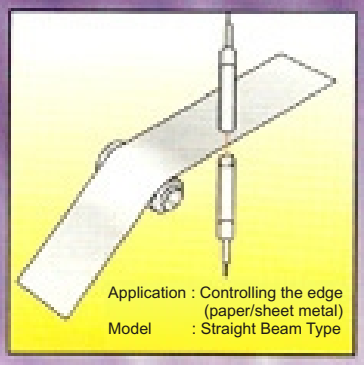
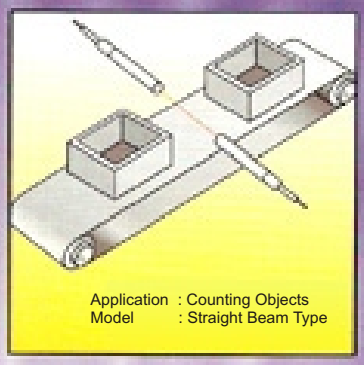
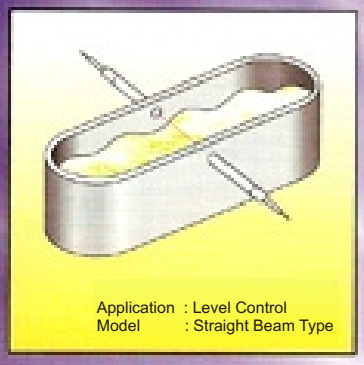


Application : Controlling the edge (paper/sheet metal)
Model : Straight Beam Type

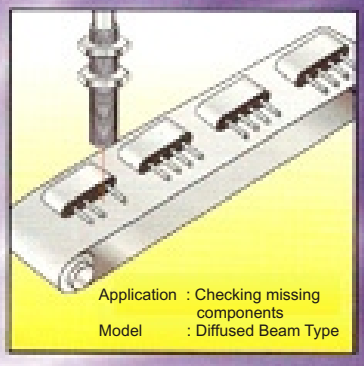


Application : Counting Objects
Model : Straight Beam Type

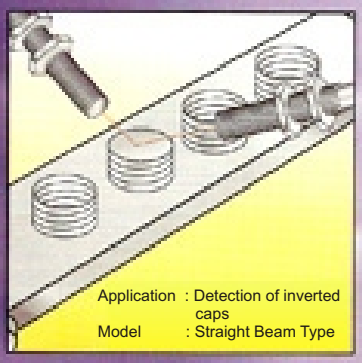


Application : Level Control
Model : Straight Beam Type

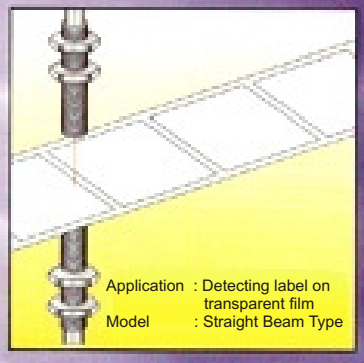
PHOTOELECTRIC SENSORS



Application : Checking missing components
Model : Diffused Beam Type



Application : Detection of inverted caps
Model : Straight Beam Type



Application : Detecting label on transparent film
Model : Straight Beam Type

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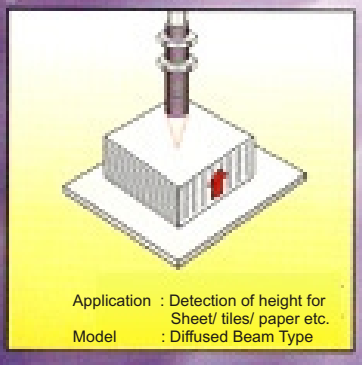
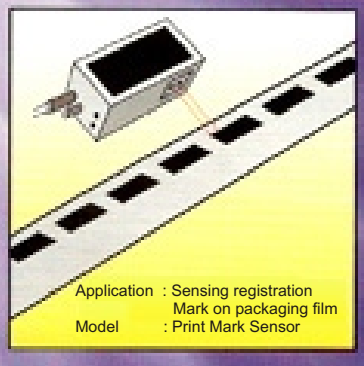
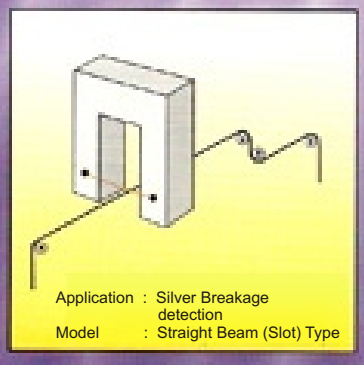


