

COMPACT

Safety Light Curtains and Safety Light Grids



Maintenance-free Operation

Compatibility

Interference Immunity

The Benefits

- **Maintenance-free** due to fail-safe OSSD semiconductor outputs
- **Interference between adjacent** devices can be avoided by selecting separate transmission channels
- **Multiple evaluation process "d-scan"** for environments with extreme infrared impulse light interference
- **Cascading of multiple** devices possible
- **Simple connection** at plug-in terminal field
- **Functions can be flexibly** expanded by adding external safety interface components MSI
- **Integrated self-diagnosis system** facilitates the localization of malfunctions on site and as well as PC-supported diagnostics in the workshop

The Functions

Fail-safe semiconductor outputs with cross-shorting recognition

The safety outputs of the COMPACT are fail-safe semiconductor outputs. If the sensing zone is disrupted, they switch OFF. As soon as the sensing zone has been cleared, they automatically switch ON again. Additional functions such as "restart interlock" or "relay monitoring" are performed either by the Leuze lumiflex safety sequential units MSI, SFS 41 or directly by the safety-related section of the machine control.

Separate transmission channels to prevent mutual interference

In the event of mutual interference between adjacent systems of the same type, dip switches in the plug-in connector field of the transmitter and receiver can be used to select between two transmission channels.

Multiple evaluation process "d-scan" for environments with extreme light interference

Due to its ASIC amplification technology, combined with a special software algorithm, COMPACT has achieved a high degree of interference immunity. In order to suppress interference to an even greater degree, the multiple scanning mode "d-scan" can be selected via a dip switch.

Contamination and error signal output

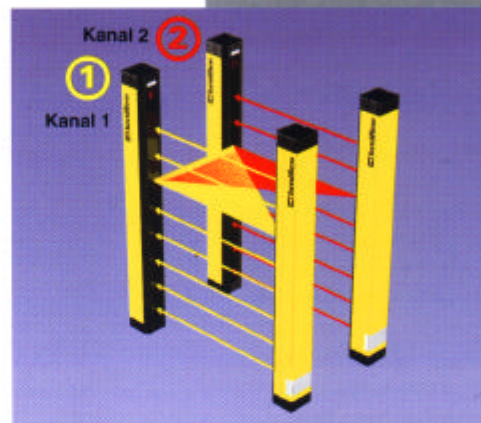
The receiver has a short-circuit-proof, 24 V pnp output. If the signal is impaired due to contamination or error, the output is switched to high impedance.

7-segment display and LED indicators

A 7-segment display shows the current system status as well as the selected functions, and also aids in localizing malfunctions on site. LEDs provide information about the status of the OSSDs, report weak receiver signals and indicate the action expected to be taken by the operating personnel.

Self-diagnosis system in transmitter and receiver

The rapid on-site diagnosis of malfunctions is supported by 7-segment displays in the transmitter and receiver, while detailed PC-supported diagnostics can be performed in the workshop via RS-485 data interfaces.



The COMPACT Series

Offering the optimal solution for every application.

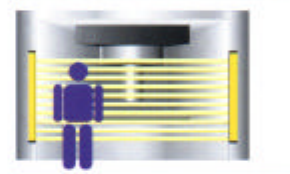
In order to offer the best possible cost effectiveness for a diverse range of applications, the COMPACT is available in a variety of series. Series C30 and C14 are intended for hand and finger protection at danger points; Series

C50 and C90 for the horizontal safeguarding of danger zones; and Series C300/4 - C500/2 for the perimeter guarding of danger zones. So that interlinked sensing zones can be created, COMPACT basic and sequential devices can

be connected serially, allowing devices with different resolutions to be combined with up to a total of 240 light axes. All of these product series share one feature in common, however: the same technology!

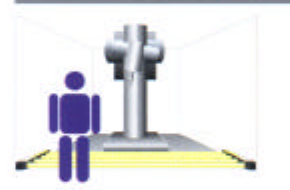
COMPACT Light Curtains, Series C30 and C14, to provide hand and finger protection at danger points

Resolution: 14 mm (finger), 30 mm (hand)
Range: Series C14: 0,3-6 m, Series C30: 0,8-18 m
Heights of sensing zone: 150, 225, 300, 450, 600, 750, ..., 1800 mm



COMPACT Light Grids, Series C50, to safeguard danger zones close to floor level (150 mm height).

Resolution: 50 mm (shin)
Range: 0,8-18 m
Heights of sensing zone: 450, 600, 750, 900, 1050, ... , 3000 mm



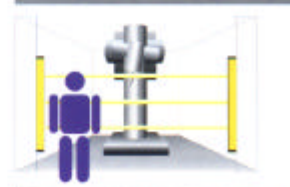
COMPACT Light Grids, Series C90, to safeguard danger zones at heights from 750 to 1000 mm.

