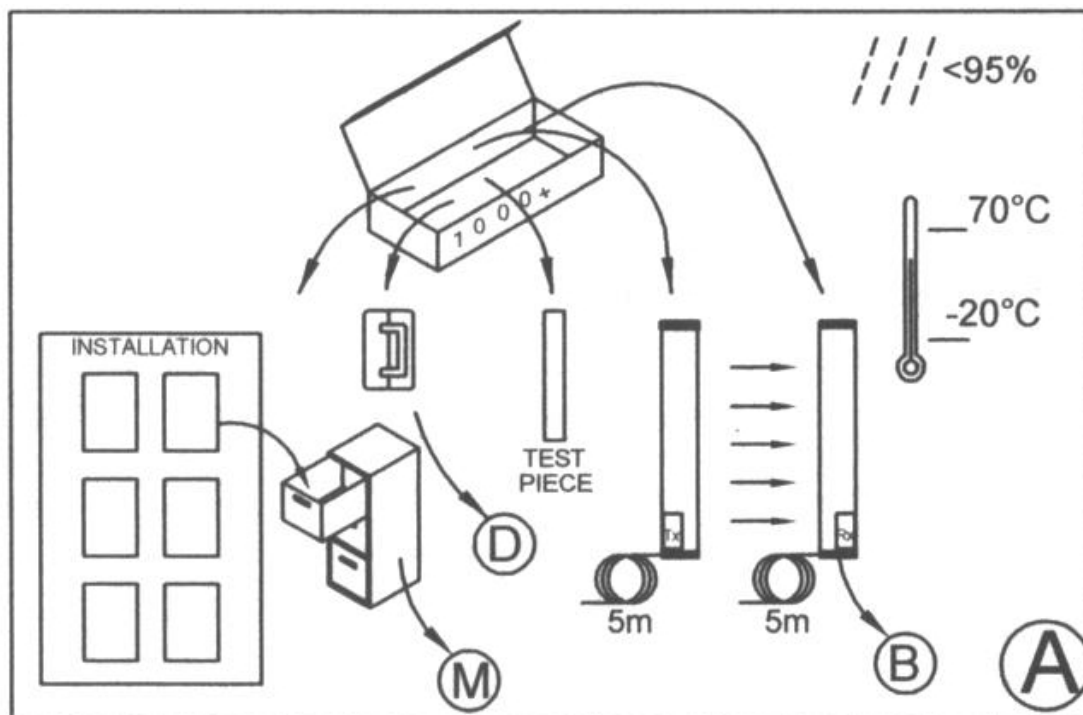


**1000 Plus Series Safety Light Curtain
Installation Sheet Number CD205/231209**

Unpacking

- ❑ Remove all packaging material and retain it
- ❑ Locate and keep the delivery note
- ❑ Inspect all items for transit damage
- ❑ Match goods supplied to those specified on the delivery note
- ❑ Keep the Installation Sheet in a safe place



Each 1000 Plus system supplied would normally include:

- ❑ Light curtain with 5m of cable attached to transmitter and receiver columns
- ❑ Test piece
- ❑ Installation sheet
- ❑ Service questionnaire form

Storage requirements:

- ❑ Humidity - <math><95\%</math>
- ❑ Temperature range between

Operating Requirements

- Humidity <95%
- Temperature range between 0°C and 50°C
- Vibration: Frequency <55Hz Max. Movement <0.35mm
- Do not use equipment in explosive atmospheres, (contact the manufacturer for further advice)

