

ECO

Type 2 Safety Light Curtains and Light Grids



small size

functional

economical



An Overview of ECO

Machines that present a low risk of injury and have limited space available require opto-electronic safety devices that are both compact and economical. ECO, the innovative Type 2 safety light curtains and light grids, fulfill both of these crucial requirements. Available in a variety of protective heights, their housing has a cross-section of just 17 mm x 33 mm. ECO devices comply with the IEC 61496-1, -2 and have received European type approval from TÜV PRODUCT SERVICE in cooperation with the German BIA (Trade Association Institute for Industrial Safety; optical part IEC 61496-2). Various test monitoring units such as TNT 35 or safety interface components from the MSI series (or PLC solutions with added relays) can be used with the application.

The ECO Advantages

- Small size (17 mm x 33 mm)
- Interference between adjacent devices can be avoided by selecting separate transmission channels
- Possible to integrate a stepping-behind protection by cascading several devices
- Simple connection due to M12 connector
- Functions (e.g. restart interlock, muting) can be flexibly expanded by adding Type 2 interface components TNT 35 and MSI
- PC-supported displays and diagnostics enable rapid system start-up and ensure effective service
- Contamination and error signal output to the PLC

The ECO Functions

Separate transmission channels to prevent mutual interference

The user can choose between two transmission channels by selecting the polarity of the supply voltage.

Contamination and error signal output

The receiver is equipped with a short-circuit-proof, 24 V pnp output. In case of contamination or an error, the output is switched to high impedance.

Test input

A system test can be triggered by an external test monitoring unit via the transmitter's test input. The ECO receiver responds to the test command by sending an „off“ signal to its OSSD output. This response is verified by the test monitoring unit (either a Leuze lumiflex TNT 35 or a PLC machine control equipped with a suitable program).

Self-diagnosis system

Error LEDs in the transmitter and receiver facilitate the rapid on-site diagnosis of malfunctions. Detailed PC-supported diagnostics can be performed in the workshop via an RS-485 data interface in the receiver.

ECO Protective Mounting Profile

The snap-open profile offers additional protection and variable possibilities for mounting using either a standard fixture with angle plate or a swivelling mounting support.





The ECO Series

ECO Light Curtains, Series E30, for providing hand protection at danger points.

Resolution: 30 mm (hand)
 Range: 0.3 - 6 m
 Protected heights: 150, 225, 300, 450, 600, 750, ..., 1800 mm *)



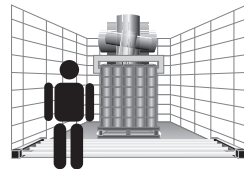
Cascaded design for providing hand protection with stepping-behind protection

Resolution: Master 30 mm, 55 mm or 80 mm
 Slave 30 mm, 55 mm or 80 mm
 Range: 0.3 - 6 m
 Protected heights: Master: 300, 450, 600, 750, ..., 1800 mm
 Slave: 150, 225, 300, 450, 600, 750, ..., 1800 mm



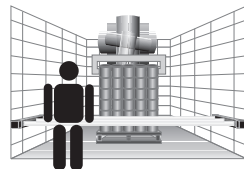
ECO Light Grids, Series E55, for safeguarding danger zones close to floor level

Resolution: 55 mm (shin)
 Range: 0.3 - 6 m
 Protected heights: 300, 450, 600, 750, ..., 1800 mm *)



ECO Light Grids, Series E80, for safeguarding danger zones

Resolution: 80 mm
 Range: 0.3 - 6 m
 Protected heights: 450, 600, 900, 1200, 1500, 1800 mm *)



*) protected heights up to 3000 mm upon request



Technical Data ECO

Safety class	Type 2 (testable) according to IEC 61496-1,-2 in connection with an external Type 2 test monitoring unit
Protected heights	150 ... 1800 mm (higher protected zones upon request)
Protective field width/Operative range *)	0.3 ... 6 m
Detection capability	30 mm, 55 mm, 80 mm
Reaction time	Depending on the protected height Series E30, E30/M, E30/S: 5 ... 30 ms Series E50, E50/M, E50/S: 5 ... 19 ms Series E80, E80/M, E80/S: 5 ... 15 ms
Test duration	6 ms
Safety outputs OSSDs	Pnp-output, short circuit-proof, 100 mA max.
Contamination and disturbance output	Pnp-output, short circuit-proof, 70 mA max.
Enclosure rating	IP 65
Ambient operating temperature	0 ... +55 °C
Supply voltage	24 V DC ± 20 %
Dimensions ECO transmitter/receiver	cross-section 17 mm x 33 mm, length depending on protected height
Dimensions Test monitoring unit TNT 35	width 45 mm, height 99 mm, depth 114 mm (standard rail mounting)

*) Operative range: recommended range with excess gain.