# How X-Mode Addresses the Limitations **of Conventional Auto-Darkening Welding Helmets**

The Safety Company

In welding, the creation of automatic darkening technology increased safety and productivity by removing the need for users to have to regularly lift and lower their helmets while working. Auto-darkening achieves this by sensing a welding arc's light and telling the lens to darken only when the sensors detect light.

Traditional auto-darkening technology is not, however, without limitations. To address these shortcomings while expanding on the advantages of auto-darkening, Miller Electric Mfg. Co. developed X-Mode, a feature for Miller's auto-darkening welding helmets that electromagnetically senses the weld to eliminate interference from light and that continuously detects the arc even if sensors are blocked.

X-Mode's unique functionality offers the following advantages over competitors' auto-darkening helmets:

### Eliminated Light Sensitivity

By using antennae that detect an arc's electromagnetic field, or magnetic frequency, rather than light sensors, X-Mode bypasses the dependence on sensors that could trigger lenses to darken after mistaking other sources of light for a welding arc. For instance, optical and light sensors are not effective in sunlight or under bright lights, leading to inappropriately darkened lenses, which is dangerous and inconvenient. A helmet featuring X-Mode won't darken unless a welding arc is present.

### Optimized Out-of-Position Welding

For anyone who welds out of position or in tight spots, X-Mode is a superior product because its reliance on electromagnetic arc detection removes the concern that obstructions could block the arc's light from auto-darkening sensors. This advantage is particularly important in pipe welding, especially in smaller-gauge piping, and in mirror welding, where reflections can cause interference in products that use conventional auto-darkening technology. X-Mode's improved functionality in out-of-position welding also prevents the welder from getting flashed, reducing the likelihood of time off from work and potential medical expenses.

### Improved Convenience and Productivity

In general, auto-darkening technology reduces lost time and possible repetitive motion strain by allowing users to keep their shield down at all times—which is also a safer practice than removing a helmet or lifting its shield and risking injury from debris. X-Mode takes this advantage a step further by working well in bright natural or artificial light and out of position, conditions in which traditional auto-darkening helmets might fail, leading welders to remove them.

### Flexibility

Even X-Mode is not appropriate at all times; therefore, helmets incorporating X-Mode offer the ability to switch modes digitally without welders having to remove the helmet and put themselves at risk. Traditional mode, for instance, is more effective than X-Mode for workers welding in close proximity to other welders because X-Mode could detect other arcs or darken undesirably. Digital controls on the helmets that feature X-Mode allow welders to program and store different shade preferences for welding, cutting, grinding, and X-Mode shades.

### Superior Safety

Beyond all the safety features already mentioned, X-Mode is now included with the best hard hats available, offering a broader spectrum of head and face protection, because Miller is partnering with global safety leader MSA Safety to cobrand welding shields to be used with MSA hard hats. Because of MSA's successful track record of designing safety products for industries including energy, fire, construction, and mining. X-Mode's visibility will expand in these markets — especially the power and construction industries — in which auto-darkening has not performed well because of light interference in the outdoors.

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