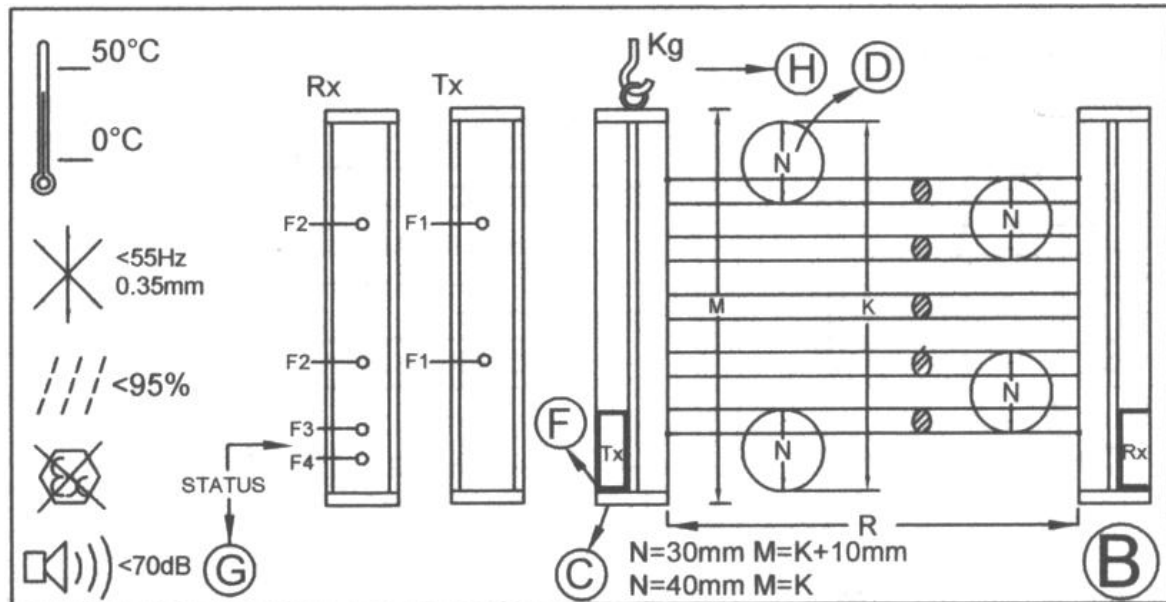


Figure B also describes important parameters associated with the light curtain. Those parameters are shown as M, K, R and N.

M – Overall length of light curtain enclosures

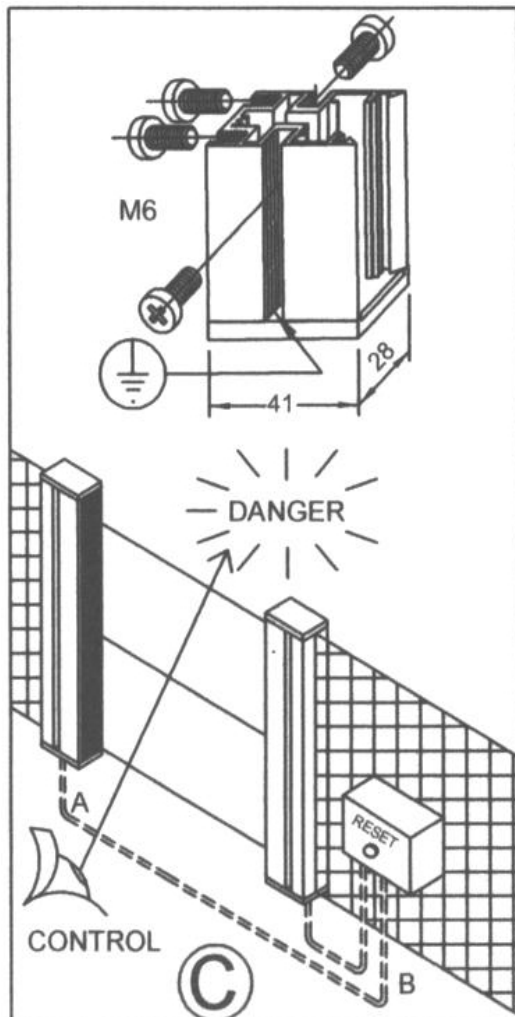
K – Detection zone width

R – Minimum and maximum scanning ranges of the light curtain

N – Object Detection Capability.

(The minimum size of object guaranteed to be detected when placed in the light curtain energy field.)

Typical Mounting Arrangement for a Smartscan 1000 Plus



The 1000 Plus Series system does not use cable connectors. Both the transmitter and receiver units come complete with 5m cables attached. Transmitter = 2 way cable, Receiver = 4 way cable.

The 1000 Plus Series has a unique mounting arrangement. Threaded slots running from top to bottom of the transmitter and receiver columns enable M6 screws to be affixed at any position along the length of the slot.

The M6 threaded slots run the entire length of the aluminium extrusion, between the two end caps. There is a slot at each side of the extrusion and two slots at the rear as shown in **Figure C**.

