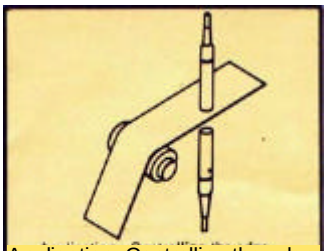
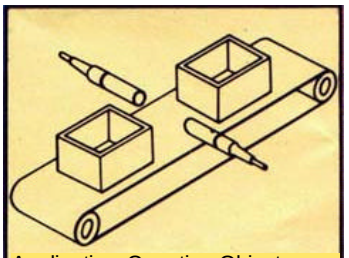
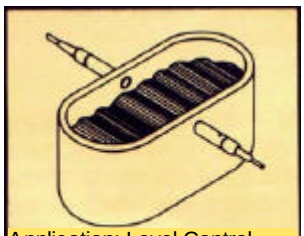
PHOTOELECTRIC SENSORS



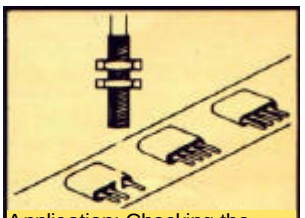
Application: Controlling the edge (paper/sheet metal)
Model: Straight Beam Type



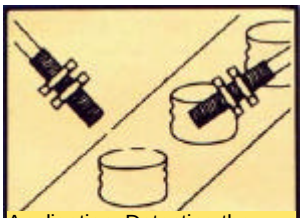
Application: Counting Objects
Model: Straight Beam Type



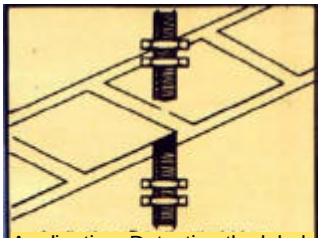
Application: Level Control
Model: Straight Beam Type



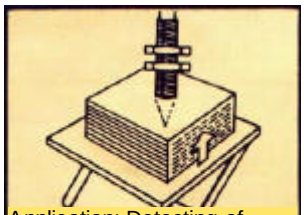
Application: Checking the missing component
Model: Diffuse Beam Type



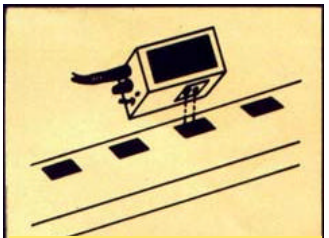
Application: Detecting the inverted Caps
Model: Straight Beam Type



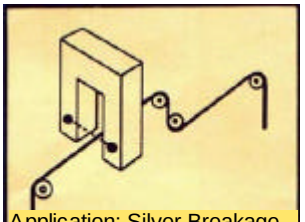
Application: Detecting the label on the transparent film
Model: Straight Beam Type



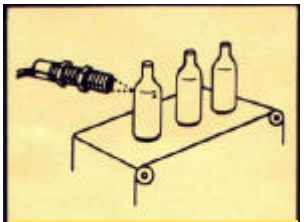
Application: Detecting of Heights for Sheet/tiles/paper
Model: Diffused Beam Type



Application: Sensing registration Mark
Model: Photocell Camera



Application: Silver Breakage detection
Model: Straight Beam Type



Application: Bottle Sensing
Model: Diffused Beam Type

PROXIMON CONTROLS PVT. LTD.

DIFUSED BEAM SENSOR

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

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.

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 Label sensing, Level sensing, Height Sensing, Plastic film sensing, Edge detection of paper or sheet metal etc.

TECHNICAL CHARACTERISTICS:

Response Time	:5 ms.
Switching Frequency	:100Hz.
Operating Voltage	:10 – 30 VDC
Maximum Load Current	:100 mA.
Output	:NPN or PNP
Maximum Current consumption	:24mA (OFF)
At 24V DC	:34mA (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 = Standard Sensing Range X Correction Factor.

ORDERING CODE

A	B	C	G
Type	Load Technique	Load logic	(Optional- Sensitivity Adjustment Facility)
DBT -100 DBT - 200 DBT - 500 DBT - 1 K	P - PNP N - NPN	O - NO C - NC	

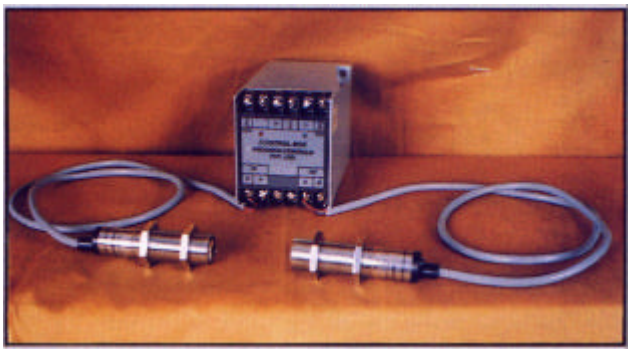
Example :

1) DBT - 100 - P - O
   Diffuse Beam Sensor, Sensing range 100 mm., PNP, Normally open
2) DBT - 100 - P - O - G
   Same as above but with Sensitivity adjustment facility

SPECIAL NOTE :

External gain adjustment facility: - This facility can be provided in all types, on request. This is useful when different type of material is to be sensed. For example in hopper level sensing application; the type of liquid to be sensed may change in due course. In such case, by turning gain control potentiometer sensitivity can be readjusted. However; the maximum and minimum sensing distance, which can be controlled through gain, control pot varies with the type. Generally the limit is – 30% to +20% of nominal sensing range specified.

