

INDUSTRIAL SAFETY AND CONTROL DEVICES

Ed. 05-10-EN



More of 600 models with four lines of photoelectric barriers

■ **ASTER • ARTScan • B series** for safety applications

■ **COMPLEX** no safety for automation

Pressure sensitive sensors

■ **Ribbon switches - Sensing edges**

■ **Mats - Bumpers**

SAFETY CURTAINS

- ASTER - ARTScan - B serie

■ Main features

The new generation of light curtains ASTER - ARTScan - B series offer the ideal solution to safety problems connected with machinery and industrial plants. The range of more of 600 models is characterized by a wide selection of barrier heights for type 2 and 4 application manufactured conforming the European Directives

- 2006/42/CE machine directive
- 2006/95/CE low voltage directive
- 2004/108/CE electromagnetic compatibility

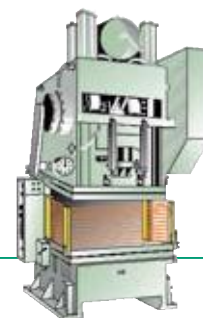
Besides they replay to the following standards:

Type 2 or 4 according the

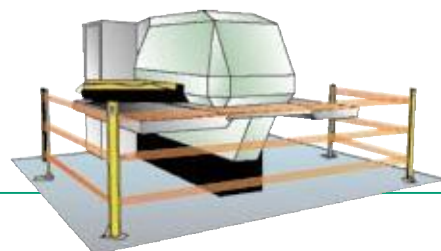
- EN 61496/1 of 2005
- EN 61496/2 of 2007

The control unit BT - RT - DB -SB -RT/JNC series connected to the optic sensors, provide the safety outputs. A new series of devices is now available with all functions incorporated in the receiver.

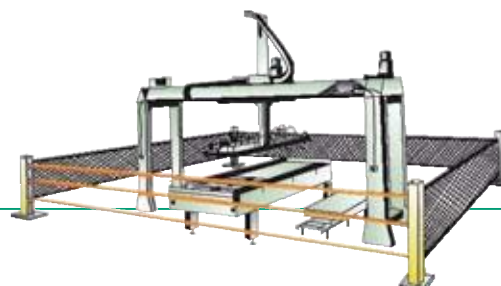
The elegant aesthetic form, the small dimensions of the cross section of transmitter/receiver and their competitive price, makes these products the versatile opto-electronic device to use in all cases where it is necessary to protect operators from the risks of dangerous machinery.



Presses protection of the hands



Perimetral protection of body using mirrors



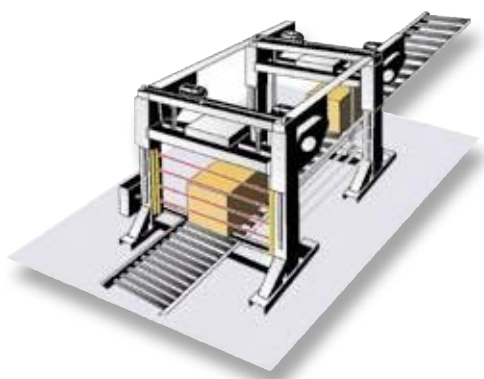
Protection of body on automatic machinery



ASTER curtains

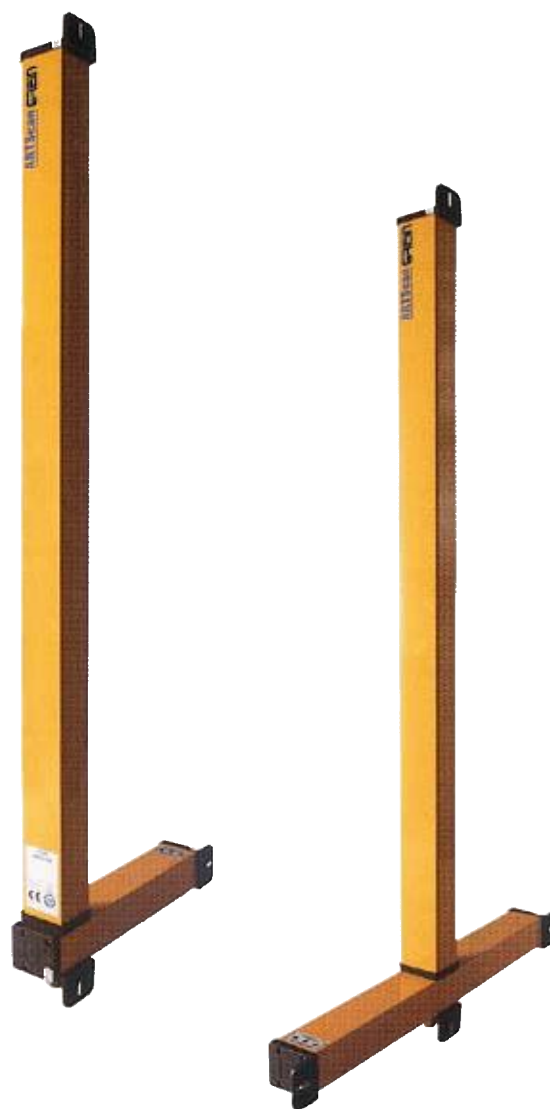
■ Technical characteristics

- System includes transmitter & receiver
- Control unit: integrated or separate
- Separate control units types BT - RT - DB - SB - RT/JNC
- Category 2 and 4 in accordance with EN 954
- Range: 15 m standard
30 m long range
60 m special
- Enclosure rating IP 65
- Cross section 36 x 50 mm
- Available resolution:
Range 15 m: 30 - 55 - 175 - 320 mm
Range 30 m: 40 - 65 - 185 - 330 mm
- Protected height from 100 to 2000 mm.
- Operating temperature - 5° + 65 °C
- Exceeds noise immunity standard (EN 61.000 level 4)
- Shock resistance from 5 to 60 Hz 5 G peak vibration with 3 direction level
- Optic interference: resistance to optic light up to 25.000 Lux, to flash, to stroboscopic lamp and every kind of welding spike.
- Connection with plug in connectors
- Cascade connection of two-three barriers (slave and master units)
- Muting optional with 2 sensors type MU
- Muting optional with 4 sensors type MS
- Override circuit for muting



Accessories

Adjustable brackets
Cable connections
Connectors
Mirrors



ARTScan curtains

SAFETY CURTAINS - ASTER -

■ Technical characteristics of TX-RT units

- **BE series** with separate box
- **IN series** with safety control incorporated into receiver
- **AL series** "L" shape (with BE or IN series) for master and slave units

General Data

- Conforming to EN 954 and EN 61.496-1 of 2005
EN 61.496-2 of 2007
- Number of beams: from 2 to 84
- Resolutions: 30 - 40 - 55 - 65 - 175 - 185 - 320 - 330 mm
- Height protected from 100 to 2000 mm
- Range 15 - 30 - 60 m
- Category 2 and 4
- Enclosure colour yellow RAL 1021
- Caps colour: black on level 4
green on level 2
- Cross section of enclosure 36 x 50 mm
- Enclosure rating IP 65
- Operating temperature -5° + 65° C
- Connection cable of 3-5-10 m (on request)
- Connector type C or M12
- Bracket of three types
- Alignment system (on request) with LED indicator to facility the installation

■ Technical characteristic of control box

- LED signalling for power supply
- LED " " for the conditions of barrier
- LED " " for muting
- Connection through plug-in terminal block
- Output safety contacts 2NO + 1NC 3 Amp 250 Volt
- Power consumption 12 VA
- Automatic and manual reset
- Test circuit connection
- Feed back input for control of the machine's final switching device (FSD)
- Enclosure in ABS IP 20. On request IP 56
- DIN rail mounting
- Connection with shielded cable to TX/RX up to 50 m
- Power supply: 24 volt d.c./a.c. 110-230 volt a.c. (to be specified when ordering)
- Muting circuit (optional):
- Type MU with two sensors or MS with 4 sensors for RT box
- Type MU with two sensors + override for BT box
- Remote lamp for muting
- Grey colour of enclosure for type 4
- Green colour of enclosure for type 2