Note:

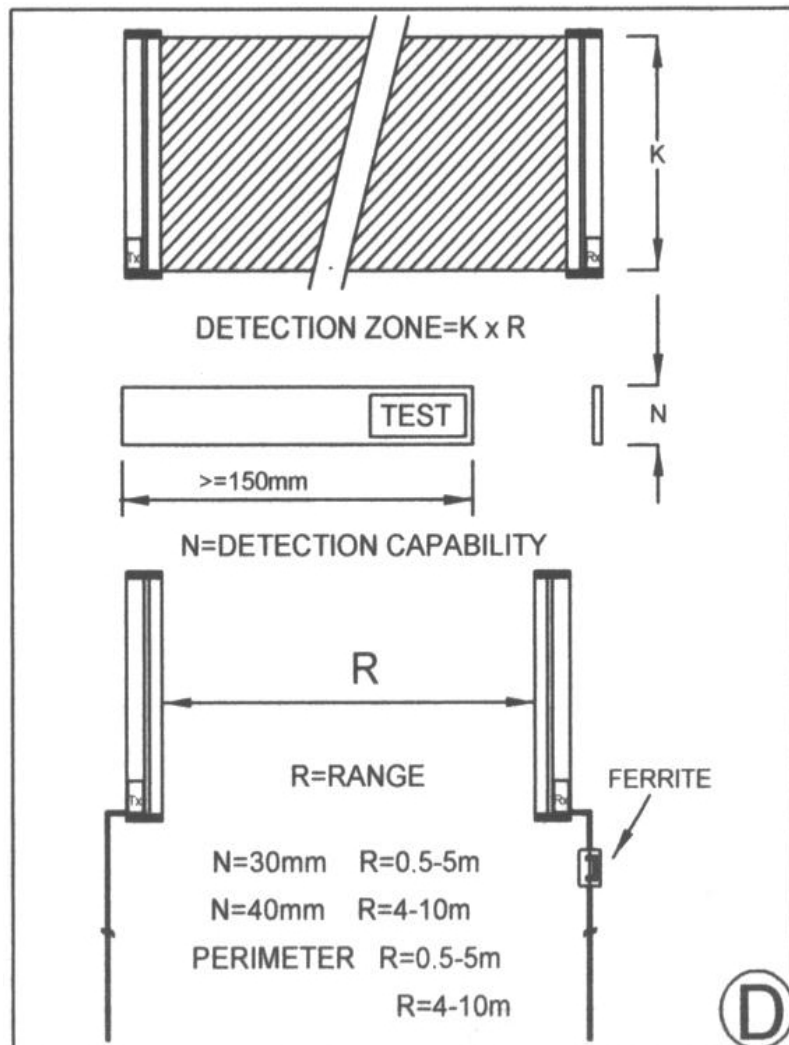
As an additional option a Mounting Bracket Kit (012-130) is available.

Figure D shows detection zone width, detection capability and range options for the 1000 Plus Series.

Detection zone width (K) - Must be of a suitable height for each application to prevent personnel access to the danger area either over, under or around the light curtains detection zone.

Detection capability (N) - A test piece of appropriate size is provided to test that the light curtain object detection capability is within the parameter specified for the particular model number.

Range (R) - Ensure the light curtain is capable of satisfying the range requirement for the application.



When installing a Smartscan 1000 Plus Series light curtain your attention is drawn to the following (Figure E):

1. Consider reflective surfaces that may give rise to optically 'short circuiting' the direct path of the light curtains as shown in Figure E. To ensure the light curtain is mounted far enough away from reflective surfaces use the formulae provided to calculate the minimum dimension between the light curtain and reflective surface.

X = minimum distance between reflective surface and light curtain.

2. To prevent intermittent tripping of the light curtain ensure extraneous infra red energy between 800 and 1000 nanometers is not directed towards the Perspex window of the receiver unit (RX). Extraneous sources would include infra red sensors, infra-red remote controls or scanning systems.

3. Ensure the mounting position of the light curtain in respect to the nearest danger point meets the requirements of European Standard BS EN 999. See Appendix 1.

4. Ensure the light curtain transmitter and receiver units are mounted accurately in line with each other and are both perpendicular and parallel to each other within the parameters shown for each axis.

5. If utilising mirrors to deflect the light curtain ensure the mirror length is 100mm longer than the light curtain detection zone width and, mounted centrally to the zone. To ensure reliable operation the light curtain deflection angle from the mirror must not be less than 40 degrees or greater than 100 degrees.

