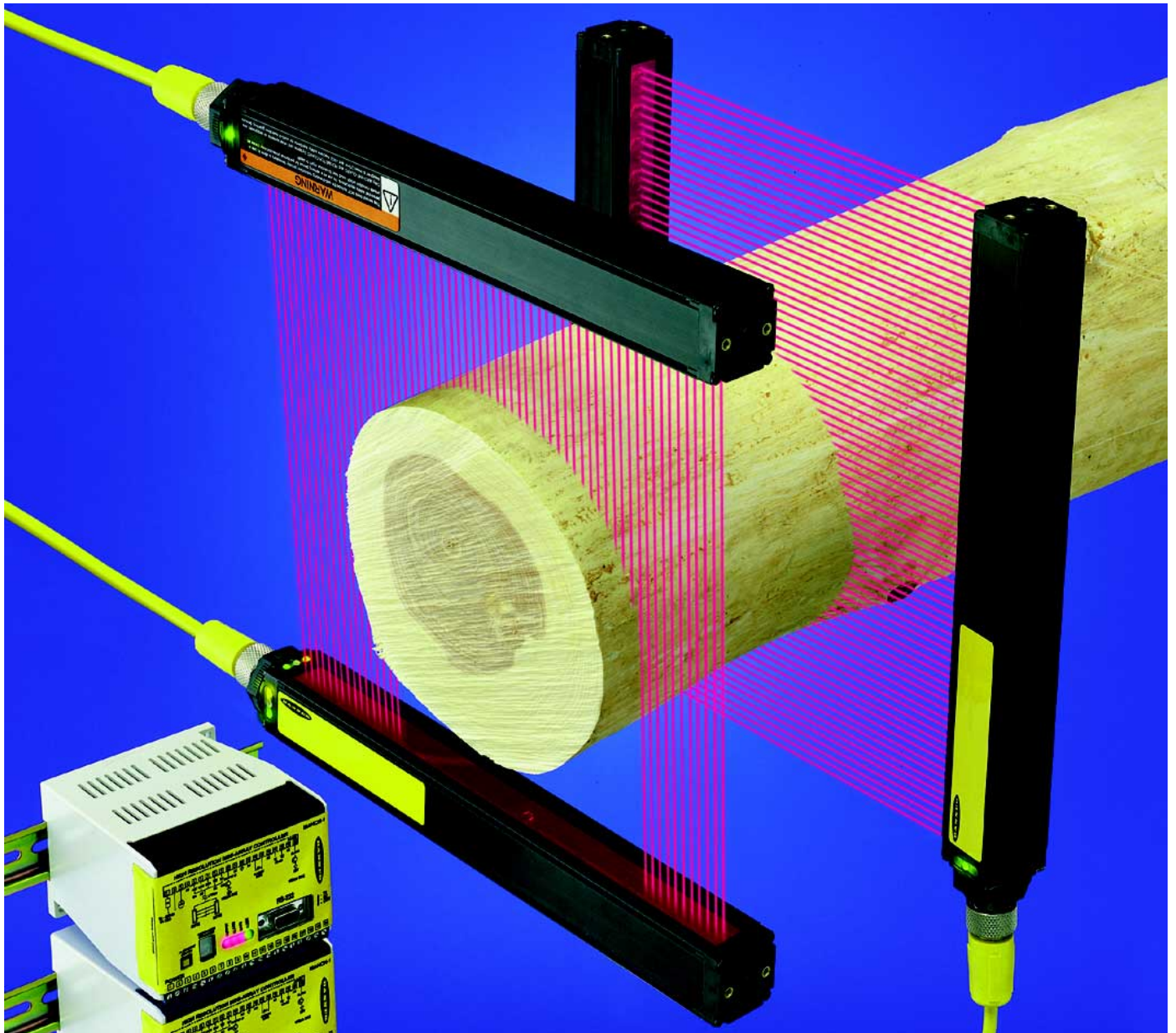


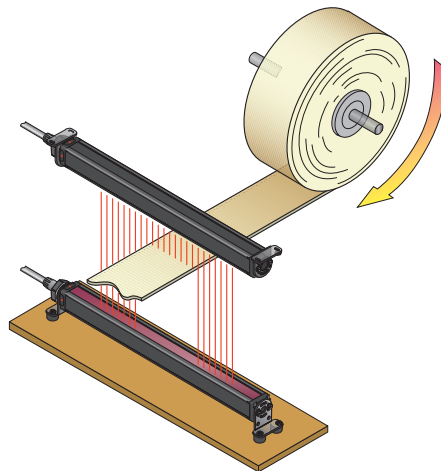


A-Gage™ High-Resolution MINI-ARRAY™ Measuring Light Curtain

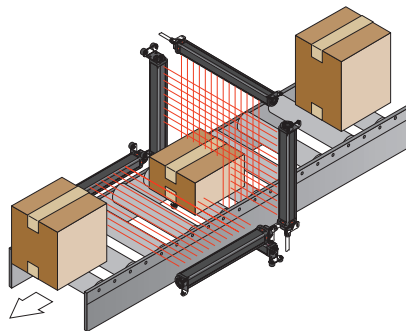


A-Gage™ High-Resolution MINI-ARRAY™ Measuring Light Curtain

- 2,5 mm resolution capability
- Light curtain available in 12 heights (163 ... 1951 mm)
- Range up to 1,8 m
- Micro processor control unit with RS232 interface
- Two independent programmable discrete or analogue outputs
- Windows based configuration software for PC
- High-speed scanning modes for height and width measurement
- Serial communication with host allows detailed analysis
- Status indicators on emitter, receiver and control module



