

GIT – Safety dictionary

What actually is ... "muting"?

If you look up the English expression "Muting" in the online dictionary <http://dict.leo.org>, you usually get several translation possibilities such as "Rauschsperr" (squelch), "Stummschaltung" (muting), "Aufhebung" (cancelation), "Übernahme" (takeover), "Abschneiden" (cut off). The older people among us will remember muting from the days of analogue VHF radio, when the radios at the time encountered a considerable amount of static between the receivable stations during station searches, which was suppressed by muting.

In safety technology, according to DIN EN 61496-1:2014 muting is a temporary automatic bridging of a safety function or multiple safety functions using safety-related parts of the control system. Muting is necessary if, for example, material has to be moved automatically into and out of a danger zone through an optical protective device (light barrier). The muting function can be integrated into safety sensors or implemented in a separate control device. Muting is activated and deactivated by at least two independent sequence and/or time-monitored signals in accordance with IEC TS 62046. Muting signals can be generated by suitable sensors (optical, magnetic, inductive, ...) and by suitable control systems. The arrangement of the muting sensors must ensure a reliable distinction is made between permitted material and people who want to enter the danger zone through the protective device. Often used are the time-monitored 2 sensor crossed beam arrangement (image), the sequence-monitored 4 sensor parallel beam arrangement and the sequence-monitored 2 sensor parallel beam arrangement limited to exits. Muting should only last as long as permitted material is being transported through the protective device. This is ensured by the muting signals. A time limit (muting timeout) also ensures a safe muting duration limit in the event of malfunctions. The muting override function is used as a time-limited override of a muting path which is blocked as a result of a malfunction, for example, if the supply voltage fails during muting, a muting sensor is defective or the muting timeout has expired as a result of the conveyor being stopped for an extended period of time. Muting override can be initiated via the reset button – the entire danger zone must be visible when doing so.



The standards require the use of an indicator light for showing the activation of muting. Whereas this indicator light was previously mandatory, the current version of IEC TS 62046 points out that its presence may tempt people to circumvent the protective device; as a result, this must be evaluated accordingly in the risk assessment. In practice, it can be difficult to arrange muting sensors in such a way that they reliably detect materials and therefore make a safe distinction between material and persons. A sensorless alternative for muting is the sequence/time-monitored function Smart Process Gating (SPG) in MLC light curtains from Leuze electronic.

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Leuze electronic is one of the world's innovation leaders in optical sensors and is internationally known as a leading manufacturer and solution provider in electrical automation. Its main focus is on the areas of intralogistics, packaging industry, tool manufacturing and automotive industry as well as medical technology. The product range includes switching and measuring sensors, identification systems, solutions for image processing and data transmission as well as components and systems for safety at work. Founded in 1963, the company, with headquarters in Owen (Germany), has specific application know-how as well as broad industry knowledge. More than 1000 employees at 22 locations work in development, production, sales and service, supported by more than 40 sales partners worldwide. Innovative product developments, tailor-made complete solutions and an extensive range of services stand for the "Smart Sensor Business 4.0" at Leuze electronic.

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