RT/JNC



Control box

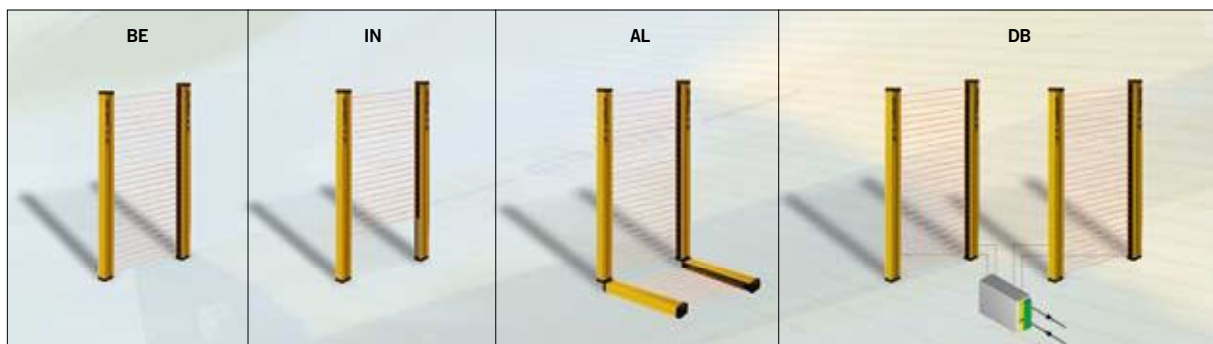


BT

SB - DB



RT



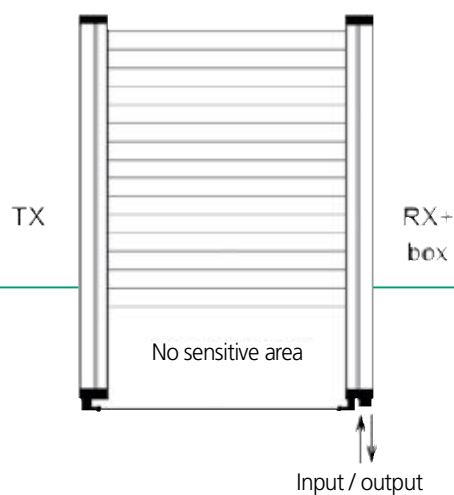
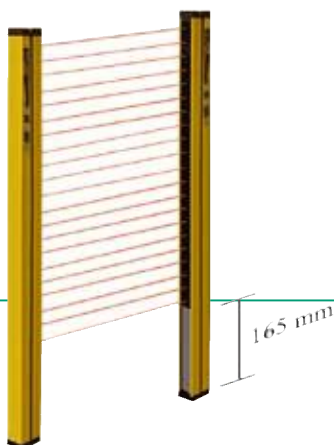
■ Main feature of BE barriers with separate box

- A range of units to satisfy the different enquires of the market with height protected and resolution in accordance with customer applications
- The units TX and RX are provided with connector type C or M12
- Range 15 - 30 - 60 m
- Power supply by a different 5 control box (see page 12 and 13)
- Other characteristics as previous pages



■ Main feature of IN barriers with incorporated box

- The box module is installed into the column of RX, increasing the length of 165 mm
- Range 15 - 30 - 60 m
- Power supply only 24 Volt d.c.
- Other characteristics as previous pages



N.B.

The code identification of the boxes are reported at page 13 while those of the barriers are on pages 10 e 11

SAFETY CURTAINS

- ASTER -

■ Main feature of AL barriers

shape "L" (master + slave)

On large presses or presses brake (where vertical protection is installed a long distance from the danger point) it may be necessary to protect the operator when he passed through the vertical barrier. This applications can be resolved using two units connected to only one box, considering that the inter-connection cable of two curtains has a max. length of 500 mm.

For this special application as "L" shape barrier is available consisting of two units one vertical with resolution 14 or 30 mm and one horizontal with highest resolution to detect the legs of operator. Only one control box, is connected to two barriers.

Besides with the box series DB is possible to control two barriers for the protections of front and rear of the presses.

Only one box control four barriers.

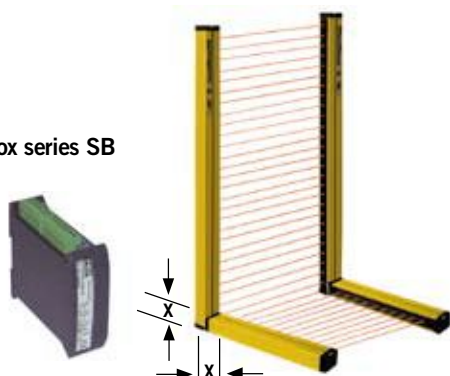
Alignment system (on request) with LED indicator to facility the installation.

Are available two systems of the connection of the barriers:

- with a cable of 500mm
- with a square connections to maintain constant the resolution



box series SB



N.B.

Identification codes of the box are reported on page 13 while those of curtains are on pages 10 e 11

Master must be identified for vertical barriers Slave must be identified for horizontal barriers (see code page 11)



Double protection:
front and rear machine



box series DB

■ Main feature of barriers Master - Slave series 150-M

with possibility to connect up to three unit

This type of barriers is realized to satisfy the employment of 1 - 2 - 3 curtains in cascade connection for the protection up to three zones, all connected with one box.

Each curtain is formed by an array of two beams with the distance of 120 mm and with cable of 1 meter max.

The control box can be chosen between the 5 types of control box as reported on previous page. The system is adapted for the protection of the body on different zone on the condition that they are very near.

Technical characteristics and code identifications

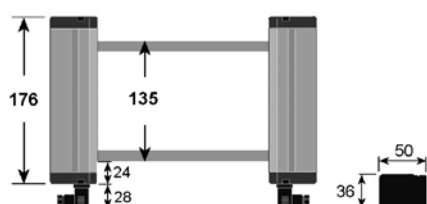
Sensitive height 135 mm

Models	
• AST - BE - 150/M	single unit with connector for the control box
• AST - BE - 150/M-O	unit for multiple connection
• AST - BE - 150/M-P	unit for multiple connection of two barriers
• AST - BE - 150/M-V	unit with terminal connection to the box

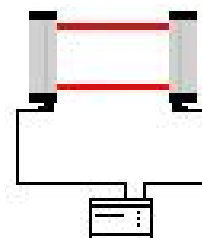
Code identification of series 150-M

	model	level	range	connection	alignment
AST-BE-150/M	= C01				
AST-BE-150/M-O	= C02				
AST-BE-150/M-P	= C03				
AST-BE-150/M-V	= C04				
level 2	= 2				
level 4	= 4				
15 meters	= 0				
30 meters	= 1				
60 meters	= 2				
type C	= 0				
type M 12	= 1				
no display	= 0				
with display	= 1				

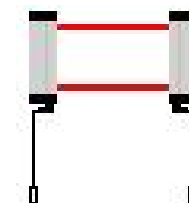
Dimensions



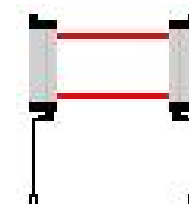
Type 150/M



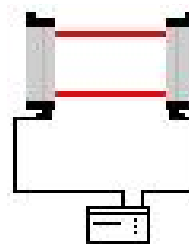
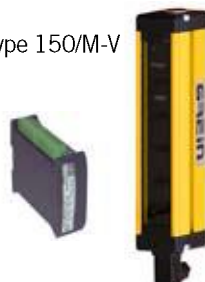
Type 150/M-O



Type 150/M-P



Type 150/M-V



SAFETY CURTAINS

– ASTER –

■ Muting (optional)

An optional muting system MU using 2 sensors is available to allow the temporary suspension of the safety function while pressing and other material handling operations take place, without switching off the machine. This is designed to facilitate two different applications:

during the return of the tool to the die position, or during the forming of metal to increase productivity:

Each system consists of one set of barriers and two sensors (to be supplied by the customer) that must be activated within 1 sec. Of each other in order to start the muting action, otherwise muting will not occur.

The optional sequential muting system MS (with 4 sensors) is similar to the MU but with the additional of a sequential program in order to increase safety and reliability in automated handling system and transfer lines. The system requires a sequence of events to take place before it will operate.