Resolution: 90 mm (thigh)
Range: 0,8-18 m
Heights of sensing zone: 750, 900, 1050, 1200, 1350, ... , 3000 mm



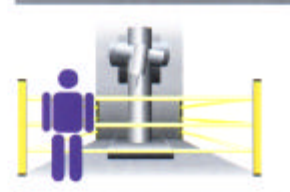
COMPACT Light Grids, Series C500/2, C400/3, C300/4, for perimeter guarding.

Beam distance: 500, 400, 300 mm according to prEN 999
Range: 0,8-18 m
Number of beams: 2, 3 and 4 separate beams according to prEN 999



COMPACT Light Grids, Series C501/2, C401/3, C301/4, for the perimeter guarding of large areas.

Beam distance: 500, 400, 300 mm according to prEN 999
Range: 6-60 m
Number of beams: 2, 3 and 4 separate beams according to prEN 999



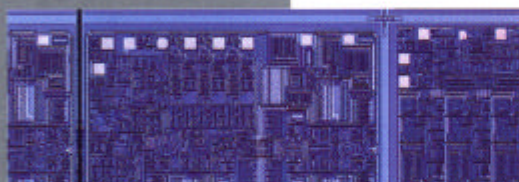


The COMPACT Technology

Providing the highest functionality within the smallest of spaces.

Integrated circuits which were developed especially for this application perform complex, intelligent functions such as LED control, receiver signal processing, and

LED diagnostics in both the transmitter and the receiver. The control circuit for the infrared LEDs, for example, compensates for the decreasing effectiveness of the LEDs at higher temperatures and thus ensures consistent transmission power even when the ambient temperature rises. The ASICs used for receiver signal processing are equipped with a band-pass function to provide for optimal interference suppression and low-noise pre-amplification. In addition, patented processes for optical synchronization, channel separation and interference masking contribute to the trouble-free operation of the system.



Self-diagnostic system in transmitter and receiver

To assist in quickly localizing malfunctions on site, connection and component errors are reported at the 7-segment display for the transmitter and receiver. Transmitters and receivers are also equipped with RS-485 interfaces to aid the PC-supported diagnostics in the workshop. Plus, we offer an optional software package which provides a visual account of the diagnostic test results; the software operates under Windows 3.1 and subsequent versions.

Technical Data

Safety Light Curtains Safety Light Grid	COMPACT
Safety class	Type 4 (self-monitoring) according to EN 61496-1, -2 respectively IEC 61496-1, -2
Height of sensing zone	150 ... 1800 mm for Series C 14 and C 30 (1950, 2100, 2250 upon request) 450 ... 3000 mm for Series C 50 750 ... 3000 mm for Series C 90
Sensing zone width/range	0,3 ... 6 m for Series C 14 0,8 ... 18 m for Series C 30, C 50, C 90 und C xx0 6 ... 60 m for Series C xx1
Detections capability	14 mm, 30 mm, 50 mm, 90 mm respectively 2, 3 or 4 beams
Response time	Series C 14: 7 ... 39 ms (d-scan 10 ... 78 ms) Series C 30, C 50, C 90: < 20 ms (d-scan < 39 ms)
Enclosure rating	IP 65
Ambient operating temperature	0 ... +55 °C
Supply voltage	24 V DC +/- 20 %
COMPACT dimensions	cross-section 55 x 52 mm, length 234 ... 3084 mm depending on height of sensing zone
SFS 41 dimensions	width 55 mm, height 75 mm, depth 105 mm, standard rail mounting

The COMPACT Concept

An overview of COMPACT

COMPACT devices are active opto-electronic protective devices (AOPD), Type 4, according to the European Standards EN 61496-1, -2 respectively IEC 61496-1, -2. They have received European type approval from TÜV PRODUCT SERVICE in cooperation with the German Trade Association Institute for Industrial Safety BIA (optical part prEN 61496-2). The COMPACT system, which works on the transmitter-receiver principle, is available in a variety of product series, and its range of functions can be flexibly expanded by adding external interface components such as MSI or SFS 41.

COMPACT Light Curtains and Light Grids: Readily available - minimum expense

Opto-electronic safety devices have become an integral part of modern production facilities. Their vital task is to protect people from danger without hindering the production process at the same time. In addition to reliably detecting people, the feature on which end-users of industrial safety devices place the highest priority is interference immunity. This is one of the strengths of the new COMPACT safety light curtain. State-of-the-art ASIC technology, combined with patented, intelligent evaluation processes, guarantee maximum performance even with small unit dimensions.