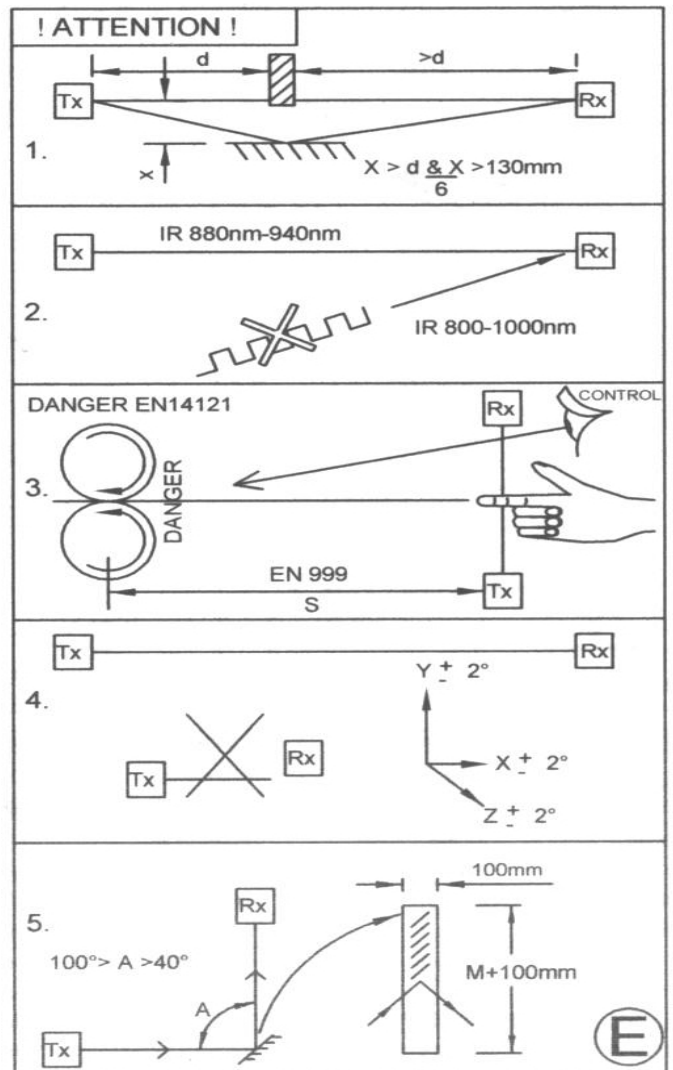


Figure F shows examples of the identification labels that are affixed to the end cap at the bottom of the transmitter and receiver columns.

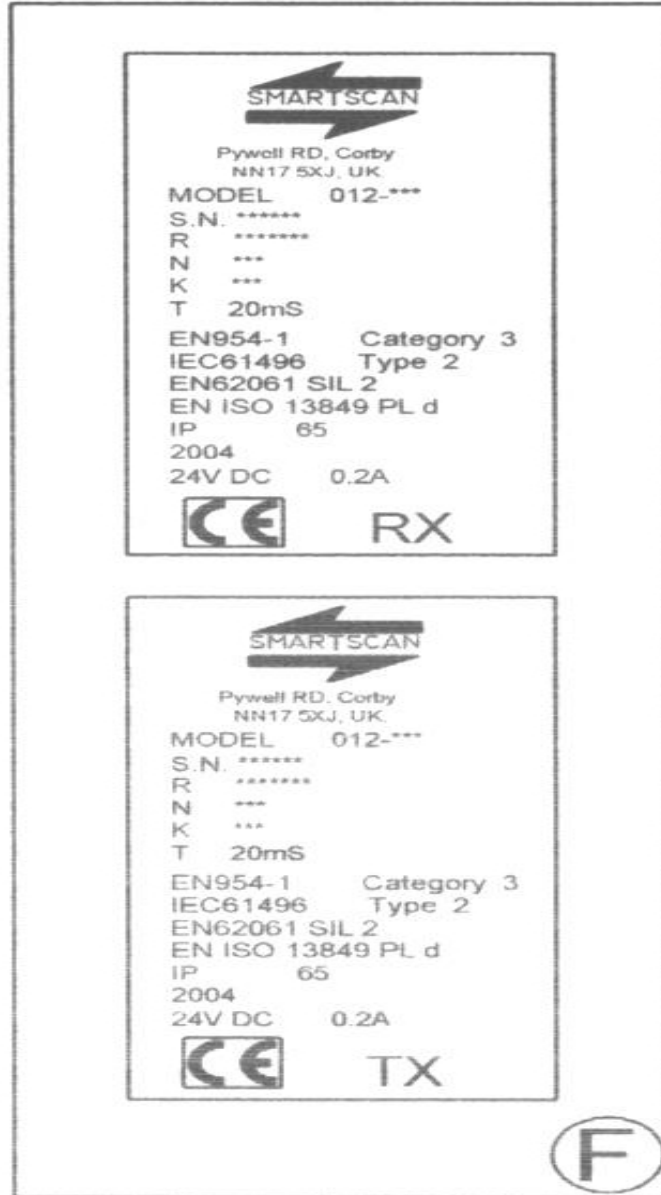



Figure G defines the features (F) associated with the Smartscan 1000 Plus system.