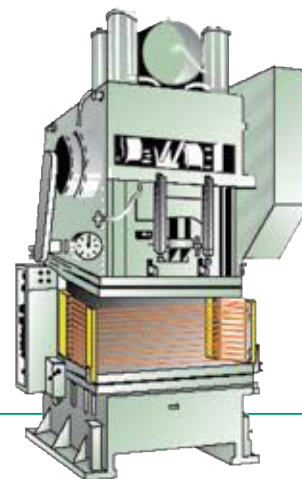
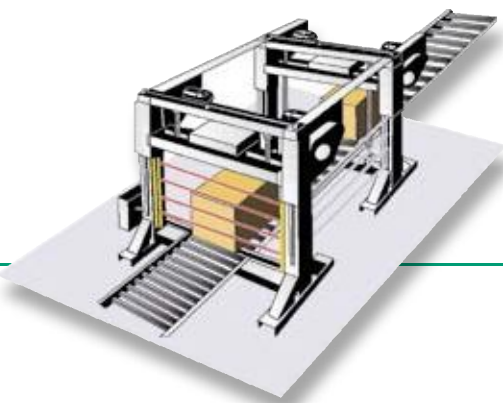
Each system comprises:

Entry: one barrier and four sensors

Exit: one barrier and three sensors

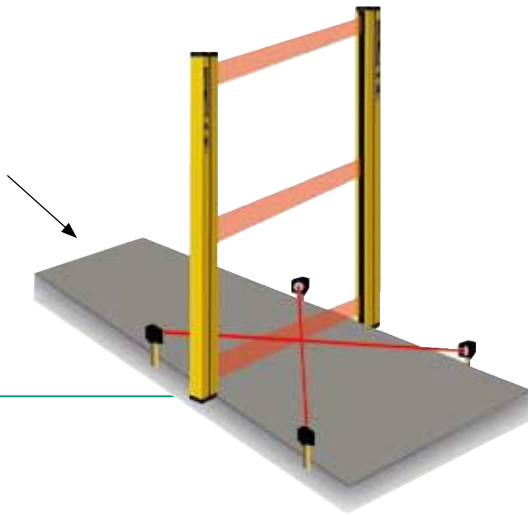
All types of sensors can be employed with any type of barriers. During the muting operation, other forms of protection must be utilized to prevent operators entering dangerous areas near the machine. Any interruption of the sequence or malfunction of the sensors, will be detected and muting will not occur. The system will shut down in safe condition.

An override circuit to allow pallet removal is available in case of blockage inside the machine, power loss or non synchronization of muting sensors. During this operation the machine must operate under maximum safety, so that the operator cannot enter the dangerous area.



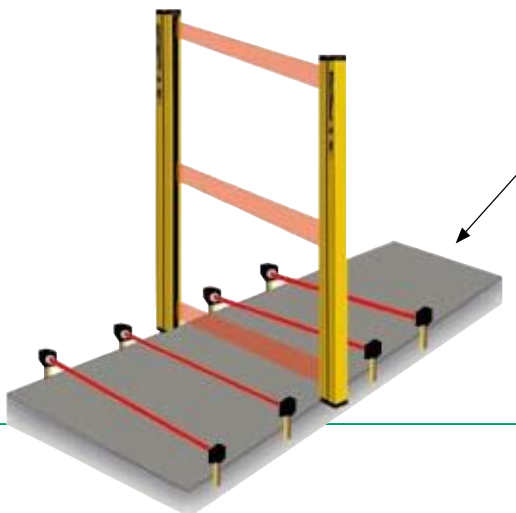
■ Barriers with muting

Series BE-IN with separate sensors for TX-RX



MU muting bi-directional with two sensors

- System independent from the speed of movement of packing
- Any sensors may be used even not safety
- Range 15 m
- Height protected 100-2050 mm
- Resolution 30-320 mm
- Barrier used type BE or IN
- Movement of the pallets in two directions (front and back)
- Simultaneity delay for sensor signal 2 sec. max
- Override circuit to bypass muting function, only with BT box



MS sequential muting mono-directional with 4 sensors.

- Curtains adapted to avoid the reversal of movement of packing
- Characteristic as above, except for the number of sensors
- Movement of pallet only on one direction
- Sequence control of sensors
- Box employed only with RT box series

SAFETY CURTAINS - ASTER -

Technical characteristics and code

Range 15 mt.			Model	
Resolution 30 mm	Protected height PH	Sensitive height SH	Type BE with external box	Type IN with integral box
Series AST/B				
AST-075/B	102 mm	54 mm	A-0011	A-1011
AST-150/B	174 mm	126 mm	A-0021	A-1021
AST-210/B	222 mm	174 mm	A-0031	A-1031
AST-240/B	246 mm	198 mm	A-0041	A-1041
AST-300/B	318 mm	270 mm	A-0051	A-1051
AST-360/B	366 mm	318 mm	A-0061	A-1061
AST-390/B	390 mm	342 mm	A-0071	A-1071
AST-450/B	462 mm	414 mm	A-0081	A-1081
AST-540/B	534 mm	486 mm	A-0091	A-1091
AST-600/B	606 mm	558 mm	A-0101	A-1101
AST-680/B	678 mm	630 mm	A-0111	A-1111
AST-750/B	750 mm	702 mm	A-0121	A-1121
AST-820/B	822 mm	774 mm	A-0131	A-1131
AST-900/B	894 mm	846 mm	A-0141	A-1141
AST-970/B	966 mm	918 mm	A-0151	A-1151
AST-1050/B	1038 mm	890 mm	A-0161	A-1161
AST-1100/B	1110 mm	1062 mm	A-0171	A-1171
AST-1200/B	1182 mm	1134 mm	A-0181	A-1181
AST-1250/B	1254 mm	1206 mm	A-0191	A-1191
AST-1350/B	1326 mm	1278 mm	A-0201	A-1201
AST-1400/B	1398 mm	1350 mm	A-0211	A-1211
AST-1500/B	1470 mm	1422 mm	A-0221	A-1221
AST-1650/B	1614 mm	1566 mm	A-0231	A-1231
AST-1800/B	1758 mm	1710 mm	A-0241	A-1241
AST-1950/B	1902 mm	1854 mm	A-0251	A-1251
AST-2100/B	2046 mm	1998 mm	A-0261	A-1261

Range 30 mt.			Model	
Resolution 40 mm	Protected height PH	Sensitive height SH	Type BE with external box	Type IN with integral box
Series AST/BL				
AST-075/BL	113 mm	63 mm	A-0012	A-1012
AST-150/BL	185 mm	135 mm	A-0022	A-1022
AST-210/BL	233 mm	163 mm	A-0032	A-1032
AST-240/BL	257 mm	207 mm	A-0042	A-1042
AST-300/BL	329 mm	279 mm	A-0052	A-1052
AST-360/BL	377 mm	327 mm	A-0062	A-1062
AST-390/BL	401 mm	351 mm	A-0072	A-1072
AST-450/BL	473 mm	423 mm	A-0082	A-1082
AST-540/BL	545 mm	495 mm	A-0092	A-1092
AST-600/BL	617 mm	567 mm	A-0102	A-1102
AST-660/BL	689 mm	639 mm	A-0112	A-1112
AST-750/BL	761 mm	711 mm	A-0122	A-1122
AST-820/BL	833 mm	783 mm	A-0132	A-1132
AST-900/BL	905 mm	855 mm	A-0142	A-1142
AST-970/BL	977 mm	927 mm	A-0152	A-1152
AST-1050/BL	1049 mm	999 mm	A-0162	A-1162
AST-1100/BL	1121 mm	1071 mm	A-0172	A-1172
AST-1200/BL	1193 mm	1143 mm	A-0182	A-1182
AST-1250/BL	1265 mm	1215 mm	A-0192	A-1192
AST-1350/BL	1337 mm	1287 mm	A-0202	A-1202
AST-1400/BL	1409 mm	1359 mm	A-0212	A-1212
AST-1500/BL	1481 mm	1431 mm	A-0222	A-1222
AST-1650/BL	1625 mm	1575 mm	A-0232	A-1232
AST-1800/BL	1769 mm	1719 mm	A-0242	A-1242
AST-1950/BL	1913 mm	1863 mm	A-0252	A-1252
AST-2100/BL	2057 mm	2007 mm	A-0262	A-1262

