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TPL USB 1.3MPix digital microscope with a physical matrix resolution of 1.3 million pixels is a compact, easy-to-use device that can be used in everyday life, at work and in education. It is not a cheap toy, and a high class device, often used, among others by art conservators, electronic equipment services, printing plants and industry (quality control, product inspection) By connecting it to the USB port of the computer, we can observe, take pictures and record videos of various objects and preparations. The microscope allows you to observe objects not only in reflected light but also in passing light. Simply place the preparation on a glass slide on a white background - for example on a piece of white paper. The optimal conditions for observation are possible thanks to two magnification ranges: small magnification from 1x to 40x and magnification of 200x. A microscope designed for teachers, pupils, students, collectors and for anyone who wants to research objects, jewelry, documents, money, insects, minerals or paleontological specimens, stains on clothing or carpet, in a word everything, to what you can do with the microscope. It can be particularly useful for quality control of solder on printed circuit boards and analysis of precision products, testing of various work surfaces or products, and as a helpful reading tool for visually impaired people. Used in agriculture and breeding, it will allow quick identification of pests and parasites and for proper treatment. The microscope is equipped with an illuminator in the form of 8 LED diodes. Includes a disc with drivers and a microscope program that allows you to take and edit photos and videos. The microscope works with Windows XP / Vista / 7, MacOS and Linux See sample photos taken with this microscope (CLICK TO ENLARGE FOR A FULL SIZE) DAFNIA, POW. 20x STUŁBIA, POW. 20x STUŁBIA, POW. 200x NEEDLE NEEDLE, POW. 20x NEEDLE NEEDLE, POW. 200x | RUBA, POW. 25x INTERIOR PHONE, POW. 20x OIL PAINT FRAGMENT, POW. 20x OIL PAINT FRAGMENT, POW. 20x COIN, POW. 3x COIN, POW. 25x COIN, POW. 200x Other photos and applications of the microscope SEE FILM WITH MICROSCOPE PRESENTATION The player will show in this paragraph The set includes the following items: $\text{\textcircled{€}}$ microscope with 1/4 "CMOS sensor $\text{\textcircled{€}}$ cable with USB connection integrated with the microscope $\text{\textcircled{€}}$ board with control software and drivers for Windows 95, Windows 2000 and Windows XP (Windows Vista does not require drivers) $\text{\textcircled{€}}$ instructions in Polish Technical parameters $\text{\textcircled{€}}$ magnification: 1-40x (magnification depending on the distance to the object) and 200x $\text{\textcircled{€}}$ focusing range (range of distance to the object at which we can obtain sharp images): from 5mm to infinity $\text{\textcircled{€}}$ matrix resolution: 1.3 million pixels $\text{\textcircled{€}}$ maximum image resolution: 1280x1024 (preview possible at resolutions 1024x768,640x480, 320x240,160x120) $\text{\textcircled{€}}$ speed of signal collection: 11.5 FPS at a resolution of 1280x1024 $\text{\textcircled{€}}$ image format: JPG $\text{\textcircled{€}}$ movie format: AVI $\text{\textcircled{€}}$ lighting: 8 LEDs in the ring $\text{\textcircled{€}}$ white balance: automatic $\text{\textcircled{€}}$ aperture: electronic, EF (electronic rolling shutter) $\text{\textcircled{€}}$ sensitivity: 1.0V / lux-sec @ 550 nm $\text{\textcircled{€}}$ dynamic range: 71 dB $\text{\textcircled{€}}$ spectral sensitivity range: 400 nm - 1000 nm $\text{\textcircled{€}}$ height: 95 mm $\text{\textcircled{€}}$ height: without the foot of translucent plastic: 78 mm $\text{\textcircled{€}}$ Diameter: 35 mm $\text{\textcircled{€}}$ weight: 120 g $\text{\textcircled{€}}$ USB cable length: about 1.5 meters $\text{\textcircled{€}}$ full compatibility with Windows XP (Service Pack 2), Windows Vista (no driver installation required) and Windows 7 $\text{\textcircled{€}}$ Mac OS: Various programs for capturing a video stream can be used to start the device, eg Photo Booth (microscope does not require drivers, it is reported as a Venux USB Camera) $\text{\textcircled{€}}$ Linux: the Cheese program for operating internet webcams can be used to start the device (the microscope does not require any drivers) Warranty 2 years >> FREQUENTLY ASKED QUESTIONS << Question : I have lost the driver disc, can I ask for a message? Answer: Please download from teleskopy.pl/download/tpl_usb_1,3+2mpix.rar Question : Is this microscope suitable for a child as an educational microscope? Answer: Yes, although calling it an educational only microscope, it is a much better