Optronic AG

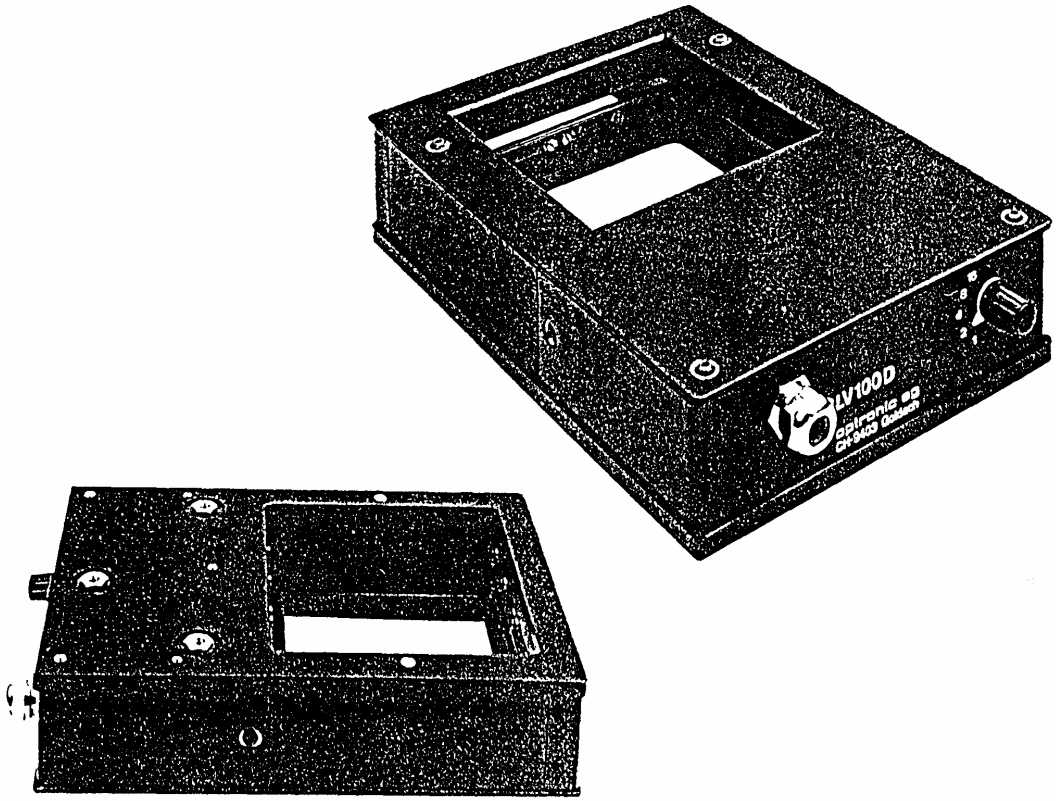
Light Screens LV100D

Light Screens series LV-D are used to detect and count any type of small object. They have a sensing area which is covered by a light beam that is reflected several times and so covers the whole area. Thus an unbroken curtain is formed which detects objects passing trough independant of position and orientation. Even objects having a complex shape, for example springs or rings, are detected without being counted more than once since some part of the object is always in the light curtain whilst passing through it.

The sensitivity can be selected in steps by the user, according to the size of object to be detected. When the most sensitive setting is selected, a Light Screen LV 100 D (area 100 mm x 100 mm) can detect a 1 mm sphere.

The Light Screen works with unaffected sensitivity with some dirt or dust deposit on the mirrors. When the received light level falls to below approximately 25% of its original level, the screen still functions correctly but an 'Optics to be cleaned' signal is given. If the light level falls further due to dust or dirt, or if an object stays in the sensing area, another different output signal is given to the user.

The LV-D Light Screen can drive all normal counters, and outputs for any requirement can be provided at customers request.