Barrier height H	Response time
176 mm	9 ms
176 mm	9 ms
224 mm	10 ms
248 mm	10 ms
320 mm	10 ms
368 mm	11 ms
392 mm	11 ms
464 mm	11 ms
536 mm	12 ms
608 mm	12 ms
680 mm	14 ms
752 mm	14 ms
824 mm	15 ms
896 mm	15 ms
968 mm	16 ms
1040 mm	16 ms
1112 mm	17 ms
1184 mm	17 ms
1256 mm	18 ms
1328 mm	18 ms
1400 mm	19 ms
1472 mm	20 ms
1616 mm	21 ms
1760 mm	22 ms
1904 mm	23 ms
2048 mm	24 ms

Resolution 55 mm	Protected height PH	Sensitive height SH	Type BE with external box	Type IN with integral box
Series AST/C				
AST-100/C	152 mm	54 mm	A-0301	A-1301
AST-150/C	200 mm	102 mm	A-0311	A-1311
AST-250/C	296 mm	198 mm	A-0321	A-1321
AST-300/C	344 mm	246 mm	A-0331	A-1331
AST-400/C	440 mm	342 mm	A-0341	A-1341
AST-450/C	488 mm	390 mm	A-0351	A-1351
AST-600/C	632 mm	534 mm	A-0361	A-1361
AST-750/C	776 mm	678 mm	A-0371	A-1371
AST-900/C	920 mm	822 mm	A-0381	A-1381
AST-1050/C	1064 mm	966 mm	A-0391	A-1391
AST-1200/C	1208 mm	1110 mm	A-0401	A-1401
AST-1350/C	1352 mm	1254 mm	A-0411	A-1411
AST-1500/C	1496 mm	1398 mm	A-0421	A-1421
AST-1650/C	1640 mm	1542 mm	A-0431	A-1431
AST-1800/C	1784 mm	1686 mm	A-0441	A-1441
AST-1950/C	1928 mm	1830 mm	A-0451	A-1451
AST-2100/C	2072 mm	1974 mm	A-0461	A-1461

Resolution 65 mm	Protected height PH	Sensitive height SH	Type BE with external box	Type IN with integral box
Series AST/CL				
AST-100/CL	163 mm	63 mm	A-0302	A-1302
AST-150/CL	211 mm	111 mm	A-0312	A-1312
AST-250/CL	307 mm	207 mm	A-0322	A-1322
AST-300/CL	355 mm	255 mm	A-0332	A-1332
AST-400/CL	451 mm	351 mm	A-0342	A-1342
AST-450/CL	499 mm	399 mm	A-0352	A-1352
AST-600/CL	643 mm	543 mm	A-0362	A-1362
AST-750/CL	787 mm	687 mm	A-0372	A-1372
AST-900/CL	931 mm	831 mm	A-0382	A-1382
AST-1050/CL	1075 mm	975 mm	A-0392	A-1392
AST-1200/CL	1219 mm	1119 mm	A-0402	A-1402
AST-1350/CL	1363 mm	1263 mm	A-0412	A-1412
AST-1500/CL	1507 mm	1407 mm	A-0422	A-1422
AST-1650/CL	1651 mm	1551 mm	A-0432	A-1432
AST-1800/CL	1795 mm	1695 mm	A-0442	A-1442
AST-1950/CL	1939 mm	1839 mm	A-0452	A-1452
AST-2100/CL	2083 mm	1983 mm	A-0462	A-1462

Barrier height H	Response time
176 mm	8 ms
176 mm	8 ms
248 mm	9 ms
320 mm	9 ms
392 mm	9 ms
464 mm	10 ms
608 mm	10 ms
752 mm	11 ms
896 mm	11 ms
1040 mm	12 ms
1184 mm	12 ms
1328 mm	13 ms
1472 mm	14 ms
1616 mm	14 ms
1760 mm	15 ms
1904 mm	15 ms
2048 mm	16 ms

Resolution 175 mm	Protected height PH	Sensitive height SH	Type BE with external box	Type IN with integral box
Series AST/D				
AST-450/D		414 mm	A-0501	A-1501
AST-750/D		702 mm	A-0511	A-1511
AST-1050/D		990 mm	A-0521	A-1521
AST-1350/D		1278 mm	A-0531	A-1531
AST-1650/D		1566 mm	A-0541	A-1541
AST-1950/D		1854 mm	A-0551	A-1551

Resolution 185 mm	Protected height PH	Sensitive height SH	Type BE with external box	Type IN with integral box
Series AST/DL				
AST-450/DL		423 mm	A-0502	A-1502
AST-750/DL		711 mm	A-0512	A-1512
AST-1050/DL		999 mm	A-0522	A-1522
AST-1350/DL		1287 mm	A-0532	A-1532
AST-1650/DL		1575 mm	A-0542	A-1542
AST-1950/DL		1863 mm	A-0552	A-1552

Barrier height H	Response time
464 mm	8.8 ms
752 mm	9.2 ms
1040 mm	9.6 ms
1328 mm	10 ms
1616 mm	10.4 ms
1904 mm	10.8 ms

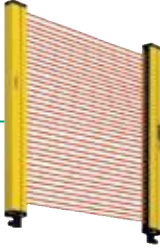


Resolution 320 mm	Protected height PH	Sensitive height SH	Type BE with external box	Type IN with integral box
Series AST/E				
AST-600/E		558 mm	A-0561	A-1561
AST-1050/E		990 mm	A-0571	A-1571
AST-1500/E		1422 mm	A-0581	A-1581
AST-1950/E		1854 mm	A-0591	A-1591

Resolution 330 mm	Protected height PH	Sensitive height SH	Type BE with external box	Type IN with integral box
Series AST/EL				
AST-600/EL		567 mm	A-0562	A-1562
AST-1050/EL		999 mm	A-0572	A-1572
AST-1500/EL		1431 mm	A-0582	A-1582
AST-1950/EL		1863 mm	A-0592	A-1592

Barrier height H	Response time
608 mm	8.8 ms
1040 mm	9.2 ms
1472 mm	9.6 ms
1904 mm	10 ms

The model of barriers type IN with incorporated box have an extension of 165 mm (not sensitive)
All the units are delivered with connectors type C. If required the M12 connector see the code page 11.

Code identification of curtains

		model	level	type	connection	alignement	muting
 <p>Type AST-B with resolution 30 mm</p>	see table						
	category 2	= 2					
	category 4	= 4					
	single	= 0					
	master	= 1					
 <p>Type AST-C with resolution 55 mm</p>	slave	= 2					
	connector type C	= 0					
	type M12	= 1					
	without display	= 0					
	with display	= 1					
 <p>Type AST-D with resolution 175 mm</p>	without muting	= 0					
	with muting	= 1					

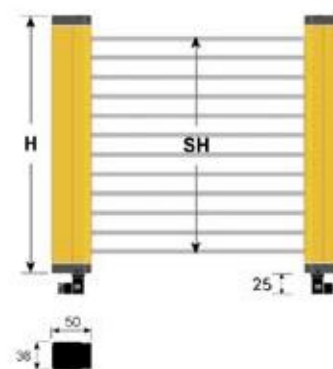
only for IN series

For order of complete barrier specify:

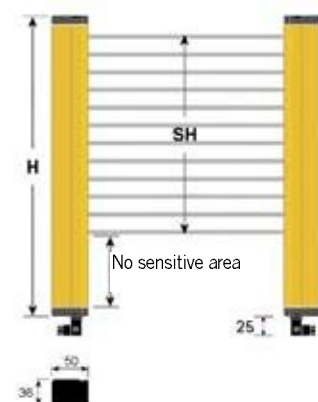
- Code of barrier
- Code of box (see pag 13)
- Code of brackets and accessory (see pag 16)

Barrier dimensions

Dimensions series BE
(with separated box)



Dimensions series IN
(with incorporated box)



The model of barriers type IN with incorporated box have an extension of 165 mm (not sensitive)