FEATURE ON		DIAGNOSTIC LEDS	
F1	YELLOW	INDICATOR (Tx)	NOT FLASHING - FAULT
F2	YELLOW	INDICATOR (Rx)	UNEVEN FLASHING - FAULT
F3	GREEN	INDICATOR (Rx)	FLASHING - OUTPUT FAULT
F4	RED	INDICATOR (Rx)	UNEVEN FLASHING - FAULT
F6	L+	< 500mA (> 20mA)	



LED Status Indicators

F1 – If the yellow ‘flashing’ indicators on the (TX) transmitter column are flashing at an even flash rate the unit is powered-up and the electronic system is operating normally.

F2 - Yellow ‘even-flashing’ indicators on the (RX) receiver column indicate that communication is established between transmitter and receiver and the light curtain is correctly aligned. Yellow ‘steady’ indicators on the (RX) receiver column indicate that the light curtain is incorrectly aligned or the light curtain detection zone is ‘blocked’.

F3 - Green LED indicator at the receiver unit illuminates when the electronic output switches, OSSD1 and OSSD2 are ‘ON’ (only when the light curtain detection zone is ‘clear’ of any obstruction).

F4 - Red LED indicator at the RX unit illuminates when the electronic output switches, OSSD1 and OSSD2 are ‘OFF’ e.g. a trip condition or, when the light curtain detection zone is ‘blocked’. If the Red LED indicator is flashing the system is in lockout. To recover from a lockout condition disconnect the transmitter and receiver from the power source and then re-apply.

F6 - Output Signal Switching Devices OSSD1 and OSSD2 provide the fail-safe signals for switching a safe control relay or electrical contactor. Both output signals are termed, ‘control reliable’; the transistor output switches are automatically turned ‘OFF’ for a very brief period of time to enable the electronic safety system to automatically self-check thus ensuring the switches are able to turn OFF permanently if required to do so. This function increases the safety integrity of the Smartscan 1000 Plus system to a very high level. The switching period is so short (500 µs max.) that it has no effect on the output signal to the machine safety circuits, thus the machine will continue to operate during the automatic test periods.


Note: The standing current for each OSSD should be no less than 20mA and no greater than 500 mA.

Figure H shows the 1000 Plus Light Curtain model list showing part codes, detection zone width (K) and combined weight in Kg of transmitter and receiver columns.

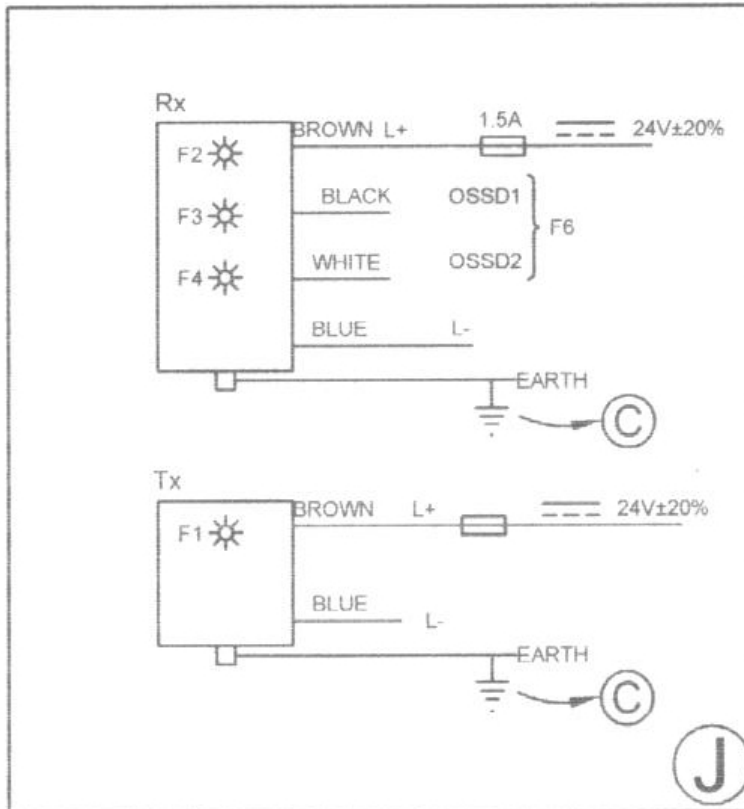
MODEL N=30mm	K(mm)	Kg.	MODEL N=40mm	K(mm)	Kg.
012-098	180	0.3	012-099	190	0.3
012-100	330	0.5	012-101	340	0.5
012-102	480	0.7	012-103	490	0.7
012-104	630	0.8	012-105	640	0.8
012-106	780	0.9	012-107	790	0.9
012-108	930	1.1	012-109	940	1.1
012-110	1080	1.3	012-111	1090	1.3
012-112	1230	1.5	012-113	1240	1.5
012-114	1380	1.7	012-115	1390	1.7
012-116	1530	1.9	012-117	1540	1.9
012-118	1680	2.1	012-119	1690	2.1
012-120	1830	2.3	012-121	1840	2.3

