing can detect, analyze, control and record the quality standards and quantity of the products produced by the enterprises². It is a kind of supervision and inspection to the production of the enterprise products, which can effectively improve the quality of the products and ensure the legitimate rights and interests of consumers. Instrumentation measurement equipment can effectively reduce the waste of resources. Accurate measurement of equipment in industrial production from the raw materials can be measured on the measurement, effectively save resources for enterprises to save costs and improve business efficiency.

3. Electronic instrumentation measurement management effective strategy

3.1 Optimize the instrumentation process management

For the measurement and maintenance management work, mainly including the selection and configuration of metering equipment, to determine the measurement equipment selection, daily management of metering equipment, metering equipment before use calibration and cycle testing and substandard equipment isolation and disposal, so

companies should combine their own Instrumentation of the actual situation, the establishment of a systematic management system to ensure that the measurement process management standardization and standardization.

3.2 To carry out regular measurement maintenance

Electronic instrumentation in the use of high frequency instruments, in the specific application of the staff should pay close attention to the efficiency and accuracy of measuring instruments, once the abnormal should be timely and effective maintenance, according to the experience of the past to develop maintenance cycle plan to This is a targeted solution to the problems in the use of instrumentation. For example, in an agricultural technology enterprises, the staff according to the use of instrumentation frequency and accuracy requirements to develop maintenance cycle to food safety detectors and pesticide residue detection equipment, for example, due to agricultural production and processing of such instruments using high frequency and accuracy The requirements are more stringent, the company set up a 3 to 6 months of maintenance cycle, and according to the actual use of effective regulation³. At the same time for the maintenance of which, the company purchased a spare replacement equipment, in order to avoid affecting the normal operation of enterprises.

3.3 To strengthen fault detection and management

For the detection of electronic instrumentation failure, first of all to check and fault judgments, to carry out this inspection, you need to work on the electronic instrumentation, function, use and precautions to understand, it is necessary to see Electronic instrumentation manual, the manual also generally contains some simple methods to eliminate the failure of the hardware structure, schematics and important components of the parameters⁴; followed by the instrument to see the use of personnel before the failure to do the record, or ask them electronic instrumentation failure when the situation, so for the detection of equipment failure, can easily analyze the cause of the malfunction.

Often, there are many ways to check the equipment of an electronic instrument, the multimeter can quickly check out the fault, but the instrument is generally more complex, we can first take a simple and fast and intuitive way to conduct a preliminary inspection, check the items are: parts plug Whether the fixed, electrolytic capacitor is leakage, whether the welding point burn or fall off, whether the short circuit or

open circuit, etc., and some failures are required to be able to observe⁵.

The basic method of fault repair: 1) Appearance inspection: visual inspection before power and check the power of the moment to check the power before the inspection, including the appearance of the instrument, knob and other parts of the integrity, and then remove the cover to see if there is charred , oil leakage, moldy and breakdown of the components, there is no loose, broken lines, components and other parts of the collision, easy to find any signs of damage, the above situation is excluded, then the power, check to see if there is smoke , Hot and other obvious failure, in order to determine the point of failure. 2) Check the power supply section of the instrument. The inspection of the instrument part is to check the voltage value of the supply voltage, the voltage and temperature, the fuse is normal. 3) Check the circuit at all levels. To ground voltage In general, the electronic instrumentation manual will be marked with the circuit voltage and parameters, which can check the voltage of the circuit to the ground voltage to check whether there is a fault. 4) Using device replacement method. If the cause of the instrument failure is more complex, according to the location of the failure may occur, the function of the normal parts of the instrument instead of components, this time if the instrument back to normal, so long that the component problems, need to be tested, view the fault type and resolve it. The use of this method requires the use of the same normal parts of the same type.

3.4 Other considerations

In addition to the above management measures, in the electronic instrumentation metering management, the staff should also clearly note the following: ① Reasonable scheduling, the company and the imperial examination of their own business and the actual situation of the instrument, the development of paid rental program, and with qualified measurement management Personnel, the use of the instrument to carry out detailed records; ② If the motor exceeds 75KW, the staff should promptly install the display device or monitor the instrument, and in the thermal equipment management, should analyze the equipment parameters, in order to select the appropriate temperature measuring device ; ③ Equipment, structure and line changes must be approved by the relevant departments, for key change the company should organize a seminar, the specific reform program should be approved by the person in charge to implement. In addition, the program, data

and application effects involved in the transformation must be documented and saved.

In short, the accuracy and reliability of electronic instrument metering management and testing effectively guarantee the qualified rate of production of products, in practical applications, should be taken to optimize the scientific method to ensure the accuracy of the results.

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