

## **THE BENEFITS OF USING TOTAL STATION IN SURVEYING**

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Modern surveying requires the use of up-to-date technologies and equipment that save resources and increase efficiency. Over the past few years, geodetic equipment has been rapidly improved and modernized, their functional features have significantly expanded, giving the opportunity to manage with different tasks faster and better [3, p.110].

For example, you can measure the distance with a tape measure, manual level, laser level, theodolite, total station or other measuring tool. The choice of solution depends on the tasks that stands before the specialist.

The list of the basic requirements to the device nowadays:

- productivity (ability to perform the task);
- high accuracy;
- safety;
- ease of use;
- high speed;
- low budget;
- excellent quality;
- resistance to external factors.

Electronic total station can be used for critical work:

- transfer of elevation marks to the overlying mounting horizons and as an alternative to the level, rail and measuring wheel;
- transmission of axes, also to the first upper floors, by inclined design without the use of additional installations by the device or the use of another tool (theodolite);
- transmission of the planned position of points (their coordinates) of the internal network of the building (at the zero mark) to the overlying floors by vertical design using an additional angle attachment on the eyepiece of the total station pipe, as an alternative to vertical design instruments, however, this must be stipulated in the project for the production of geodetic works.[2]

For full-fledged work of the land surveyor in the field of construction it is necessary to have the list of rather inexpensive devices or to get the perfect one, but expensive. We compare in table 1 the cost of devices. All the devices are taken from one online store, are of the same production and as automated as possible. [1]

***Table 1. Price comparison***

<b>Device</b>	<b>Price</b>
Electronic level NIVEL SYSTEM EL-32 SET	\$900
Rail ADA STAFF 4	\$35
Metal tape measure LASERLINER Roll Pilot D12	\$145

Electronic theodolite SOUTH NT-023	\$1390
Vertical design device SOUTH TRL-401	\$760
<b>The sum of all devices</b>	<b>\$3230</b>
<b>Electronic total station SOUTH N6+ 2"</b>	<b>\$2350</b>

The difference is \$880, not including depreciation costs. All in all, it is easier to purchase one device than several.

Among other advantages:

- ease of transportation;
- speed of various tasks performance, there is no need to spend time for device replacement;
- ease of use, because it is necessary to get acquainted with the interface and operation system of only one device.

Therefore, an electronic total station is an excellent alternative to other measuring instruments and can save time and money of the land surveyor.

## **References**

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