MODEL	BEAMS	M(mm)	RANGE	Kg.
012-125	2	640	0.5-5m	0.7
012-126	3	990	0.5-5m	0.9
012-127	4	1290	0.5-5m	1.2
012-122	2	640	4-10m	0.7
012-123	3	990	4-10m	0.9
012-124	4	1290	4-10m	1.2

NOTE: PERIMETER GUARDS HAVE A 6 BEAM UNIT AT THE BEAM LOCATIONS



Input and Output Connections at the Transmitter and Receiver Units (Figure J)



A 24V DC regulated power supply should be used for connection to the transmitter and receiver units. The transmitter and receiver units operate entirely independently from each other, e.g. there are no electrical connections between the transmitter and receiver units therefore separate 24V DC power supplies may be used if required. In order to protect the 1000 Plus Series electronic system please remember to install fuses of suitable rating between incoming 24V DC supply and 24V input connections at both the transmitter and receiver units. Recommended fuse ratings, transmitter 0.5A and receiver 1.5A.

OSSD1 and OSSD2 - Each output switch has a maximum current rating of 0.5A. To prevent possible damage never exceed the maximum current rating for the switching devices.

Note: Inductive load suppressors should be used when driving large power relays.

Ensure both transmitter and receiver units are connected to GROUND. Insert an M6 bolt into one of the threaded slots in the extrusion to ensure a good ground connection.

GLOSSARY of words and terminology used in the Installation Sheet in a number of International languages:

GLOSSARY	ORDBOG	GLOSSAR	BIBLIOGRAFIE	GLOSSAIRE	GLOSSARIO	GLOSARIO	ORDLISTA
English	Dansk	Deutsche	Dutch	Francais	Italiano	Espagnol	Svenska
attention	achtung	attention	attention	attention	attenzione	opmarksamhet	opmarksamhet
beams	stråle	lichtstralen	stralen	faisceaux	raggi	vigas	strålar
black	sort	scharz	zwart	noir	nero	negro	svart
blue	blå	blau	blauw	bleu	blu	azur	blå
brown	brun	braun	bruin	marron	marrone	moreno	brun
control	kontrol	steuern	besturing	contrôle	controllo	controlan	kontroll
danger	fare	gefahr	gevaar	danger	pericolo	peligro	fara
detection capability	afkastnings mulighed	abfragungsfähigkeit	deteclievermogen	capacité de détection	possibilità de rilevazione	capacidad de la detección	upplösning
detection zone	beskyttelses zone	abfragungsfähigkeit	deteclie zone	Zone de détection	area de rilevamento	zona de detección	skyddsfall
diagnostic							
fault	fej	störung	fout	défaut	guasto	incidente	fel
feature	muligheder	eigenschaft	eigenschap	dispositif	caratteristica	característica	egenskaper
flashing							
green	grøn	grün	groen	vert	verde	verde	grön
indicator	indikation	anzeige	indicator	indicateur	indicatore	indicador	indikering
installation	installation	installation	installatie	installation	installazione	instalacion	installation
light curtain	lystæppe	lichtschranken	lichtscherm	barrière	barriere	barrera de seguridad	ljus barrier
model	model	typ	model	modèle	modello	modelo	modell
months	måned	monate	maanden	mois	mesi	meses	manader
not flashing							
operation	operation	operation	in bedrijf	opération	funzionamento	operacion	operation
red	red	rot	rood	rouge	rosso	rojo	rod
safety	sikkerhed	sicherheit	veiligheid	securité	sigurezza	seguridad	sakerhet
status	status	rand	status	statut	stato	estado	status
supplier	leverandør	lieferant	leverancier	fournisseur	forniture	surridor	leverantor
test piece							
uneven flashing							
white	hvid	weis	wit	blanc		blanca	
yellow	gul	gelb	geel	jaune	giallo	amarillo	gul

