

Discussion on Urban Rail Transit Electromechanical System Joint Debugging

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Abstract. With the social economic development, the construction of urban rail transit project in time, more and more attention at home and abroad industry total FBI urban rail transit engineering systems. Urban rail system construction process is the most important mechanical and electrical systems, from systems to verify that the interface between the electrical and mechanical equipment technology and the organic integration of mechanical and electrical equipment functions and technical features guarantee that the same management, the same technology, the same security authentication platform to realize the reliable operation of security coordination and orderly man-machine, machine-machine, this is the FBI equipment system function. It is the basis and prerequisite for the construction of urban rail transit project, have a certain role in the construction of urban rail transit procedure. This paper analyzes the urban rail transit system electromechanical joint commissioning.

Introduction

With the social and economic development, expanding the city limits, increasing urban population, also appeared a large volume of traffic, the city needs to have a more convenient and efficient urban transport demand norms, cities need to build three-dimensional, multi-level integrated rail transit leading public transport as the main body of the city's comprehensive transportation system. Urban Rail Transit because with security, large capacity, speed, time, etc., to a certain extent, to fully promote the change of urban structure, promote the development of urban modernization process, so that the city toward large-scale, low power, high population density less area direction, and it can also be effective in changing urban traffic congestion, reduce traffic speed, traffic safety, environmental pollution and energy crisis. Urban rail transit is an effective technology to solve urban traffic problems; it has been at home and abroad to develop urban rapid rail transit.

Development background of urban railway transit

With the progress and development of society, there is a growing emphasis on urban transport, urban transport running status will seriously affect people's daily work and life, especially the frequent incidents of the city, urgent need to improve local traffic conditions. Urban Rail Transit system, the more important is the mechanical and electrical systems. Modernization process of urban development, become an indispensable part of the power system, it has been widely used in live production. Urban Rail Transit electromechanical system is representative. Urban Railway Transit historic, rail transportation long ago in urban construction, urban rail transit because with the advantages and features have long been used in the transport travel. Present increasing emphasis on mass transit, has an irreplaceable role. City belongs to densely populated areas, more emphasis on transportation, analyze and explore the world's developed countries for a long time research experience can be found in the rational application of the passenger than the larger urban mass transit system is reasonable ease urban traffic pressure.

Urban Railway Transit vehicle is actually running on the track, in the urban passenger traffic system applications, have strong applicability, comfort, speed up sex, punctuality and low resistance. Urban traffic engineering urban life project, will greatly affect the degree of people's daily lives; urban rail transit is a more environmentally friendly transportation options, can promote sustainable urban development to some extent. Urban railway transit has low costs, large volume, and other characteristics consistent with the public, constantly moving around the city to extend and promote the comprehensive development of the city to ease the tensions of urban housing, population density, and air pollution. A large number of urban rail transit construction able to facilitate travel and reduce the number of private vehicles, improvement of urban congestion problems. Urban rail transit is a complex huge system, belonging to urban rail transportation part of the electromechanical system, based on computer processing technology based on the establishment of automation equipment, such as fire alarm systems, automatic control system, automatic ticketing systems, environmental monitoring systems, computer unified command classification regulation, in order to minimize financial, material and human resources to achieve human safety rail urban transport automation coordinated operation. In addition, as in recent years, the development of transport systems, need to be more strictly regulated urban transport rail system [1].

Basic overview of urban railway transit electromechanical system

Urban railway electromechanical system involves a very wide range, the main building, structure, signaling, automation, and many other professional lines, said professional to be able to coordinate to ensure the safe operation of rail transit, otherwise it will seriously affect the entire transport system, and even cause the system to crash. Therefore, the transportation system, electromechanical system joint debugging is very important. Urban Transport electromechanical system joint debugging technique is mainly used to verify the electrical and mechanical interface equipment, guarantee that the same management and the same technical level on the basis of the safe operation of each device, is the basis and key operating systems. Whether they have compliance with the requirements and technical requirements of the joint debugging equipment constitutes a whole there is a certain influence. Urban Rail Transit project is a complex impact on the safety of the people, the equipment needed to carry high demand and relatively large range. Therefore, before the official opening of the respective urban rail lines need to be repeated debugging, it can be found in the importance of debugging. This should be based on strict quality control equipment to ensure the safe operation of electrical and mechanical equipment; it is a key part of the construction of urban transport. All aspects of urban transport systems require analysis subsystem compatibility and device performance, mainly due to large-span can not run the equipment, after joint commissioning in order to fully reflect the role of the device. Urban rail transit system includes the following components:

First, the power supply system. Power supply system for urban rail transportation equipment, the train, the corresponding site lighting power service, including by hybrid power supply, centralized power and decentralized power supply.

Second, the signaling system. Signaling system is mainly used for the normal operation of train command, to ensure timely receipt of trains and signals, including the ATS subsystem, ATO subsystem, ATP subsystem, mostly installed in the control center.

Third, the communication system. In general communication system is mainly used to transmit information and issue commands, similar to the human central nervous system, mainly includes three parts a wireless communication system, closed-circuit television systems and cable transmission systems, can be reached in time to ensure that the information and instructions.

Fourth, the automatic ticket checking system and ticketing system. The above system is mainly to replace the manual ticket, to build a phased metered fare system based on multiple lines networking methods to ensure the ability to track statistical ticket times, easy management; the system can also provide a scientific basis [2].