SAFETY CURTAINS

- ASTER -

■ Control units

Employed only for barriers BE-AL series

Are available 5 models: BT - RT - SB - DB - RT/JNC

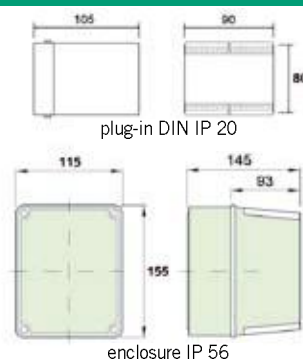
- LED signalling for power supply
- LED " " for the conditions of barrier
- LED " " for muting
- Connection through plug-in terminal block
- Output safety contacts 2NO + 1NC 3 Amp 250 Volt
- Power consumption 12 VA
- Automatic and manual reset
- Test circuit connection
- Feedback input for control of the machine's final switching device (FSD)

- Override circuit to bypass the muting function
- Enclosure in ABS IP 20. On request IP 56
- DIN rail mounting
- Connection with shielded cable to TX/RX up to 50 m
- Power supply: 24 volt d.c./a.c. 110-230 volt a.c. (to be specified when ordering)
- Muting circuit (optional):
 - Type MS with 4 sensors for RT box
 - Type MU with two sensors + override for BT-SB-DB boxes
- Remote lamp for muting
- Grey colour of enclosure for category 4
- Green colour of enclosure for level 2

Box series BT



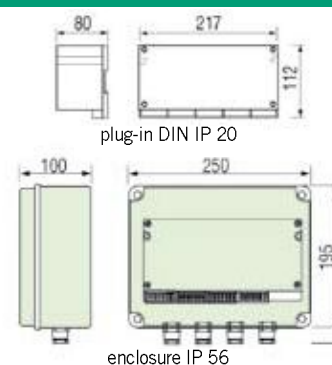
Available at 24 Volt d.c. + muting MU (optional)
Available at 24-110-220 Volt a.c. without muting MU



Box series RT



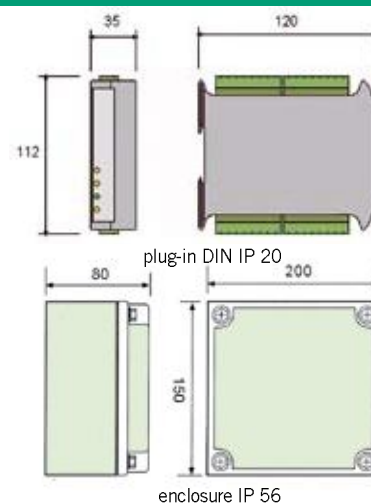
Available at 24 Volt d.c. 24 - 110-220 Volt a.c. + muting MU - MS (optional without override)



Box series SB



Available at 24 Volt d.c. + muting MU (optional)

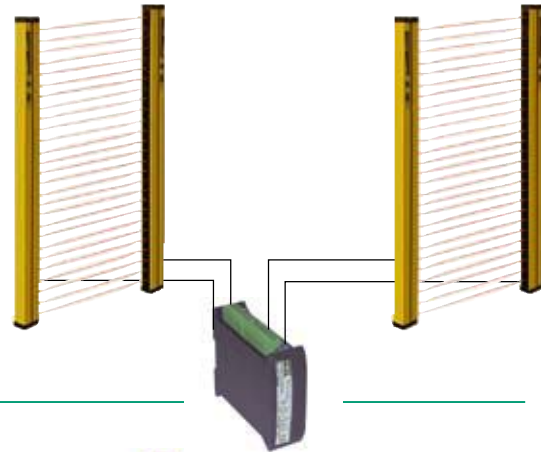


Box series DB to control two barriers

- Adapt for front and rear protection of every machinery
- Easy alignment
- No muting
- Low cost
- Characteristics similar to the previous models

N.B.

For the dimensions, see type SB

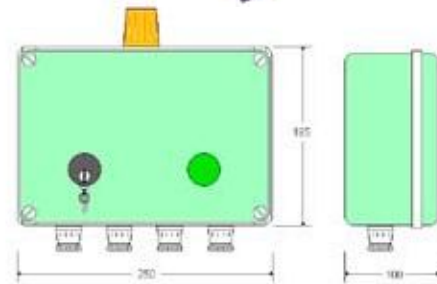


Box series RT - JNC

Can be used as an option with the safety curtains. It offers all the main functions required to manage the barriers. It also provides support for the unit interaction with the rest of the machine's equipment. By using the key selector it is possible to increase the safety level of the light barrier. During maintenance work, the person who as to work in the hazardous area can remove the key, there by preventing anyone else from being able to reset the curtains and start the machine. The barrier can be reset only by certain staff who have received appropriate training and authorization.

The box is formed of the following components:

- Key selector for reset
- Lamp for safety relais
- Lamp for muting
- Enclosure rating IP 56



■ Identification code of boxes

		model	supply	category	enclosure	muting
box BT	= B01	B01	B02	B03	B04	B05
box RT	= B02					
box SB	= B03					
box DB	= B04					
box RT-JNC	= B05					
A1 - 24 V c.a.	= 1	1	2	3	4	5
A2 - 110 V c.a.	= 2					
A3 - 230 V c.a.	= 3					
A5 - 24 V c.c.	= 5					
category 2	= 2	2	4	5	6	7
category 4	= 4					
enclosure IP 20	= 2	2	5	6	7	8
enclosure IP 56	= 5					
no muting	= 0	0	1	2	3	4
muting MU	= 1					
muting MS	= 2					

SAFETY CURTAINS

- ASTER -

Accessories

Acrylic protection

To render water tight IP 67 for the protection of the barrier against the water jets for the cleaning of the machines by splashes.

Model and code identification

Plexiglass tube (diam. 60/70 mm) complete of two caps, one blind and one with cable gland		Code		
		cable 3 meters	cable 5 meters	cable 10 meters
VET-1 for AST - 075 - 150 - 210 - 240	(cut under-size)	D-13	D-15	D-110
VET-2 for AST - 300 - 360 - 390	(cut under-size)	D-23	D-25	D-210
VET-3 for AST - 450 - 540 - 600 - 680 - 750	(cut under-size)	D-33	D-35	D-310
VET-4 for AST - 820 - 900 - 970 - 1050 - 1200	(cut under-size)	D-43	D-45	D-410
VET-5 for AST - 1250 - 1350 - 1400 - 1500	(cut under-size)	D-53	D-55	D-510
VET-6 for AST - 1650 - 1800 - 1950	(cut under-size)	D-63	D-65	D-610
Brackets				
VET-70/60 kit complete of for 4 bracket		D-05		

Heating protection in acrylic enclosure

The hard protection is designed for industrial applications. It is available in acrylic housing for the protection against wash down water-dust-dirt-oil and it is ideal for heavy industrial processing or outdoor safety and security system. This protection has internal heating elements controlled by thermostat and it is adapt to resolve the problem when during the winters is possible to have the block of barrier for the presence of ice or hoarfrost. Inside the tube are fixed the resistance to produce a heat to eliminate this phenomenon to warranty the good working up to -15°. The output cable is formed by 6 wires: 4 for barrier - 2 for resistance.

Model and code identification

Heating tube (diam. 60/70 mm) complete of two caps, one blind and one with cable gland		Code		
		cable 3 meters	cable 5 meters	cable 10 meters
VETR-1 for AST - 075 - 150 - 210 - 240	(cut under-size)	DR-13	DR-15	DR-110
VETR-2 for AST - 300 - 360 - 390	(cut under-size)	DR-23	DR-25	DR-210
VETR-3 for AST - 450 - 540 - 600 - 680 - 750	(cut under-size)	DR-33	DR-35	DR-310
VETR-4 for AST - 820 - 900 - 970 - 1050 - 1200	(cut under-size)	DR-43	DR-45	DR-410
VETR-5 for AST - 1250 - 1350 - 1400 - 1500	(cut under-size)	DR-53	DR-55	DR-510
VETR-6 for AST - 1650 - 1800 - 1950	(cut under-size)	DR-63	DR-65	DR-610
Brackets				
VET-70/60 kit complete of for 4 bracket		D-05		

The dimension of the barriers are reported at page 10 adding 90 mm due to the thickness of the caps plus 25 mm of cable gland.