Test and Maintenance

Testing the Light Curtain with the test piece

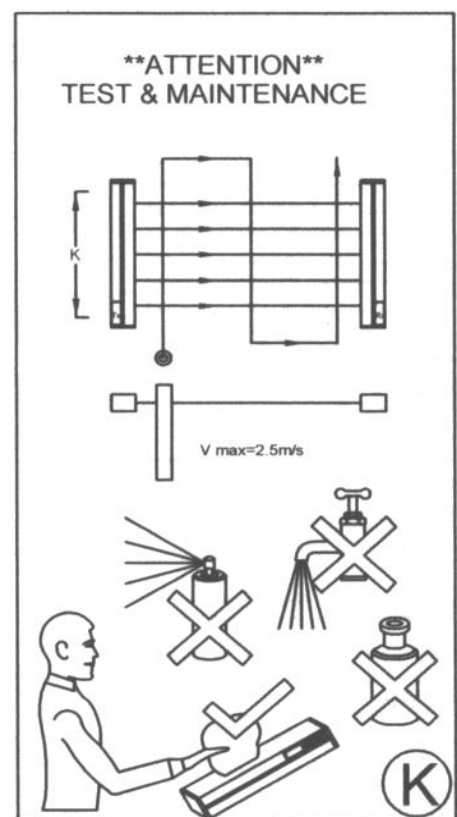
The test procedure should be carried out frequently as indicated by the risk assessment for the particular installation. Smartscan Ltd recommends the test should be carried out daily.

Light curtains with ODC (N) 30mm and 40mm - refer to Figure K.

Power-up the light curtain and activate the output switching circuits to an ON condition.

Insert a test piece of appropriate size into the light curtain detection zone, at the bottom, 150mm from the transmitter unit. At this point the output switches will turn OFF. Sweep the test piece up through the detection zone parallel to the transmitter. Now sweep the test piece down through the detection zone equal distance between the transmitter and receiver. Now sweep the test piece up through the detection zone 150mm and parallel to the receiver unit. At no time during these tests should the output switches turn ON.

Now thrust the test piece anywhere in the light curtain detection zone and ensure the machinery stops without apparent delay.



For light curtain models with an ODC above 40mm undertake the same tests as described. During these tests the output switches should only turn OFF as the test piece totally obscures each beam in the light curtain. Ensure that while the test piece is obscuring each beam the output switches are OFF.

The Transmitter (Tx) and Receiver (Rx) windows should be cleaned regularly as indicated on the Installation Sheet.

No routine maintenance is required beyond periodic cleaning of the transmitter and receiver windows. Dirt build up on the windows may lead to intermittent tripping or a totally blocked condition of the light curtain. Clear adhesive tape may be applied to the windows of curtains in dirty or abrasive conditions. Renew the clear adhesive tape periodically.

Clean the windows with a clean damp cloth using a mild detergent. Never use abrasive, corrosive cleaners or spray detergents.

Fig. L shows an operations chart for the 1000 Plus system.

Before installation read and understand the Installation Sheet provided paying particular attention to the information provided in Figure E.

- Refer to Figure K for test and maintenance procedures

- Every 24 hours carry out tests as indicated in Figure K.

- Every 6 months check the entire installation paying particular attention to Figure E.

- If the equipment fails to operate as intended check the electrical connections as shown in Figure J.