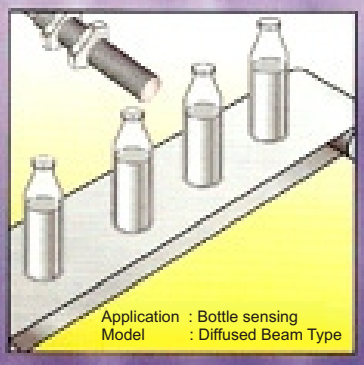
Application : Detection of height for Sheet/ tiles/ paper etc.
Model : Diffused Beam Type



Application : Sensing registration Mark on packaging film
Model : Print Mark Sensor



Application : Silver Breakage detection
Model : Straight Beam (Slot) Type



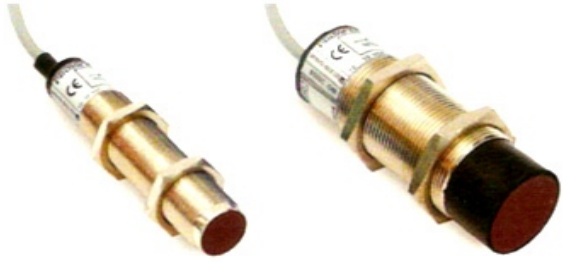
Application : Bottle sensing
Model : Diffused Beam Type

DIFFUSED BEAM SENSOR

WORKING PRINCIPLE :

This device consist of a transmitter and a receiver together. This look alike Inductive Proximity Sensor and hence also known as IR Proximity Sensor. The emitter emits Infra red rays which are reflected on the receiver through the object to be registered. In the use of these sensors, it is important to bear in mind the colour of the object. Light colour corresponds to the maximum distance and vice versa. In case of shiny object; the effect of surface of object is more important than the colour.

Type	Ø (mm)	L (mm)	Sn
DBT - 100	18	90	100 mm
DBT - 200	18	90	200 mm
DBT - 500	30	90	500 mm
DBT - 1K	30	90	1 meter



ADVANTAGES :

- Transmitter and receiver are housed in the same housing.
- As the self reflection of an object is used for detection; Dark & Light marks can be distinguished.

FIELD OF APPLICATION :

These Sensors are particularly used for position sensing and counting of non metallic objects. It is also used for Bottle sensing, Level sensing, Height sensing, Plastic film sensing, Edge detection of paper or sheet metal etc.

TECHNICAL CHARACTERISTICS :

Response Time	:	5 msec
Switching Frequency	:	100 Hz
Operating Voltage	:	10-30 VDC
Maximum Load Current	:	100 mA
Output	:	NPN or PNP
Maximum Current consumption	:	24 mA (OFF)
@ 24V DC (No Load)		34 mA (ON)
Voltage Drop	:	1 V Max
Short Circuit Protection	:	Provided
LED Indicator	:	Provided
Temperature Limit	:	0 - 55° C
Cable	:	2 Mtrs (std.)

CORRECTION FACTOR FOR SENSING DISTANCE

MATERIAL	CORRECTION FACTOR
Standard Paper White	1
Metal Polished	1.2----2.0
Polysterene, White	1.0----1.2
PVC, Grey	0.4----0.8
Wood (rough)	0.5----0.8
Cotton Cloth White	0.5----0.7
Cardboard Black	0.1----0.4