Urban railway transit electromechanical system joint debugging

Electromechanical system joint debugging actually meet the main goal of traffic systemic process that requires a comprehensive analysis of various factors, organic contact interacting subsystems, and treat it as a unified whole. Joint commissioning system can provide technical system for the system running for the system to open transport links, as well as comprehensive safety analysis and other services. Integrated monitoring system is actually a systematic and rational approach to decentralized automation systems and build the whole parade, guaranteed to be shared between the subway system resources, exchange information, thereby increasing the effective coordination system with the ability to achieve the purpose of the linkage system, in order to be able to fully improve the level of automation of the subway system. Integrated supervisory control system (ISCS) joint commissioning includes door systems (PSD), equipment and environmental monitoring system (BAS), closure system (ACS), automatic ticketing system (AFC), passenger information system (PIS), CCTV system and other systems. Electromechanical system joint debugging when you need to select a specific place and time, require careful selection, cannot be arbitrary, is mainly used to test whether the product is qualified, do not need to re-structure the system, combined with the increasing need when debugging exchanges between departments, ensure smooth communication, resource sharing, not just a few simple joint commissioning unit or individual requires joint commissioning of all equipment.

Electrical Equipment System: Joint debugging when need to first check whether the device is properly installed, check if you can connect devices across the board, we need to contact all reasonable subsystems, and organic complexes from communication debugging. With a reasonable staff need to put in place a comprehensive deployment of technical personnel, ready to advance the relevant information should also be checked before a comprehensive joint commissioning electromechanical systems. Generally electromechanical system joint debugging mainly includes three parts, testing the physical interface, the interface function test and test equipment system functions. The above steps are the key to joint commissioning indispensable [3].

Rail Electromechanical Systems: Joint commissioning is mainly based on single and dual-system interface debug system debug process as a basis, to more strictly regulate the various subsystems, such as integrated monitoring systems, communication systems, signaling systems, rail systems, and environmental control systems. Joint commissioning process equipment systems, rational use of computer technology to achieve rapid collection, processing, analysis object data information systems for joint commissioning a large number of comprehensive data mining is very important, in addition, also need to be more objective standards of judgment. With the continuous development of information technology, gradually showing a lot of simulation software, it will greatly affect system operation. Joint commissioning electromechanical system, the computer simulation is a better choice, be able to establish a more massive security level, control level, grade, etc. dispatch. The basis and premise are safe system operation, joint commissioning the system when the safety is the most important, when the actual operation of the need for timely detection and monitoring systems and equipment in the presence of vulnerabilities and security risks in order to be able to promptly solve the security problem, guaranteed to run Safety. Electromechanical joint debugging system control functions, mechanical and electrical system are a large system, the premise of the normal operation of the system timely and effective control. Detection operation when the system needs time to adjust and correct the system deviation. The system operator can level an overall assessment of the main transportation system, system compatibility and performance analysis, a reasonable adjustment of the equipment, electrical and mechanical systems have an irreplaceable role, to a certain extent, control and monitoring systems operational. System management level with a certain managerial role, many systems can analyze data and statistics, data mining systems and the like.

Urban Mass Transit System joint commissioning process should be ready material needs, including equipment systems security assurance data, the device FBI documentation, equipment, systems technical specifications, single-device system debugging information, equipment commissioning schedule, the device commissioning schedule and other information. To develop a

reasonable plan joint debugging, joint debugging organic analysis of location, time and the requirements and subsystems. Preparation of documents, include the contents of the file system joint debugging, objectives, specific requirements, joint commissioning procedures, detailed description of the project schedule. When joint commissioning the system, the operator needs to comply fully with the relevant provisions of commissioning, commissioning system in accordance with the provisions and cannot be arbitrary. Sequential system joint debugging, in order to provide the basis for subsequent further analysis and research, the simulation system provides data reference for the actual operation [4].

Role and significance of urban railway transit electromechanical system joint debugging

Realize overall best joint urban railway transit

Electromechanical system joint debugging is actually highly integrated, complex projects, not only for debugging subsystem, you also need to guarantee that the subsystem can run with a load operation, correctly handle the relationship between the system interface to coordinate the operation of the system. Urban rail transportation system, based on the premise that run reasonably clear line, the key is to run the normal operation of the train, running protection is power. Electromechanical system joint debugging fundamental role is the ability to combine the above-mentioned points, the best fit to achieve the purpose of urban rail transit system, providing high quality services and large transport capacity for the community.

Realize safety analysis of urban railway transit

Urban Rail Transit system is a fundamental part of urban public transport, should strictly regulate the system security. Subsystem failure will seriously affect the safe operation, so I want to improve system reliability; we need to constantly clear the system life, regular maintenance electromechanical system key parts, and timely replacement and debugging. Electromechanical system joint debugging should promptly detect the availability of safe, reliable, serviceable, available systems to ensure timely removal systems security, the establishment of comfortable, safe operating environment for passengers [5].

Provide technical support for operation

Urban rail transportation system design and completion of electromechanical systems is an essential part of the joint debugging, the main control system debugging, debugging communication systems, buses and debugging, the debugging process can be said for the further acceptance and detection systems provide the foundation and guarantee for the future operation use the system to provide technical support.

Systematic urban railway transit

Urban rail transit system is an organic whole, with the correlation between the system, because the system debugging affected by certain factors, the urban transport system can best meet the target, but cannot meet the system level to maximize the overall efficiency of operation and performance requirements, in order to meet these objectives, we need several debugging electromechanical systems, ensuring optimal formation, the most reasonable target system debugging.

Conclusions

In summary, the urban rail transit system joint debugging is very important, is the electromechanical system debugging and running track essential program, with the continuous development of urbanization, there is growing emphasis on urban rail transport joint commissioning.

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