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# The accuracy of edm in surveying is

The accuracy of edm in surveying is mcq. What is edm in surveying. What is the principle of edm in surveying. What is accuracy in surveying.

Electronic distance measurement is the detection equipment that is used to measure the distance between two points. It is also known as electromagnetic distance measurement. The measurement is performed using electronic methods. For further articles click here are adopted different methods to measure the distance between any two data points. Three methods used are direct measurement of optical distance measurement of electromagnetic distance Measurement of electromagnetic distance The measurement of direct distance is actually measured on the ground. The chain or ribbons are used for this method. Other tools that are used are the stepmeter that the concatenation of the odometer countertops can be used for normal precision work and for higher precision tapes can be used. The chain is the basis of detection. This measurement method uses a tachometer or telemetric method. These are very fast and convenient. But its accuracy is less than the chain. Although these are more suitable for relapses, swaps, etc. Electronic distance measurement is the detection equipment that is used to measure the distance between two points. The principle behind EDM is electromagnetic waves. These rely on the generation, propagation, reflection and reception of electromagnetic waves. During the war in 1939-1945, the use of radar leads to the invention of EDM. Since radio waves have been used. So these electromagnetic waves are used for detection. EDM can be used for measuring horizontal and vertical angles and distances. They can automatically measure and record information. The EMC uses electromagnetic waves, the type of waves generated depends on various factors such as frequency, wavelength and period. These are represented in the form of periodic sine wave. The frequency is defined as the number of times of the waves complete a cycle. It is represented in Hertz (Hz). The length travelled by the waves in a single cycle is known as wavelength. It is represented in meters. The time period is the reverse of the frequency. This is the time you need to complete a cycle. It is represented by seconds. The speed of electromagnetic waves depends on the medium. While properties may vary according to source.  $F = c / \lambda$  where there is the speed of light in a vacuum. T is the period of the period f is the frequency  $\lambda$  is the wavelength that the distance between two points is calculated according to the propagation of electromagnetic waves. Two A and B points are considered, and we have to calculate the distance between them. First, a transmitter is placed at point A. Then a receiver and a timer are placed in another point B. Now an electromagnetic wave is propagated byat B, the timer is kept. The time at which the receiver accepted the wave is noted and this time is called transit time. Here we know the speed and transit time of the propagated wave. But measuring transit time is a little harder. Therefore a reflector is positioned at B. Point A acts as a transmitter and e Therefore double transit time is calculated. Now the distance is measured by the phase difference between the transmitted and received signals. The distance covered by the wave is  $2D = N\lambda + \frac{\lambda}{4}$  Where, D is the distance ...  $N\lambda + \frac{\lambda}{4}$  is solving the ambiguity of the comparison of the phase  $\frac{\lambda}{4}$  It is the fraction of the wavelength covered by the wave that is automatically resolved by the EDM device and the result is displayed. Based on electromagnetic waves used in the EDM. They are classified in three types. They are microwave tools wave tools visible infrared tools These electromagnetic waves have higher frequencies and less wavelengths. In this type, a microwave oven is transmitted by dipoles that are placed in the instrument. The frequency of the courier is about 3-30GHz. They use frequency modulation. For the measurement of the comparison of the distance phase it is used. They have a precision of  $\pm 15$  mm to 5 mm / km. An example of microwave tools is tellometer. Here is an electronic signal to place in the reflective end of the line. An Edm microwave requires two instruments and two operators such as the main tool, remote instrument, reflector, passive reflection. The geodimeter is a tool that uses a visible light. The frequency of these type tools or is  $5 \times 10^{14}$  Hz. The corner cube prisms are used as reflectors. Couriers transmit visible lights using mirrors or lenses. So the frequency drops with the distance of the range or these tools is less than the Microwave Edm. The amplitude modulation is used to measure the distance. Use only one tool. Using the same carrier the line is measured by three different wavelengths. They produce a high precision of  $\pm 0.2$  mm to  $\pm 1$  mm. It also has a range of 2 or 3 km. Infrared tools use the arsenide gallium diode for their work. Since they have the ability to emit infrared. They are inexpensive and can be easily modulated from amplitude modulation. The wavelength is about 0.9 micrometers.  $\lambda$  these can be mounted in a theodolite because they are light and compact. Because these infrared waves approach the visible light bandwidth. The corner cubes are also used on the sides of the spotlight. The power output of the diode is low. So the tool range is about 2 to 5 km. Wild diplomats use this type of wave for measuring. The precision for them around  $\pm 10$  mm. If compared to other EDM measurement methods it has many advantages. Since it is a manual manual work device is less. Horizontal and vertical angles, horizontal and vertical distance is automatically measured and recorded in EDM. Accuracy. Work on the field can be performed quickly reduces errors. Less manual obstacles for the chain chain can be it is necessary less necessary calculation and more precise convenient and reliable methods. For details about dams and its types click here the conservation wall and its types click here use of geotextiles click here MCQ of modern detection tools showing 1 110 questions about 20 1. What is the maximum accuracy of ODM devices? a) 1 in 100 (b) 1 in 10000 (c) 1 in 1000 (d) none mentioned above 2. The accuracy of the Edm devices is \_\_\_\_\_. a) 1 in 10000 (b) 1 in 100000 (c) 1 in 10 (d) 1 in 100 3. What is the following is a type of Edm instrument? a) Microwave (b) visible light (c) infrared infrared (D) All above 4. \_\_\_\_\_ It was the first edm based on microwave developed in the world. (A) Tellurometer (b) Total station (c) Distomat (D) None mentioned above 5. The geodimeter was invented by \_\_\_\_\_. (a) Dr. E. Bergstrand (B) Dr. T. L. Wadley (C) Both (d) None 6. The visible light-generation light instrument was developed in \_\_\_\_\_. (a) USA (B) Sweden (C) India (D) South Africa 7. The total station is a combination of \_\_\_\_\_. (a) tacheometer and theodolite (b) automatic level and digital level (c) level dumpy and compass (d) electronic theodolite and EDM 8. The total station can be used for \_\_\_\_\_. (a) Angular measures (b) Linear measurements (c) elevation measures (D) All above 9. Which of the following is the Type of total station? (A) Total manual station (B) Total robotic station (c) AutoLock Total Station (D) All above 10. Digital levels can read \_\_\_\_\_ electronically. (a) Barcode staff (B) Electronic personnel (C) Prism Square (D) None above showed from 1 to 10 of 20 questions The main tool for on-site surveyors today is  $\lambda + \frac{\lambda}{4}$  "Total" which is an example of measurement of electronic distance. It is a tool that combines the angle measurements that could be obtained with a traditional theodolite with electronic distance measurements. The recording distance, with all its associated problems. It was made obsolete for all the basic measurements. The distance can now be easily measured, quickly and with great precision, regardless of the ground conditions total stations with their enabling of integrated EDM: (1) crossing on large distances, with a greater control of the swing errors. (2) the inclusion of many more more measured distances in control networks, making obsolete classical triangulation, what translates into a greater error control d She ladder. (3) Configuration and photogrammetric control, over large areas, with polar coordinates from a single baseline. (4) Monitoring of the deformation to the sub-millimeter accuracies using high-precision EDM, such as the Mekometer ME5000. This tool has a range of 8 km and an accuracy of  $\pm 0.2$  mm  $\pm 0.2$  mm / km measured distance ignoring the refraction effects not fooled classification of electronic measuring instruments historically EDM The instruments have been classified according to the type and wavelength of the electromagnetic energy generated or based on their operating range. Very often one is a function For survey work Most instruments use infrared (IR) radiation. IR has wavelengths of  $0.8 \sim 0.9 \mu\text{m}$  transmitted by high-frequency Gallium Arsenide (GAAS) luminescent diodes. The precautions required in Distanza Distanza are such that the measuring wave cannot be used directly because of its poor propagation characteristics. The measurement wave is then superimposed on the generated high-frequency waves, called carrier waves. The overlap is achieved by amplitude (Figure 4.14), frequency (Figure 4.15) or pulse modulation (Figure 4.16). In the case of IR instruments, amplitude modulation is used. Therefore, the carrier wave develops the necessary measurement characteristics in maintaining the high-frequency propagation characteristics that can be measured with the required accuracy. In addition to visible IR light with extremely small wavelengths, they can also be used as a carrier. Many of the instruments that use visual light waves have a greater range and much greater accuracy than that required for more general detection work. Typical of such instruments are the Mekometer Kern Me5000, accurate to  $\pm 0.2$  mm  $\pm 0.2$  mm / km, with a range of 8 km and the Geomensor COM-RAD CR204. CR204.

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