Effective Sensing Range = Sn X Correction Factor

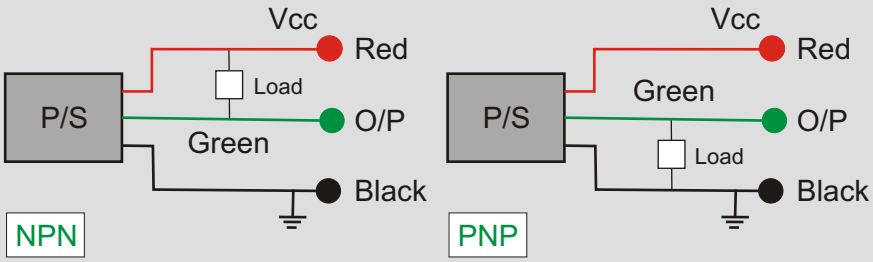
ORDERING CODE		
A Type	B Load Technique	C Load Logic
DBT - 100	P - PNP	O - NO
DBT - 200	N - NPN	C - NC
DBT - 500		
DBT - 1K		

EXAMPLE :

DBT - 100 - P -O

Diffused Beam Sensor, Sensing range 100 mm, PNP, Normally open

CONNECTION DIAGRAMS



Sensor can be used to drive 12 VDC/ 24 VDC Relay, can be coupled to PLC, Digital Counter, RPM indicator etc.

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THROUGH BEAM SENSOR WITH AMPLIFIER UNIT

Type	Ø (mm)	L (mm)	Sn
SBT - 300	18	65	300mm
SBT - 1K	18	65	1 Mtr.
SBT - 2K	18	65	2 Mtrs.
SBT - 3K	18	65	3 Mtrs.
SBT - 5K	18	65	5 Mtrs.
SBT - 10K	30	55	10 Mtrs.
SBT - 15K	30	55	15 Mtrs.

WORKING PRINCIPLE :

This consist of two devices; a light emitter and a light receiver. These two devices are kept apart facing each other. The Gallium-Aluminium-Arsenide-Luminescent diode integrated in the transmitter sends pulses of light in the infra-red range which are invisible to the human eye. The receiver opposite to the transmitter receive these rays. Sensing is achieved when these rays are interrupted by the object.

ADVANTAGES :

- Large sensing distance is possible as emitter and receiver are kept opposite to each other
- Suitable for precise detection of large as well as small objects
- Repeatability and indexing precision are not impaired even if the object surface or background is reflecting

FIELD OF APPLICATION :

Through Beam Sensors are used for sensing semitransparent opaque objects such as Glass/Plastic Bottle, Sliver breakage detection, Paper breakage detection, Door opening/closing etc.

TECHNICAL CHARACTERISTICS :

Response Time	:	250 msec
Switching Frequency	:	2 Hz
Maximum Load Current	:	Not applicable Output is through Amplifier Box 1 C/o potential free contact of 5A (resistive) @ 230V AC
Maximum Current consumption	:	Transmitter-17 mA Receiver - 5 mA
Voltage Drop	:	Not applicable
LED Indicator	:	Provided on Amplifier Box
Timer arrangement (Optional)	:	Provided on Amplifier Box
Gain Adjustment	:	Provided on Amplifier Box
Temperature Limit	:	0 - 55° C
Cable	:	2 Mtrs (std.)

ORDERING CODE		
A **Type**	**B** **Supply to Amplifier unit**	**C** **Load Logic**
SBT - 300	230 - 230 VAC	O - NO
SBT - 1K	110 - 110AC	C - NC
SBT - 2K		
SBT - 3K		
SBT - 5K		
SBT - 10K		
SBT - 15K		

EXAMPLE :

SBT - 3K - 230 - 0

Through Beam Sensor with separate amplifier box, Sensing range 3 mtrs., 230 VAC Supply to Amplifier unit, Normally open.