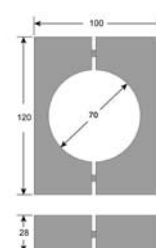


normally type

heating enclosure

Particular of the brackets

VET - 70/60



■ Accessories

Mirrors and floor post

By using mirrors in conjunction with a single barrier, an efficient and cost effective protection system can be provided around 2 or 3 sides of area to be guarded. When mirrors are used as part of multi-side barrier, it should be noted that each mirror will cause a range loss of approximately 25 %. This range loss can be compensated by using a special long range (60 meters) barriers. Particular care must be taken when installing mirrors and brackets in order to maintain beam alignment in the event of shock and vibration.

They are employed with ASTER - ARTScan -B series barriers (except L and T - ARTScan model).

N.B.

The model WAB mirrors include also the floor post



Dimensions of mirrors and code identification

Mirrors with floor post

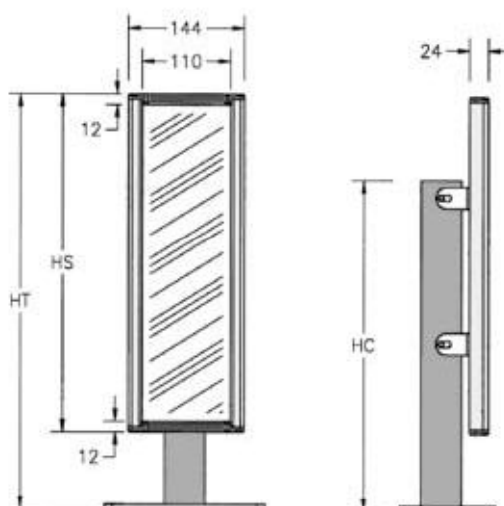
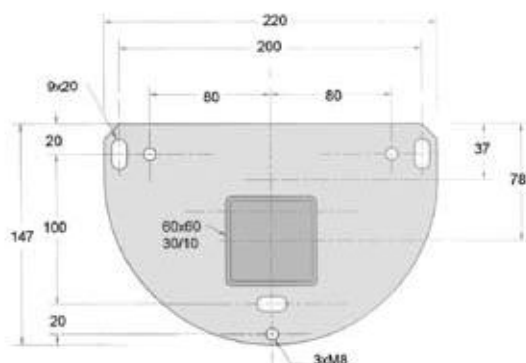
Models	HS (mm)	HC (mm)	HT (min/max)	Code
WAB-501	390	385	400/570	D-50
WAB-502	710	705	720/1050	D-51
WAB-503	1030	1025	1040/1530	D-52
WAB-504	1350	1345	1360/2010	D-53
WAB-505	1670	1345	1680/2320	D-54
WAB-506	1830	1345	1840/2480	D-55
WAB-507	1990	1345	2000/2640	D-56

Column for barriers

Models	HC (mm)	Code
SCFS-3022	700	D-61
SCFS-3023	1020	D-62
SCFS-3024	1340	D-63



Dimensions of floor post



SAFETY CURTAINS

– ASTER –

Accessories

Connector Type C with 4 cables to assemble



Connector Type M12 already assembled



Type M 12/V with screw connection to assemble

MOR 1340FD-M12 connector M12/VD female right
MOR 1340F90-M12 connector M12/VS female 90°



Note:

The male connector is mounted on the barrier, while the female is mounted on the cable or can be supplied as accessory .

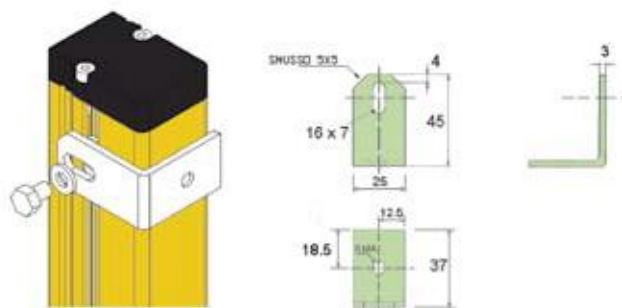
Model	Code
Connector type "C" only for spare part	E-01
Connector type M12-VD right with screw to assemble	E-02
Connector type M12-VS 90° with screw to assemble	E-03
CAV 03/C cable 3 mt with connector type "C" 4 poles	E-10
CAV 05/C cable 5 mt with connector type "C" 4 poles	E-11
CAV 10/C cable 10 mt with connector type "C" 4 poles	E-12
CAVM12-03/D cable 3 mt with connector type M12 right 4 poles	E-20
CAVM12-03/S cable 3 mt with connector type M12 90° 4 poles	E-21
CAVM12-05/D cable 5 mt with connector type M12 right a 4 poles	E-22
CAVM12-05/S cable 5 mt with connector type M12 90° 4 poles	E-23
CAVM12-10/D cable 10 mt with connector type M12 right 4 poles	E-24
CAVM12-10/S cable 10 mt with connector type M12 90° 4 poles	E-25
CAVM12-15/D cable 15 mt with connector type M12 right 4 poles	E-26
CAVM12-20/D cable 20 mt with connector type M12 right 4 poles	E-27
CAVM18-03/D cable 3 mt with connector type 14 poles for receiver of IN series	E-30
CAVM18-05/D cable 5 mt with connector type 14 poles for receiver of IN series	E-31
CAVM18-10/D cable 10 mt with connector type 14 poles for receiver of IN series	E-32
CAVM12-03-FF-D cable 3 m with 2 connectors right M12/F 4 poles	E-40
CAVM12-05-FF-D cable 5 m with 2 connectors right M12/F 4 poles	E-41
CAVM12-10-FF-D cable 10 m with 2 connectors right M12/F 4 poles	E-42
CAVM12-15-FF-D cable 15 m with 2 connectors right M12/F 4 poles	E-43
CAVM12-20-FF-D cable 20 m with 2 connectors right M12/F 4 poles	E-44
CAVC-03-FF-D cable 3 m for IN series for TX-RX for connector type C	E-50
CAVC-05-FF-D cable 5 m for IN series for TX-RX for connector type C	E-51
CAVC-10-FF-D cable 10 m for IN series for TX-RX for connector type C	E-52
Bracket	
Type STGM	E-60
Type STDL	E-61
Type STVB	E-62



■ Accessories

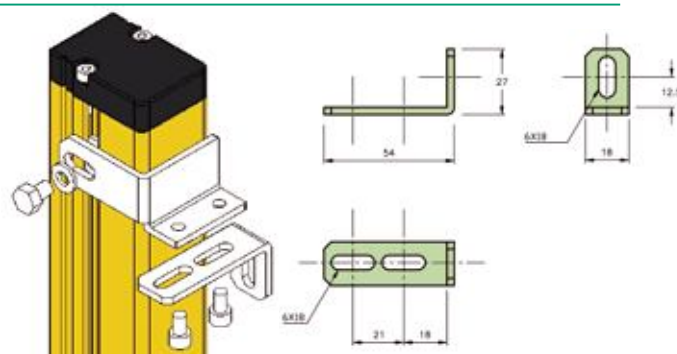
Bracket model STGM

Simple bracket for easy adjustment of the curtain. The special nut inside the aluminium profile allows the barrier height to be easily adjusted.



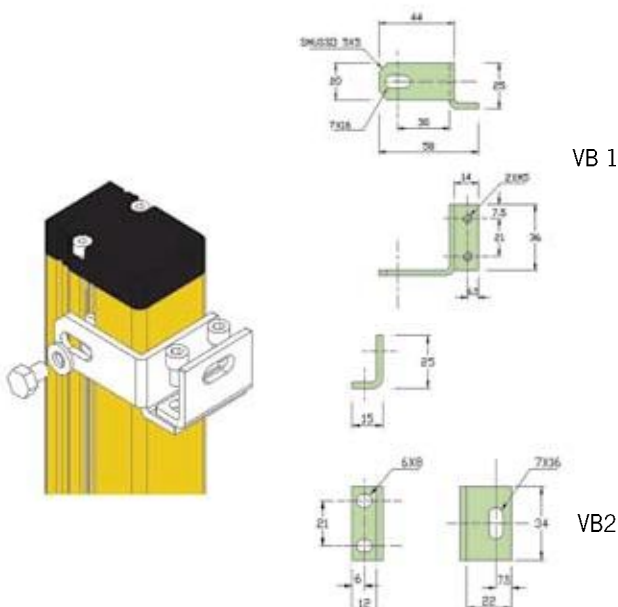
Bracket model STDL

Bracket at double "L" to permit the lateral fixing of the barrier with possibility of angular and lateral regulation.