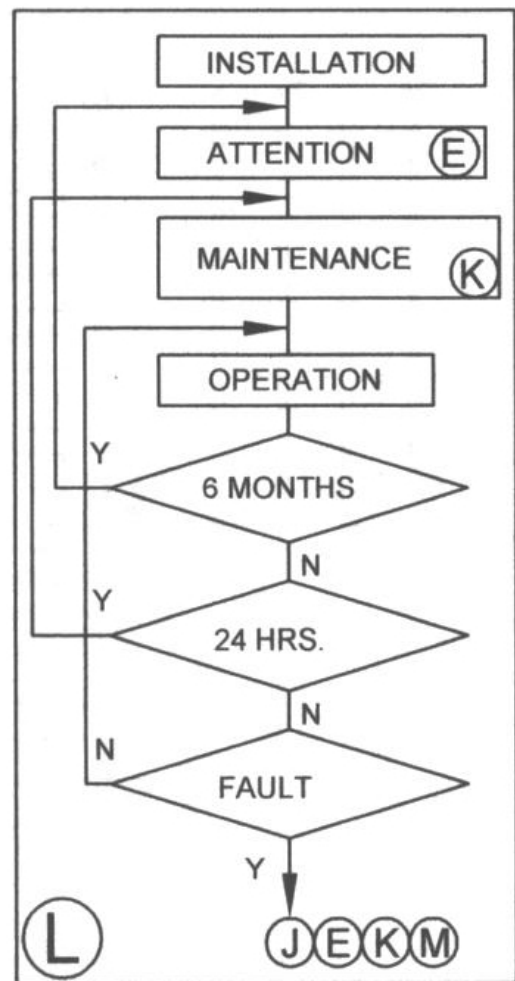
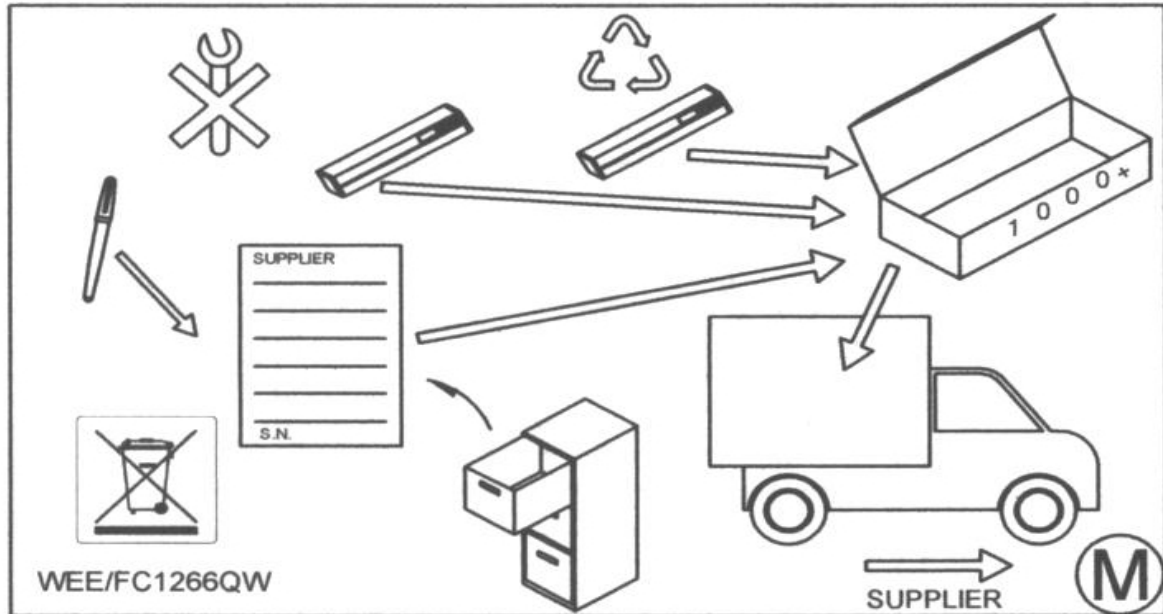




Figure M outlines the procedure for returning a Smartscan product.



If a fault occurs that cannot be resolved or the equipment is damaged return the system to the nearest Smartscan distributor or Smartscan Ltd. Indicate the nature of the fault and the symptoms displayed on the form provided.

Note: Please ensure that returned guards are matching serial number pairs.

Figure N – shows a copy of the Declaration of Conformity

	CD339Q/231209
EC Declaration of Conformity	
Product: Smartscan 1000 plus Light Curtain	
Smartscan Limited, Pywell Road, Willowbrook Industrial Estate, Corby, Northamptonshire, NN17 5XJ	
Declares that the safety components(s) described: Serial Numbers: Between 310 000 - 329 999 and 330 000 – 399 999	
Fulfils the following safety function: Electro-sensitive protective equipment – Active Opto-electronic Protective Device (safety light curtain).	
Conforms to the following Directives:	
Machinery Directive	98/37/EC, 2006/42/EC
Electromagnetic Conformity Directive	2004/108/EC
Low Voltage Directive	2006/95/EC
Complies with the relevant requirements of the following Standards:	
EN 61496-1, IEC 61496-2	Type 2
EN 954-1,	Category 3
IEC 62061	SIL 2
EN ISO 13849-1	PL d
Uses the following standards:	
ISO 12100-1, ISO 12100-2, EN 60204-1	
Complies with the examples to which the EC type examination certificate below relates, and is in conformity with the protection requirements of Council Directive 2004/108/EC, as amended, on the approximation of the laws of the Member States relating to electromagnetic compatibility.	
The component is of a type listed in Annex IV of the Machinery Directive. Examples have been submitted for type examination by the approved body identified below.	
Safenet Limited	Notified Body Number 1674
Address	Pywell Road, Corby, Northamptonshire. NN17 5XJ
Certificate No.	526040609
Signed: 	Date: 23. 12. 2009
Title: <u>Project Manager</u>	