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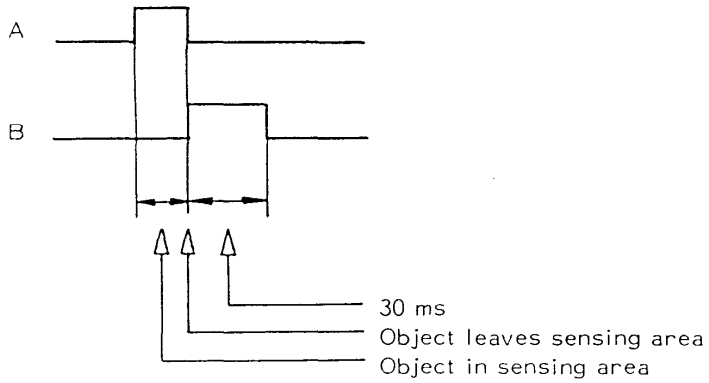
Output Switching Function

Two alternatives, A and B are available for the user.



Users outputs that indicate correct operation

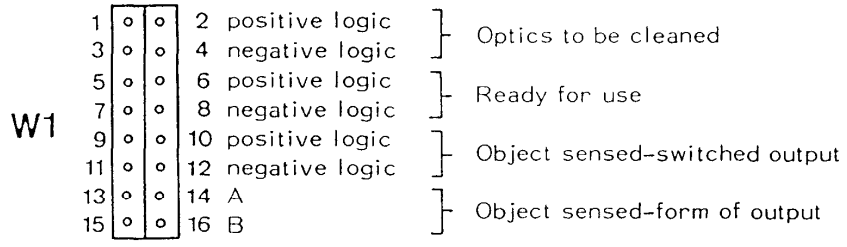
Optics to be cleaned
there is less than approx 25% of the original light level

Ready for use
the dirt / dust on the screen is at an acceptable level and an object has not remained in the screen for more than 1 second.

Output selection

The user can choose whether to receive positive or negative logic from the three outputs of the unit. Also as an object passes through the light screen, the user can receive output A which appears whilst the object passes through, or output B, a 30 ms pulse starting as the object exits the screen.

These choices can be implemented by links on the selector block W1



The selector block links are set on manufacture as follows : 1 - 2, 5 - 6, 9 - 10, 13 - 14.

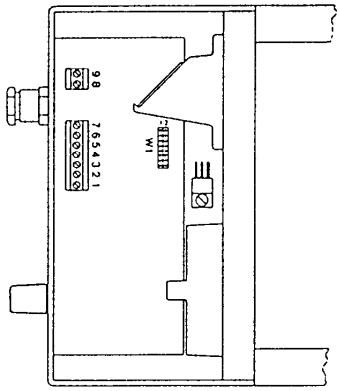
Power supply required

24V dc (reverse polarity protected) or 24V ac

View with the housing top removed

Cable gland
cable dia. 5 - 10 mm

Sensitivity control
rotary switch

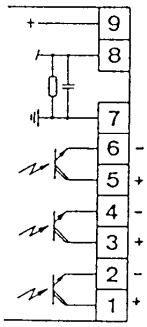


Connections

Screw connections 1 - 9 can be accessed when the housing top is removed.

The connecting cable is fed through the gland, and connected as follows:

LV-DT

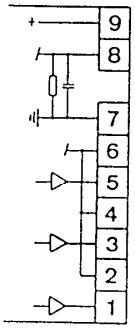


9 +24V dc (85 mA) or 24V ac (190 mA)
8 0V

6 - / 5 + Optics to be cleaned
4 - / 3 + Ready for use
2 - / 1 + Switched output

Output max: 30V dc / 100 mA
Positive logic: transistor conducting when output active
Negative logic: transistor non conducting when output active