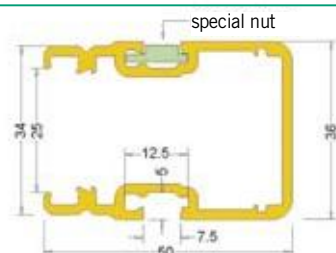
Bracket model STVB

Compact bracket comprising two parts: VB1 and VB2 which allows installation in confined space and allowing easy adjustment on three axes.



Cross section of aluminium profile

Along the profile there is a channel on which is placed a special nut for fixing the brackets of barrier. In case it is necessary to change the position of the nut, it is necessary to remove the cap (see those without connector).



SAFETY CURTAINS

- B series -

■ Range of the units

Barriers with blanking fixed or floating with resolution 14 mm of type 4

Photoelectric units with solid state output to be connected to PLC or to safety module with power relays. Possibility of blanking, particular useful for those applications, where, for example, a work piece is obstructing the curtain or possibly moving up and down within the barrier. The units are capable of being blanked with fixed and floating blanking options available for increased guarding flexibility.

Type	Protected height PH	Barrier height H	Code
B/0200/14	208 mm	280 mm	F-01
B/0300/14	308 mm	380 mm	F-02
B/0400/14	408 mm	480 mm	F-03
B/0600/14	608 mm	680 mm	F-04
B/0800/14	808 mm	880 mm	F-05
B/0900/14	908 mm	980 mm	F-06
B/1000/14	1008 mm	1080 mm	F-07
B/1200/14	1208 mm	1280 mm	F-08

■ Technical characteristics



- Output 2 x PNP 100 mA
- Fixed or floating blanking
- Height protected 200-1200 mm
- Range 0,5-15 mt
- Power supply 24v d.c.
- Fingers protection

GS 120 series multi-ray with resolution 30 mm of type 2

Type	Protected height PH	Barrier height H	Code
GS/0200/30	208 mm	280 mm	F-10
GS/0300/30	308 mm	380 mm	F-11
GS/0400/30	408 mm	480 mm	F-12
GS/0600/30	608 mm	680 mm	F-13
GS/0800/30	808 mm	880 mm	F-14
GS/0900/30	908 mm	980 mm	F-15
GS/1000/30	1008 mm	1080 mm	F-16
GS/1200/30	1208 mm	1280 mm	F-17
GS/1400/30	1408 mm	1480 mm	F-18
GS/1600/30	1608 mm	1680 mm	F-19
GS/1800/30	1808 mm	1880 mm	F-20



- Output 2 x PNP 100 mA
- Height protected up to 1800 mm
- Range 0.5 to 15 m
- Power supply 24 volt d.c.
- Hand protection

GS 120 series at single beam of type 2

Type	Protected height PH	Barrier height H	Code
GS 120/2	500 mm	2	F-21
GS 120/3	800 mm	3	F-22
GS 120/4	900 mm	4	F-23



- Resolution 120 mm
- Output 2 PNP 100 mA
- Height protected up to 1800 mm
- Range 0.5 to 15 m
- Power supply 24 volt d.c.
- Body protection

Accessory

Modell	Code
Cable for TX by 5 m M12 5 poles	E-80
Cable for TX by 10 m M12 5 poles	E-81
Cable for RX by 5 m M12 8 poles	E-82
Cable for RX by 10 m M12 8 poles	E-83
Safety units CS-AR-06-V024	F-24
Programming unit BPU/3	F-25

Accessories:

Safety unit type CS - AR - 06 - V024 with manual and automatic reset

■ Blanking system

Beam blanking is an important function of the B Series that allows selected areas of the sensing field to be disabled. This is particularly useful for those applications where, for example, a work-piece is obstructing the curtain or possibly moving up and down within the curtain. All B series curtains are capable of being blanked. Fixed and floating blanking options are available for increased guarding flexibility. When in beam blanked mode, the curtain checks any change in the programmed condition and will initiate a stop signal to the machine if an allowable obstruction is removed.

Fixed blanking

It is achieved by a 'learn' technique. The system learns which beams are obstructed at time of programming and the curtain outputs will then only be operational if these beams are obstructed and all other beams are clear. If the programmed obstruction is removed, the light curtain will generate a stop signal.

Floating blanking

Can be selected so that either one or two beam obstructions can be ignored. Basically, an obstruction can move or 'float' within the detection zone without generating a stop signal provided that the obstruction does not obscure more than the specified number of beams. If 'floating 1' is selected any single beam in the curtain can be blocked (or not) without causing the outputs to be de-energised. If 'floating 2' is selected any two beam obstructions can be ignored. The beams do not have to be contiguous. Fixed and floating blanking can be used in combination. This allows for a number of curtain discrepancies so that, for example, a fixed blanked object may move slightly during machine operation.

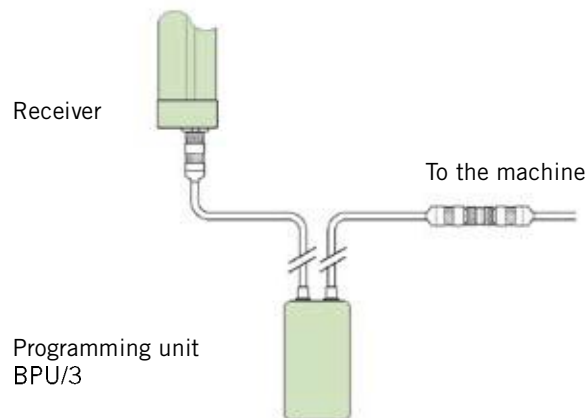
Safety distance

Beam blanking increases the size of object which is guaranteed to be detected by the light curtain (i.e. it decreases the resolution). The new detection capability, in its worse case, should always be taken into account during the risk assessment process when considering if beam blanking is appropriate and should always be the figure used when calculating safety distances according EN-999

Programming unit

In the B Series, beam blanking is achieved by means of a BPU/3 programming unit. Programming is simply carried out by connecting the BPU/3, selecting the blanking function and then removing the programming unit. This single cost-effective unit has the advantage that only one unit is needed in order to program any number of light curtains.

Outline of connection:



SAFETY CURTAINS

– ARTScan –

■ Features of 4500 series for palettizzer machines

4500 series safety light curtains are designed to provide protection at the entrance to highly-automated machines, while enabling and supervising access to the material to be processed in order to protect people from unintentionally entering hazardous areas while the machine is in operation.

This type of safety light curtain is typically used for packing machines, robotised areas or for any type of highly automated equipment involving the movement of pallets, boxes or drums in general.

The 4500 series safety light curtains have been designed to comply with the highest level of risk (cat. 4) and pass all the tests stipulated by the new European standard ensuring compliance with standard EN61496-1/2.

