
摘要

目前，物料输送系统主要应用于港口，冶金电力等行业。我国处于快速发展的信息化阶段，社会、科技水平以及自动化系统都在不断的发展和创新，电气自动化技术不断的被应用于物料输送领域。现在大多数物料输送系统，包括皮带传送，小车配料大多采用 PLC 技术。随着我国不断的发展，原材料的需求越来越大，原材料的输送是我国生产需求所完成的必要工作流程，高速运输、距离远、运量大、不同高度的物料输送已成为物料输送必须需要解决的问题 Error! Reference source not found.。同时，移动式卸料小车属于在高处轨道上行走的移动设备。根据卸料口的数量多少，其行走距离的远近又大不相同，卸料车往往是将物料运送到料仓的最后环节 Error! Reference source not found.。如果实现了卸料车安全、可靠地全自动控制，可以大大地改善操作员的工作环境及减轻劳动强度，保护操作员人身安全。本次课题主要设计物料输送和小车自动配料两部分。将 PLC 技术应用于物料输送及移动式卸料，并得到良好的应用，在技术方面进行了创新发展。

本论文通过对以前的实例及系统，详细说明物料输送及小车自动配料这两个部分，对两部分进行充分构思与设计，做出与实际贴近，比较不错的的输料，移动式卸料生产线。本次课题主要运用西门子触摸屏 HMI 及 PLC，选用西门子 PLC1200 可编程控制器进行系统的设计控制，所用仿真软件为西门子博途 V14。通过这些实现一开始设计预想的输料，配料等一些功能。

关键词：自动化输送料；小车卸料；西门子 PLC1200

Abstract

At present, material conveying systems are mainly used in ports, metallurgy and power industries. My country is in the stage of rapid development of informatization. The society, technology level and automation systems are constantly developing and innovating. Electrical automation technology is constantly being applied in the field of material transportation. Nowadays, most material conveying systems, including belt conveying, are mostly equipped with PLC technology. With the continuous development of our country, the demand for coal mines and electricity is very large. The transportation of raw material necessary work process completed by China production needs. Highspeed transportation, long distance, large transportation volume, and material transportation at different heights have become necessary for material transportation issues that need resolving. At the same time, the mobile unloading trolley belongs to mobile equipment walking on high altitude tracks. Depending on the number of discharge ports, the distance traveled varies greatly. The unloading truck is often the last link to transport materials to the silo. If the safe and reliable automatic control of the unloading truck is realized, it can greatly improve the working environment of the operator and reduce the labor intensity, and protect the personal safety of the operator. This project mainly designs two parts: material transportation and automatic batching of trolley. The PLC technology has been applied to material transportation and mobile unloading, and has been well applied, and has been innovatively developed in terms of technology.

In this paper, through the previous examples and systems, the two processes of material conveying and automatic batching of the trolley are explained in detail. The two parts are analyzed and considered to design a relatively complete conveying line. This project mainly uses Siemens touch screen HMI and PLC for some data exchange. In the design control, Siemens PLC1200 programmable controller is used and the simulation software used is Siemens Portal V14. Through these realizations, some functions such as the designed conveying materials and ingredients are initially designed.

Keywords: automatic conveying material; unloading by trolley; Siemens PLC1200

物料输送及移动式卸料控制系统

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