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The application of photogrammetry and remote Sensing in Engineering surveying

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Abstract: The with the development of the the global economy faster and faster, also affects the industrial science and technology To reform the innovation, and by speeding up its development speed, now modern engineering measurement Stics of wide application and fast development, the engineering measurement a more and more occupies important in The construction, strict standards for the construction of Engineering survey, can improve the quality of engineering. has made innovations in engineering measurement, added photogrammetry and remote sensing technology to improve the A Ccuracy of measurement and has been widely used. This paper firstly describes the content of photogrammetry and remote sensing, and analyzes its application in engineering Survey.

Keywords: photogrammetry; Remote sensing measurement; Engineering survey; Apply

1. Basic Overview of photogrammetry and Remote sensing technology

Engineering measurement is mainly refers to data mining according to the standard of engineering measurement Sample Analysis and comparison , Traditional engineering measurements are mainly done by drawing graphics into Line contrast actual site inspection and data survey and sampling , and search Set large number of related terrain data , has a significant amount of manpower , material Resources ,, Financial and accuracy and low speed, etc. . Therefore, to improve The project measurement accuracy , lowers costs and increases the speed of measurement , to traditional workers Path measurement methods for innovation , integrating photogrammetry with remote sensing technology measure .

Pre-for photographic Measurement and remote sensing technology to ensure no contact with actual objects lift , measure it , and synchronizes the results of the measurements to the sensor , from move data collation and analysis , and finally display the analysis results , from and reduce errors , Improve engineering measurement accuracy , to speed up the measurement, and so on .

1.1 Photogrammetry Technology Analysis

With the development of technology, photographic technology is widely used in engineering measurement , To operate a specific machine by a professional person ,convert actual objects to digitized images show

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up . camera technology to sample real objects and establish data model resources material , strictly reference the measurement's standard , will be camera , full digital photography , Extracts object elements such as measures . when data is collected , to correct and close reason to applyCCD Digital imaging technology , and classifies the data taken and collation and digitizing processing . pay attention to reasonable sampling in engineering measurements , Create model , using error analysis of adjustment data to coordinate the Row collation and Analysis , strictly follow DEM The requirements for photogrammetry , draw out Positive camera and contour that meet the requirements .

1.2 Remote Sensing Measurement Technical Analysis

The most important point in the analysis of remote sensing techniques is , to be effective Merge with electromagnetic induction wave , and use professional sensors to receive in time remotely anti-radiation and radiated signals , and receiving signals Valid analysis , Analysis of remote sensing measurement technology to accurately achieve the actual object sampling , capture information exactly , and handle The collected information in a timely manner , Digitally imaging , to effectively measure and count objects for Analysis and Administration . measurement Standards for remote sensing technology with high requirements , High quality features , not only combine the actual conditions of the project , and have a reasonable use of the Guardian star , Remote Sensing map with , to effectively measure the project . in the Background of the overall in the context of visual, to properly use a satellite system , Accurate to tell the real thing location of the body and analysis of data , collation and judgment , and follow the sensor's The data, along with the corresponding criteria ,, Analyze and observe remote sensing images and conduct a Series Professional handling , To draw the remote sensing image displayed , not only reach to increase the accuracy of engineering measurements , also saves a lot of manpower , Material and financial resources .

Note the following questions during remote sensing measurements , If you want to base the using different analysis methods with satellite systems , according to actual project log According to collation , analysis . accurately measure data , and measuring precision into line unification and corresponding callouts , to accurately determine data . compared to Traditional Engineering measurements , Remote Sensing measurement with more accurate data , via High-value features , so remote sensing measurement technology is widely used . .

set up static base stations and a handful of measurement control points , and build the coordinates of the overall mine Department , can take advantage of signal receiver , measure base station and satellite for measuring equation set , to accurately collect and record the information you need to measure . through GPS forward Mining Terrain Survey , can effectively improve the efficiency and precision of mining terrain survey ,, and implement real time monitoring of mines , Lifting the cost effectiveness of mining enterprises .