Features

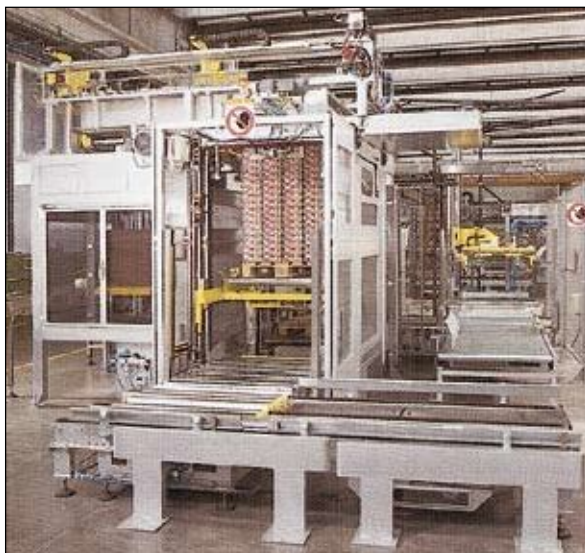
- Self-diagnostics and integrated status LEDs
- Category 4 safety
- Power supply 24Vdc
- Integrated guard override (bypass)
- Relay output 3 A 250 Volt and PNP for muting signalling
- Auto-control
- Range from 0,8 - 2,5 L and T cross beams
- Range from 0,8 - 5 m for parallels beams
- Range for straight type 15 m
- external muting command option
- "L" type with integrated muting
- "T" type with integrated muting
- integrated self-muting with cross-beam or parallel sensors
- human protection with 2-3-4-5 beams



Shape L

Shape T

Shape Straight



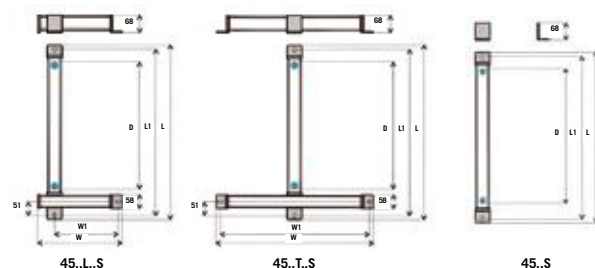
High level layer palletisers



Stretch wrapping machine

■ Technical features and identification codes of 4500 series

Dimensions



Shape “L”

Code	Models	Beam	Risolution	Sensible area	Length	Size	Fastening	Fastening
		[n.]	[mm]	(D) [mm]	(L) [mm]	(W) [mm]	(L1) [mm]	(W1) [mm]
G-01	E2Z20-4504L1XS	2	432	432	700	355	660	300
G-02	E2Z21-4508L1XS	3	432	852	1120	355	1080	300
G-03	E2Z22-4512L1XS	4	432	1272	1540	355	1500	300
G-04	E2Z23-4516L1XS	5	432	1692	1960	355	1920	300
G-05	E2Z24-4504L2XS	2	432	432	700	355	660	300
G-06	E2Z25-4508L2XS	3	432	852	1120	355	1080	300
G-07	E2Z26-4512L2XS	4	432	1272	1540	355	1500	300
G-08	E2Z27-4516L2XS	5	432	1692	1960	355	1920	300
G-09	E2Z28-4504L1PS	2	432	432	700	355	660	300
G-10	E2Z29-4508L1PS	3	432	852	1120	355	1080	300
G-11	E2Z30-4512L1PS	4	432	1272	1540	355	1500	300
G-12	E2Z31-4516L1PS	5	432	1692	1960	355	1920	300
G-13	E2Z32-4504L2PS	2	432	432	700	355	660	300
G-14	E2Z33-4508L2PS	3	432	852	1120	355	1080	300
G-15	E2Z34-4512L2PS	4	432	1272	1540	355	1500	300
G-16	E2Z35-4516L2PS	5	432	1692	1960	355	1920	300

Shape “T”

Code	Models	Beam	Risolution	Sensible area	Length	Size	Fastening	Fastening
		[n.]	[mm]	(D) [mm]	(L) [mm]	(W) [mm]	(L1) [mm]	(W1) [mm]
G-21	E2Z40-4504T1XS	2	432	432	700	625	660	595
G-22	E2Z41-4508T1XS	3	432	852	1120	625	1080	595
G-23	E2Z42-4512T1XS	4	432	1272	1540	625	1500	595
G-24	E2Z43-4516T1XS	5	432	1692	1960	625	1920	595
G-25	E2Z44-4504T2XS	2	432	432	700	625	660	595
G-26	E2Z45-4508T2XS	3	432	852	1120	625	1080	595
G-27	E2Z46-4512T2XS	4	432	1272	1540	625	1500	595
G-28	E2Z47-4516T2XS	5	432	1692	1960	625	1920	595
G-29	E2Z48-4504T3PS	2	432	432	700	625	660	595
G-30	E2Z49-4508T3PS	3	432	852	1120	625	1080	595
G-31	E2Z50-4512T3PS	4	432	1272	1540	625	1500	595
G-32	E2Z51-4516T3PS	5	432	1692	1960	625	1920	595

Shape straight

Code	Models	Beam	Risolution	Sensible area	Length	Size	Fastening	Fastening
		[n.]	[mm]	(D) [mm]	(L) [mm]	(W) [mm]	(L1) [mm]	(W1) [mm]
G-40	E2Z60-4504S	2	432	432	696	55	666	-
G-41	E2Z61-4508S	3	432	852	1116	55	1086	-
G-42	E2Z62-4512S	4	432	1272	1536	55	1506	-
G-43	E2Z63-4516S	5	432	1692	1956	55	1926	-

SAFETY CURTAINS






- ARTScan -

■ Accessories: JNC - BOX / 4500


JNC-BOX-4500 is the “control box” which can be used as an option with safety light curtains from the 4500 series. It offers all the main functions required to manage the light curtain. It also provides support for the light curtain’s interaction with the rest of the machine’s equipment. By using key selectors, it is possible to increase the safety level of the actual light curtain when, for instance, during maintenance work, the person who has to work in the hazardous area can remove the keys, thereby preventing anyone else from being able to reset the light curtain and start the machine. Otherwise, they can guarantee in every situation that the safety devices (in this case, light curtains) can be reseted **ONLY** by certain staff who have received the appropriate training and authorisation.





Features	
1	A spring-return key for starting/resetting the light curtain.
2	A spring-return key selector for controlling the “guard override” (bypass) function.
3	An LED indicating when the light curtains is breached (OSSD open).
4	A flashing lamp indicating that the light curtain’s safety function has been suspended (MUTE), which is in the form of a signalling tower, as is sometimes required on certain items of equipment.
5	Connections between the light curtain and JNC-BOX-4500, using a range of pre-assembled cables from 3 to 20 metres.
6	“Light curtain status” and “MUTE status” signalling outputs via a relay with a changeover contact (free NO/NC contact).


Dimensions, mm (h x w x d)			JNC-BOX-4500	JNC-BOX-4500 - LC-C	JNC-BOX-4500 - LC-M	JNC-BOX-4500 - LC-S
Code			G-50	G-51	G-52	G-53
Model			E2215	E2216	E2217	E2218
						
1		Start/Reset	•	•	•	•
2		Override	•	•	•	•
3		OSSD Lamp	•	•		•
4		Mute Lamp	•			
		Mute Lamp (Flashing)		•	•	
5		Connectors	•	•	•	•
6	Status output on NO/NC contacts		1+1			

■ Accessories

TX/cabinet connecting cable with right connector M12/F 4-pins	Code	Model	Length
	E-20	4C03TX-8SB33	3[m]
	E-22	4C05TX-8SB34	5[m]
	E-24	4C10TX-8SB35	10[m]
	E-26	4C15TX-8SB36	15[m]
	E-27	4C20TX-8SB37	20[m]

RX/cabinet connecting cable with right connector M23/F 19-pins	Code	Model	Length
	E-70	4C03RX-8SB38	3[m]
	E-71	4C05RX-8SB39	5[m]
	E-72	4C10RX-8SB40	10[m]
	E-73	4C15RX-8SB41	15[m]
	E-74	4C20RX-8SB42	20[m]

RX/JNC-BOX connecting cable with right 2 connectors M12/F 4-pins	Code	Model	Length
	E-40	4C03TX-JNC-8SB48C	3[m]
	E-41	4C03TX-JNC-8SB49C	5[m]
	E-42	4C03TX-JNC-8SB50C	10[m]
	E-43	4C03TX-JNC-8SB51C	15[m]
	E-44	4C03TX-JNC-8SB52C	20[m]

TX/JNC-BOX connecting cable with right 2 connectors M23/F 19-pins	Code	Model	Length
	E-75	4C03RX-JNC-8SB43C	3[m]
	E-76	4C05RX-JNC-8SB44C	5[m]
	E-77	4C10RX-JNC-8SB45C	10[m]
	E-78	4C15RX-JNC-8SB46C	15[m]
	E-79	4C20RX-JNC-8SB47C	20[m]

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