THROUGH BEAM SENSOR WITH AMPLIFIER UNIT



Type	Æ (mm)	L(mm)	Sn
SBT - 300	12	40	300 mm.
SBT – 1 K	18	40	1 Mtr.
SBT – 2 K	18	40	2 Mtrs.
SBT – 3 K	18	40	3 Mtrs.
SBT – 5 K	18	40	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 ms.
Switching Frequency	:2Hz.
Maximum Load Current	:Not Applicable
Output is through Amplifier Box 1 C/O potential free contact of 5A (resistive) @ 230 V AC.	
Maximum Current consumption	:Transmitter–17mA
At 24V DC	:Receiver - 5mA
Voltage Drop	:Not Applicable
LED indicator	:Provided on Amplifier Box
Time arrangement (optional)	: Provided on Amplifier Box
Gain Adjustment (Optional)	: Provided on Amplifier Box
Temperature Limit	:0 – 55°C
Cable	:2 Mtrs (std)

ORDERING CODE

A	B	C
Type	Supply to Amplifier unit	Load logic
SBT - 300	230 - 230 VAC	0 - NO
SBT-1K	110-110AC	C-NC
SBT - 2 K,		
SBT - 3 K		
SBT. - 5 K		
SBT -10 K		
SBT -15 K		

Example :
1) SBT - 3K - 230 - 0
Through Beam Sensor with separate amplifier box, Sensing range 3 mtrs., 230 VAC Supply to Amplifier unit, Normally open.

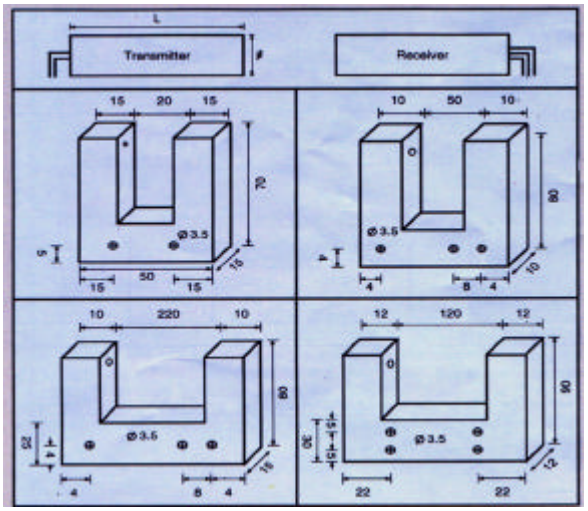
IR AMPLIFIER UNIT :

Power supply : -230 V AC / 110 AG -±:10%. **Connection** : Through connector strip (12 Terminal)

Input : Through Transmitter & Receiver. **Dirnensions** : 60 x 70 x 110 rnm (H x W x D)

Output : 1 C/o relay contact or Digital Output. **Mounting**: Wall mounting or DIN RAIL mounting

THROUGH BEAM SENSORS WITH BUILT IN AMPLIFIER



CYLINDRICAL CONSTRUCTION

Type	Æ (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	120mm
SS - 220	80	240	15	220mm

WORKING PRINCIPLE :

This consists 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.

FIELD OF APPLICATION :

These sensors are used for Label sensing, Bottle sensing, Door opening / closing, Film sensing, Object counting, silver breakage detection etc.

TECHNICAL CHARACTERISTICS:

Response Time	:50 ms.
Switching Frequency	:10Hz.
Operating Voltage	:10 – 30 VDC
Maximum Load Current	:100 mA.
Output	:NPN or PNP
Maximum Current consumption	:29mA (OFF)
At 24V DC	:34mA (ON)
Voltage Drop	:1 V Max.
Short Circuit Protection	:Provided
LED indicator	:Provided
Temperature Limit	:0 – 55°C
Cable	:2 Mtrs (std)

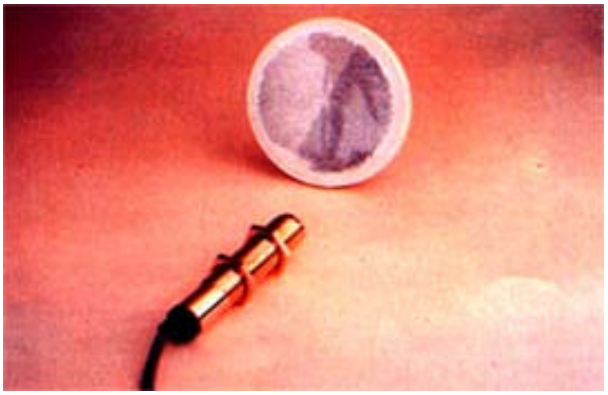
ORDERING CODE

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

Example :