IR AMPLIFIER UNIT :

Power supply	:	230 V AC / 110 AC ± 10%
Input	:	Through Transmitter & Receiver
Output	:	1 C/o relay contact or Digital Output
Connection	:	Through connector strip (12 Terminal)
Dimensions	:	70 x 60 x 110 mm (H x W x D)
Mounting	:	Wall mounting or DIN RAIL mounting

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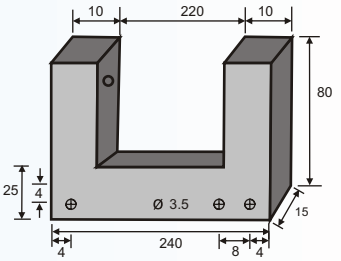
THROUGH BEAM SENSORS WITH BUILT IN AMPLIFIER

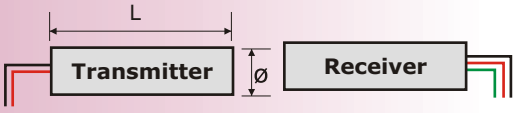
CYLINDRICAL CONSTRUCTION :

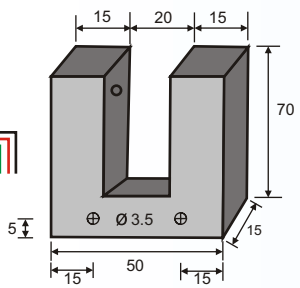
Type	Ø (mm)	L (mm)	Sn
SBTA - 1K	18	90	1 Mtr.
SBTA - 3K	18	90	3 Mtrs.
SBTA - 5K	18	90	5 Mtrs.
SBTA - 10K	30	90	10 Mtrs.

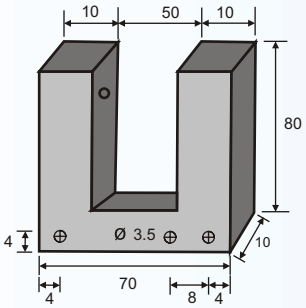
SLOT CONSTRUCTION :

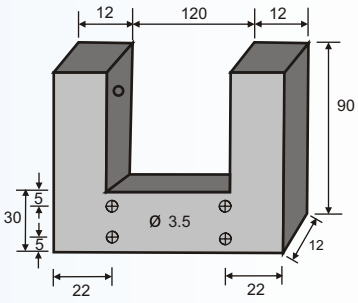
Type	H (mm)	W (mm)	D (mm)	Sn
SS - 20	70	50	15	20 mm
SS - 50	80	70	10	50 mm
SS - 120	90	144	12	120 mm
SS - 220	80	240	15	220 mm











WORKING PRINCIPLE :

This consist of two devices, a light emitter and a light receiver. The light receiver device contains amplifier circuit which gives transistorised output. These two devices are kept apart facing each other. The transmitter sends pulses of light in the infrared range which are invisible to the human eye. The receiver device opposite to the transmitter receives these rays. On interruption of these rays by the target object, receiver gives a signal which is amplified and fed to output transistor.

ADVANTAGES :

- Large sensing distance is possible as emitter and receiver are Kept opposite to each other.
- Suitable for precise detection of large as well as small objects. Repeatability and Indexing precision are not impaired even if the Object surface or background is reflecting.
- Can be coupled directly to PLC.

TECHNICAL CHARACTERISTICS :

Response Time	:	5 msec
Switching Frequency	:	100 Hz
Operating Voltage	:	10 - 30 VDC
Maximum Load Current	:	100 mA
Output	:	NPN or PNP
Maximum Current consumption	:	29 mA in (OFF) state
@ 24V DC (No Load)		34 mA in (ON) state
Voltage Drop	:	1 V Max
Short Circuit Protection	:	Provided
LED Indicator	:	Provided
Temperature Limit	:	0-55°C
Cable	:	2 Mtrs (std.)

FIELD OF APPLICATION :

These sensors are used for Label sensing, Bottle sensing, Door opening/closing, Film sensing, Counting objects on moving conveyor, sliver breakage detection etc.

