

SAVE YOUR VISION

Special blue light filters in 2 different filter tints

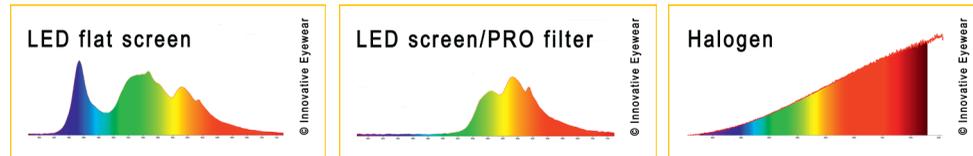
bluelight**protect** PRO for maximum blue light protection • bluelight**protect** EASY for optimum brightness and increased color recognition

Unexpected risks!

Many scientific studies suggest that a light spectrum with a high proportion of short wavelengths (blue, indigo and violet) can have a harmful effect on the ocular fundus, for example the macula.* The sensitive photoreceptive cells can be damaged by blue light, and blue light filters offer an efficient protection.** A strong blue-light content also disturbs the hormonal balance (stress hormones, melatonin)*** and that means permanent stress for our bodies.

Modern flat screen monitors with their LED-based back-lit illumination are heavy emitters of blue light. Even though the harmful effects have not yet been proven in longterm in-vivo studies, more and more experts agree that there is a huge potential for serious damage.

Spectral distribution



(1) LED monitor. The blue peak is clearly visible, as is the almost complete lack of red. (2) The bluelight**protect** filter eliminates the blue spectrum. Compare with: (3) Halogen bulb (little blue, lots of red)

Computer eye strain

Working at the computer puts us under enormous strain. Headaches, fatigue, burning, watering, irritable or reddening eyes, flickering images, fluttering eyelids, intermittent short-sightedness - these are typical complaints. Unfortunately, however, conventional computer glasses frequently fail to cause a significant improvement.

With their precisely adjusted bluelight**protect** filters, PRiSMA computer glasses and CLiP-ON lenses offer reliable protection against the strain imposed by the blue components of the light from computer screens and from all other artificial light sources with a high blue-light content (LED!). The color properties of PRiSMA bluelight**protect** filters also have a contrast enhancing effect.

Information

Every time of the day has its own light composition. In nature, blue light is present only during the day. In the evening, the sunlight has a reddish, warm light, before it get dark. If our organism is to function at its best, what we need in the evenings is a light composition without blue components and with limited brightness. Blue light activates the body and keeps us awake. The production of melatonin (sleep hormone) is inhibited by blue light. Modern artificial light sets the body to daytime mode and interferes with regeneration. The light that is natural for this time of day, red and near-infrared light, supports cell renewal and regeneration****. In artificial light environments with a high proportion of blue light (LED, energy saving lamps, monitors), there is the risk of disturbing regeneration and thus promoting the development of degenerative diseases.

The following chart can help you choose the optimum bluelight**protect** glasses especially for your specific needs. Important criteria, in addition to the blue light protection, are the desired brightness (transmission) and color rendering/color recognition. The least brightness, with satisfactory color recognition, but with optimum blue light protection is offered by the filter tint PRO, while the tint LiTE offers the best color recognition with high transmission and good blue light protection.

Characteristics of the different filtertints	PRO	LiTE
Blue-light protection	++	+
Blue-light reduction (400 - 500 Nm) ca.	99%	95%
Light transmission ca.	55%	72%
UV400 filter	100%	100%
Anti reflective coating (AR)	yes	yes
Protection from melatonin suppression	++	+
Contrast	++	++
Suitable for watching TV	o	+
Color recognition	o	+
Adjustment period	o	+

++ very good, ideal + good o average, satisfactory

If you haven't used bluelight**protect** glasses before, you should accustom your eyes to the use step by step. Experience has shown that the lengths of the adjustment period differs, depending on individual factors and on the chosen filter tint. In many cases, it has been useful to start by wearing the glasses for 10-15 minutes and increase the time of wear slowly, in order to allow the eyes and brain to get used to the changing circumstances. When you have completely accustomed yourself to your bluelight**protect** glasses, and especially when working on computer screens, you should still remember to take them off from time to time, for example at every full hour, and allow your eyes to relax for a few minutes.

Product features

The materials used are highly impact resistant. The filter lenses are solid color, hard sealed and have an anti-reflective coating. Our bluelight**protect** glasses don't only protect from blue light emissions of flat screens, but also of the heightened blue light content of artificial room illumination. Please note that the bluelight**protect** filter PRO and LiTE are not suitable for the use in traffic road.

PRiSMA CLiP-ONs are suitable for clipping on to most conventional optical glasses and can easily be adjusted if necessary. They come with a handy flip-clip mechanism, allowing the user to flip up the tinted filter quickly if required. When attaching them to your own eyeglasses, please take care to attach the clips correctly and avoid letting them slip or slide on your lenses so as to avoid damage to your optical lenses.

Cleaning and care

Most of our glasses come with a glue-less static lens sticker. This is easily removable without leaving traces. If the adhesion is strong, you can gently push the side of the foil with a fingernail, until it comes off. Clean your glasses with a soft cloth, warm water and washing-up liquid if a detergent is necessary. Then dry them with a soft cloth. Please take care not to exert too much pressure on the lens surface, in order to avoid premature abrasion of the lens coating. Do not use paper towels or any other material containing wood fibre. Frequent use of the glasses and CLiP-ONs can result in fine scratches on the surface. These are normal symptoms of wear and tear, and don't justify any warranty claims. The blue light blocking effect will not be diminished.

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*Huang et al. „Long-term blue light exposure induces RGC-5 cell death in vitro: involvement of mitochondria-dependent apoptosis, oxidative stress, and MAPK signaling pathways.“ Apoptosis. 2014 Jun;19(6):922-32. doi: 10.1007/s10495-014-0983-2.

**Hiromoto et al. „Colored lenses suppress blue light-emitting diode light-induced damage in photoreceptor-derived cells.“ J Biomed Opt. 2016 Mar 1;21(3):35004. doi: 10.1117/1.JBO.21.3.035004.

***Figueiro et al. „The impact of light from computer monitors on melatonin levels in college students“ Neuro Endocrinol Lett. 2011;32(2):158-63.

****Eells et al. „Near-Infrared Photobiomodulation in Retinal Injury and Disease.“ Adv Exp Med Biol. 2016;854:437-41. doi: 10.1007/978-3-319-17121-0_58.