1) SS – 50 - P . O
   Slot sensor, slot gap 50 mm, PNP, Normally Open
2) SBTA – 5K – N – O
   Through Beam Sensor with Built in Amplifier, Sensing range 5 mtrs, NPN, Normally open

RETRO - REFLECTIVE SENSORS



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

TECHNICAL CHARACTERISTICS:

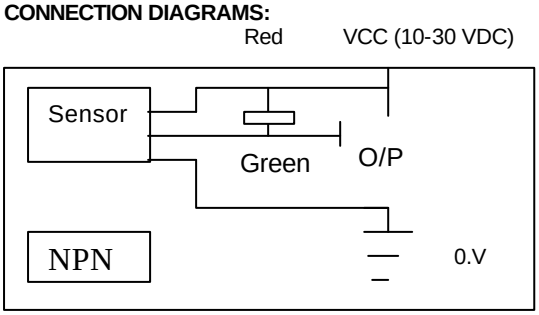
Response Time	:50 ms.
Switching Frequency	:10Hz.
Operating Voltage	:10 – 30 VDC
Maximum Load Current	:100 mA.
Output	:NPN or PNP
Maximum Current consumption	:29mA (OFF)
At 24V DC	:34mA (ON)
Voltage Drop	:1 V Max.
Short Circuit Protection	:Provided
LED indicator	:Provided
Temperature Limit	:0 – 55°C
Cable	:2 Mtrs (std)

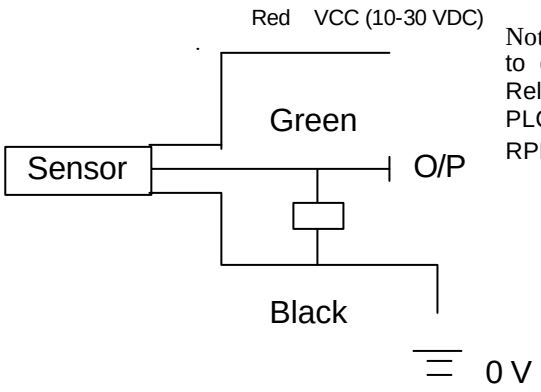
ORDERING CODE

A	B	C
Type	Load Technique	Load logic
RBI - 300	P - PNP	0 - NO
RBI - 1 K	N - NPN	C - NC
RBI - 2 K		
RBI - 3 K		
RBI - 4 K		

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

CONNECTION DIAGRAMS:





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

PRINT MARK SENSOR

GENERAL DESCRIPTION :

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. The scanning rate is as high as 2000 packages / minute making it suitable for any type of packaging machine including candy packing machine.
A logic controller is also developed to take care of your various logics suitable to your machine mechanism. The logic controller accepts signals from scanning head & other Proximity Sensors and gives required output as per the programmed logic.

OPERATING PRINCIPLE : A modulated Green LED is focused on the moving packaging film. A highly sensitive Photo cell continuously accepts the reflections from the packaging film and sends the signals to the electronic scanning circuit. On scanning the presence of Registration Mark; it gives transistorised output.

SALIENT FEATURES :

- Fully solid state thus making it a totally reliable. It further eliminates any sort of maintenance requirements.
- Immune to external light source, electrical interference.
- A selector switch provided on the scanning head, make it easy to choose mode of operation. i.e. Dark switching or light switching.
- High speed switching i.e. 2000 marks / min.
- Detection of any colour sheds on any background colour. A sensitivity pot is provided for this purpose.

SPECIFICATIONS :

Supply Voltage	:	12V DC/24V DC
Scanning Distance	:	3 to 8 mm between the scanning head and the film
Output	:	NPN, PNP
Dimensions (L X WX H)	:	90x65X35 mm.

ORDERING CODE

PMS	A	B
	Operating Voltage	Load logic
	12 - 12 VDC	P - PNP
	24 - 24 VDC	N - NPN

Example :
PMS - 24 - N
Print Mark Sensor, Operating Voltage 24 VDC, NPN

- **INDUCTIVE PROXIMITY SENSORS**

3 WIRE DC MODEL
2 WIRE AC MODEL
2 WIRE DC MODEL
3 WIRE AC MODEL
NAMUR

- **PHOTOELECTRIC PROXIMITY SENSORS**

THROUGH BEAM WITH CONTROLLER
THROUGH BEAM WITH BUILT-IN AMPLIFIER
DIFFUSE BEAM
RETRO – REFLECTIVE

- **CAPACITIVE PROXIMITY SENSORS**

- **PRINT MARK SENSOR**

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