GPS Application of technology in the laying of mine near-well control network . Mine mining process , mine shaft is the most important underground mineral transportation channel Road . compared to other tunnels , The accuracy of the mine shaft to its penetrating works should be seek higher . when a mining enterprise needs to connect a deviated shaft inside a new mining area, should when in time G P S technology build mine near well control network , The guarantees the built Mine near-well control network has higher precision , to connect the inclined shaft of mine Pass provides strong support for .

Use the For builders GPS The process of constructing a mining near-well control network ,, should be in Strict accordance with the relevant construction design requirements of the mine shaft location of the Measurement and development of mine shaft scheme , to design scientifically rational mines wellbore transport channel ,Provide security for mining enterprises to promote mine development efficiency .

GPS The application of technology in data observation and collection . GPS technology applications in data acquisition mainly through the sensor implementation of the GPS system internal is implemented with the . through sensor devices , to effectively power all types Signal and non-electrical signal collection , and store results in a timely manner Information storage , This provides a precise message

for subsequent data analysis work to . in the process of data acquisition , generally deployed in monitoring device area According to capture device , and pass A / D The Converter translates the collected current signals into

Another advantage of remote sensing technology is that it does not require a professional to have the device move Outdoors for actual measurements , to effectively avoid undesirable external environment has A certain effect on measurement results , to reduce unnecessary errors , large to increase work efficiency of engineering measures , also reduces labor in engineering measurement Cost and economic cost.

2. Application of photogrammetry and remote sensing technology

As the development of photogrammetry and remote sensing technology is growing faster , its is becoming more and more important in engineering surveying and is increasingly being applied ,, as in today's China hydraulic engineering , construction project , All communications works according to photography Measurement and remote sensing measurements of the standard sampling , analysis and Collation . Reasonable use of photogrammetry Technology and remote sensing technology can accurately understand the location of the project quality conditions , and Real time terrain changes ,, continuous local climate with efficiently prospecting and forecasting , to make engineering progress more successful . valid Using remote sensing technology to survey and receive data , and pass engineering data to Line related analysis , Strict reference to our engineering standards to analyze the data line check , Make photogrammetry and remote sensing measurement more accurate and reasonable . is greater than as , When relevant measurements are made for hydro-hydroelectric projects , not only accurate solution to Hydrology , You can also perform real-time surveys of actual road conditions , thereby improving The accuracy of engineering measurements and the quality of photographic measurements.

effectively merges photogrammetry with remote sensing , can not only reach the remote Off-control purpose , keep improving the accuracy of engineering measurements , in the traditional Engineering measurement reform and innovation , to continuously improve measurement quality accuracy , Reducing manpower in engineering survey , consumption of material and financial Resources , Max to Digital signal . The digital signal is available , when digital signal translation is complete Send to ARM7 in Chip FIFO serial Port . end ,ARM7 chip can send Digital signal over Ethernet ", completes data collection work.

(4) GPS application of technology to other surveying work in mines . GPS Technology In addition to mine terrain survey and the deployment of mine near-well control network Outside of the base measurement work , can also be effectively applied to the monitoring of mine ecological environment work , dynamic measurement of ore heap and fieldwork of working face . For example , In a mine which is mined by mine in our country . , Mining Builders will GPS The application of technology to the monitoring of ecological environment around mines , passes to mine The actual situation of mining subsidence in real time monitoring , Analysis and prediction of ground subsidence The primary cause of the phenomenon and its primary impact , So as to implement the relevant treatment in time measures , Prevent damage to the surrounding ecological environment of mines .

3. Epilogue

Summary , During the mining survey , needs to be done on the terrain of mines landscape dynamic measurement , and GPS Technology works effectively with this type of work . through GPS Technology , to effectively improve the overall efficiency of mine surveying work , for Security of mineral resources in China . so , Mine Surveyors should be product Pole learning GPS Application Method , efforts to improve mine survey quality , for me The long-term development of the national economy lays the groundwork . Scoop

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