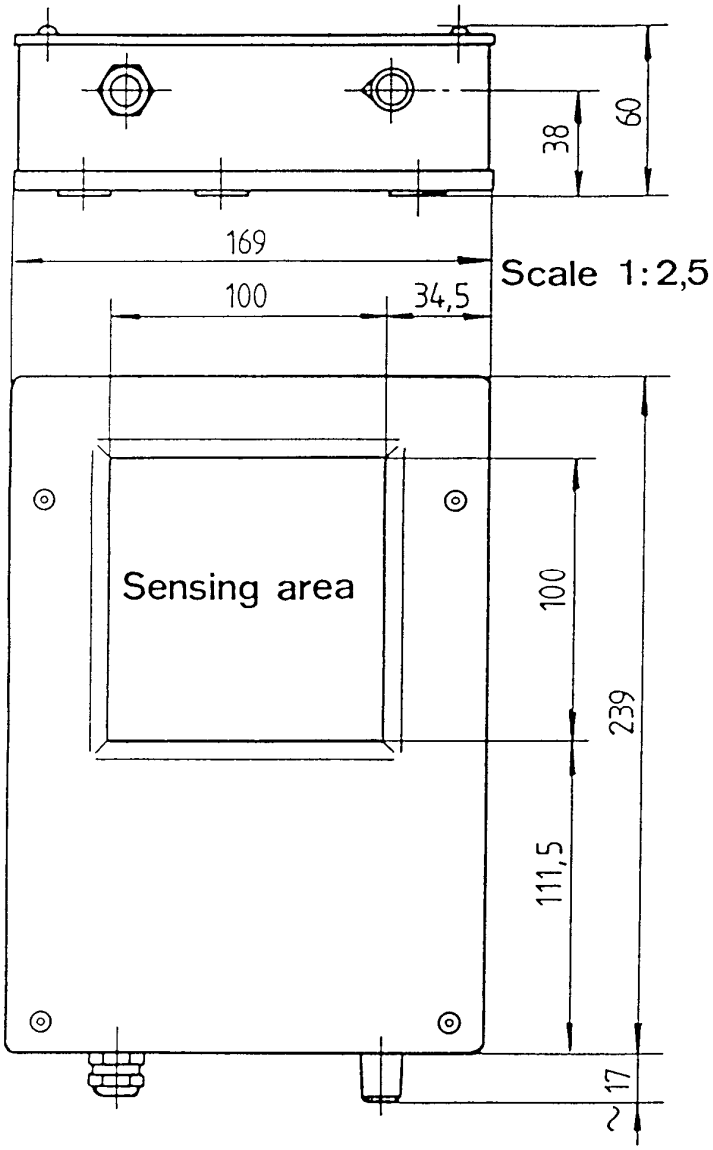
LV-DL

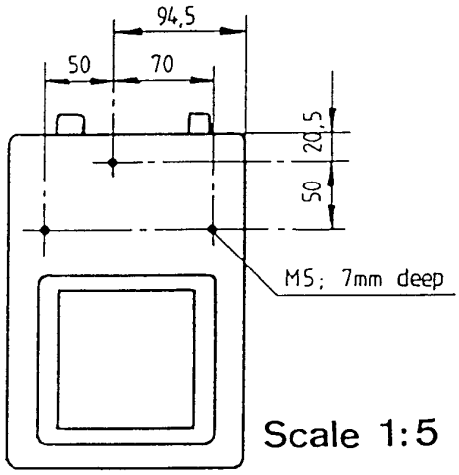


9 +24V dc (55 mA) or 24V ac (130 mA)
8 0V (connected to logic common)
7 Shield
6 0V
5 Optics to be cleaned
4 0V
3 Ready for use
2 0V
1 Switched output

Output current: 10 mA max
Internal resistance: <100 Ohm
Positive logic: +12V when output active
Negative logic: 0V when output active

housing





Weight: approx 2,4 kg
Protection to IP 53

Sensitivity levels: 1mm - 2 mm - 4 mm - 8 mm - 16 mm
The selected value is for a sphere of this diameter to be detected by the screen.

Minimum distance between successive objects passing through screen : 4 mm

Time that an object can remain in the screen : min. 100 µsec, max. 1 sec

Ambient temperature range : 0 - 50 °C

The product specifications are based on theoretical and experimental data, and we also have a policy of continuous improvement in performance. Thus although we attempt to provide equipment which in all respects meets specifications, this cannot be ensured in all cases without written confirmation from OPTRONIC AG.