device that hits virtually all cheap microscopes in the budget up to 300-350 PLN, and in some applications even more expensive. It has large observation possibilities, both in the light passing through (transparent biological preparations) and reflected light (opaque preparations illuminated from above). Additionally, it should be remembered that younger children find it difficult to concentrate on the small image in the eyepiece of a traditional microscope, while they can observe a large and clear image on a computer monitor without any effort. Question : Can this microscope be connected to a multimedia projector? Answer: Of course YES, all you need to do is connect the microscope to the computer's USB port and enable the full screen (FULL SCREEN) of the microscope image preview, and connect the multimedia projector to your computer as standard. What will be on the computer screen will now be displayed by the projector. Question : Why is this device, so praised in the description, so cheap? Is not this a "cheap toy"? Answer: The product is neither cheap nor expensive - it is very good and better than competing electronic microscopes on the market. Question : What magnification does this microscope offer and how do you set it? Answer: The microscope has two positions of the optic-electronic system, one corresponding to a small, the second larger magnification. The small magnification is between 1 and 40x, depending on the distance to the observed object (the more we move the microscope away, the smaller the magnification). The large magnification is 200x. Question : Is the maximum magnification of 200x not too small? I've seen cheaper microscopes with a magnification of 400x or even 1000x, are they better? Answer: To obtain high quality magnification above 200-300x you need a really great microscope, with very good optics, mechanics and well-solution lighting. At the same time, high magnifications are used in principle only for the observation of transparent preparations (we say: in the passing light - this is not true of the very expensive, specialized microscopes used, for example, in metallurgy). In the reflected light (for objects that do not pass through the light), magnification of 1000x is both hardly achievable and not very practical from the user's point of view. The truth is that almost always lower magnification allows you to get a nicer, clearer and sharper picture than large magnification. Question : There are other USB microscopes on the market. Are they better? Answer: Below is a comparison of the 1.3 Mpix USB TPL microscope with another popular USB microscope design (appearing in white and black versions), the price of which varies from PLN 150 to PLN 300. The first two photos show the difference in the dynamic range, responsible for the correct simultaneous reproduction of light and dark areas (USD banknote). The next two photos likewise - mapping of dark holes in the integrated circuit board and shiny IC chips is much better in TPL USB 1.3MPix. The remaining pictures show the differences in the green and red color reproduction, in the sharpness of the edges and in the representation of the light background. What is the reason for such differences in quality? Speaking tightly and technically: $\text{\textcircled{€}}$ The TPL USB 1.3 MPix microscope has two integrated circuits, one (driver - driver) supports reading from the optical sensor, the second is a high-end image processor. The white and black microscope (let us remind you: it's the same construction in a different color of the casing!) Has one integrated circuit which is also a controller and image processor, which will reduce production costs for the price of using simpler transducers. $\text{\textcircled{€}}$ TPL

USB 1.3MPix is ~~a€œa€œ~~equipped with 8 LEDs with the appropriate color temperature, angle of emission and intensity, they are also positioned around the optical axis of the microscope lens. All these treatments are aimed at faithful reproduction of the RGB color base. The competitive microscope is equipped with ordinary diodes without special requirements for temperature, angle of emission and location in the housing. **CONCLUSIONS** The microscope of competitive construction gives less contrasting colors, because its electronic circuit is too simple to properly handle the CMOS sensor and therefore the noise of the electronics are visible. There is falsification of the picture colors by choosing a worse lighting (lower quality of diodes and their suboptimal setting with respect to the optical axis of the microscope). Depending on the production lot, it sometimes happens that they misuse the image because they "over-white" too much with ultraviolet light.