ORDERING CODE		
A Type	B Load Technique	C Load Logic
SBTA - 1 K	P - PNP	O - NO
SBTA - 3K	N - NPN	C - NC
SBTA - 5K		
SBTA - 10K		
SS - 20		
SS - 50		
SS - 120		
SS - 220		

Example :

1) **SBTA - 5K - N - 0**
Through Beam Sensor with Built in Amplifier, Sensing range 5 mtrs, NPN, Normally open

2) **SS - 50 - P - O**
Slot sensor, slot gap 50 mm, PNP, Normally open

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Type	Ø (mm)	L (mm)	Sn
RBI - 300	18	90	300mm
RBI - 1K	18	90	1 Mtr.
RBI - 2K	30	90	2 Mtrs.
RBI - 3K	30	90	3 Mtrs.
RBI - 4K	30	90	4 Mtrs.

WORKING PRINCIPLE :

This is a system which consist of one device and a reflector. The device contains emitter and receiver. The rays emitted by the emitter are reflected by the reflector to the receiver. The sensing of the object occurs when these rays are interrupted.

ADVANTAGES :

- Easy assembly compared to the through beam type.
- Large active sensing range compared to diffused beam type.

FIELD OF APPLICATION :

This sensor can be used where it is difficult to install Through Beam Sensor due to space constraint. Further, simple wiring makes it suitable where sensing objects are bigger in size. Thus these sensors are used for loop control in decoiler, edge detection in paper/sheet metal etc.

Note : As every object has some reflectivity, in Retro-Reflective Sensor object will not be sensed if it is passed nearer to sensor. In this portion sensor remains inactive as object itself works as reflector. This portion is known as Dead Zone. Hence, it is recommended to move the object nearer to reflector [i.e. away from the sensor] as much as possible.

Generally, the effective sensing zone for an object is 30 to 100%, away from sensor. Also, you can reduce the dead zone by gain adjustment facility provided on sensor, but it will also reduce the nominal sensing distance [Sn].

TECHNICAL CHARACTERISTICS :

Response Time	:	5 msec
Switching Frequency	:	100 Hz
Operating Voltage	:	10-30 VDC
Maximum Load Current	:	100 mA
Output	:	NPN or PNP
Maximum Current consumption	:	25 mA in OFF state
@ 24V DC (No Load)		35 mA in ON state
Voltage Drop	:	1 V Max
Short Circuit Protection	:	Provided
LED Indicator	:	Provided
Temperature Limit	:	0 - 55° C
Cable	:	2 Mtrs (std.)

ORDERING CODE

A Type	B Load Technique	C Load Logic
RBI - 300	P - PNP	O - NO
RBI - 1K	N - NPN	C - NC
RBI - 2K		
RBI - 3K		
RBI - 4K		

Example :

RBI - 3 K - P - 0
Retro - Reflective Sensor, Sensing range 3 Mtrs., PNP, Normally open

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PRINT MARK SENSOR

WORKING PRINCIPLE :

This is designed for sensing Registration Mark. It continuously scans the presence of registration mark on the moving packaging film. The electronic circuitry is capable of detecting / scanning any colours on any background colour. A modulated Green LED is focused on the moving packaging film. A highly sensitive Photo cell continuously accepts the reflections from the film (paper / plastic) and sends the signals to the electronic scanning circuit. On scanning the presence of Registration Mark; it gives transistorised output.

A logic controller is also provided which accepts signals from scanning head & other Proximity Sensors to keep correct pouch / bag length by driving correction motor (110 VAC, 4 wire) or (230 VAC, 3 wire).

SALIENT FEATURES :

- Fully solid state thus making it totally reliable.
- Immune to external light source, electrical interference.
- A selector switch provided to choose Dark switching or light switching.
- High speed switching i.e. 2000 marks/ min.
- Detection of different contrast sheds by means of sensitivity pot provision.

PRINT MARK SENSOR WITH TEACH - IN FUNCTION :

This is with micro Controller based technology, wherein user has to press SCAN key (a feather touch key), keeping White spot light on Mark colour as well as on background colour and within 2-3 sec both colours will get registered in memory. The electronic scanning circuit then differentiate both colours and gives out put on detection of Registration Mark.

SPECIFICATIONS :

Supply Voltage	:	10 - 30 VDC
Scanning Distance	:	3 to 8 mm Between the Scanning head & the film
Output	:	NPN or PNP
Dimensions	:	90 x 65 x 35 mm (H X W X D)

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