Edge guiding



Box profiling

A-Gage™ High-Resolution MINI-ARRAY™ Measuring Light Curtain

The High-Resolution MINI-ARRAY measuring light curtain is ideal for applications such as accurate on-the-fly product measuring and profiling, edge and center guiding, loop tensioning control and similar uses.

Components

A system consists of five components: an emitter, a receiver, a controller and 2 inter-connection cables. In addition, supplied configuration software is used with the user's PC to configure the system. Emitter and receiver each have two built-in columns of optical elements (infrared LED for the emitters, phototransistors for the receivers). The columns are staggered from each other by 2,5 mm and separated by 7,5 mm. This allows reliable detection of a cylindrical object with diameter 2,5 mm and length 12,5 mm.

The array height ranges from 160 to 1950 mm, in 160 mm increments. The controller is available in four different output configurations: two analogue output models (with two 4-20 mA or 0-10 V outputs, plus an additional NPN alarm output) and two discrete output models (with two PNP or NPN outputs). Emitter and receiver are wired in parallel to the controller using shielded twisted pair cables.

Scan analysis modes

The High-Resolution MINI-ARRAY has from 64 beams, for the 160 mm model, to 768 for the 1900 mm array. The controller can be configured to analyze the scan based on the following criteria:

- FBB:** from the connector end, the location of the first beam that is blocked.
- LBB:** from the connector end, the location of the last beam that is blocked.
- TBB:** the total number of beams that are blocked.

MBB: the middle beam blocked, calculated from the average between the first and the last beam blocked.

FBM: the first beam that is cleared.

LBM: the last beam that is cleared.

TBM: the total number of beams that are cleared.

CBB: the largest number of consecutively blocked beams.

CBM: the largest number of consecutively cleared beams.

TRN: the number of transitions from blocked to clear and from clear to blocked (useful for counting objects).

Scanning modes

The scan rate for the High-Resolution MINI-ARRAY depends on the length of the array. The 160 mm array makes one scan in 5,3 ms. The 1900 mm model needs 55 ms for one complete scan.

To measure the height of a single solid object, the single-edge scan takes only 1,8 ms, regardless of the length of the array. (Single edge scan requires the first beam closest to the connector end to be blocked). Scan rates are between 1,4 and 1,8 ms maximum. The double-edge mode trades off minimum object size for scanning speed. To locate the object, a user-defined skip rate is used, from which both edges of the product are determined. Scan rates can vary from 28,2 to 3,8 ms for the 1950 mm array.

Configuration software

The configuration software can be installed on any PC that runs Windows. The software allows the configuration of the controller. These configuration settings can be stored on the user's PC. Via a serial RS232 link, the settings can be up- or downloaded to/from the controller. The configuration software also allows the on-line monitoring of the status of all beams and the configuration of blanking zones.

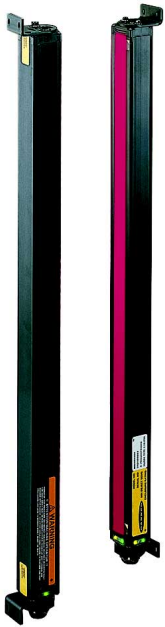
Scan control

For most applications, the High-Resolution MINI-ARRAY will scan continuously, updating analogue and/or digital outputs. The scan can also be controlled via a gate input on the controller. If this mode is selected, scanning only occurs when the gating input is between +15 V and +30 V.

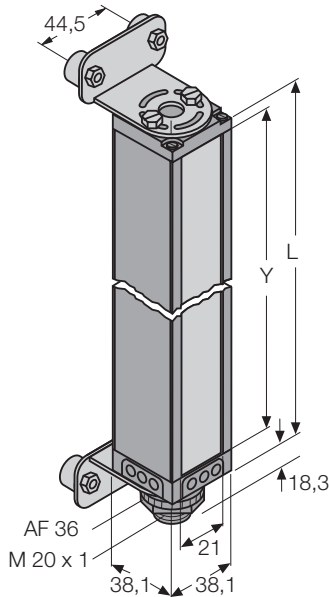
A host (PC or PLC) also can control scanning via the serial interface. The controller can provide all scan data to the host for further analysis.



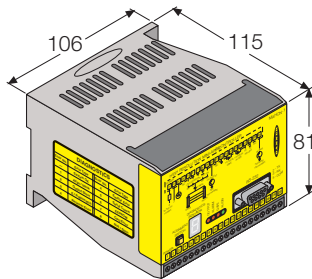
A-Gage™ High-Resolution MINI-ARRAY™ Measuring Light Curtain and Controller



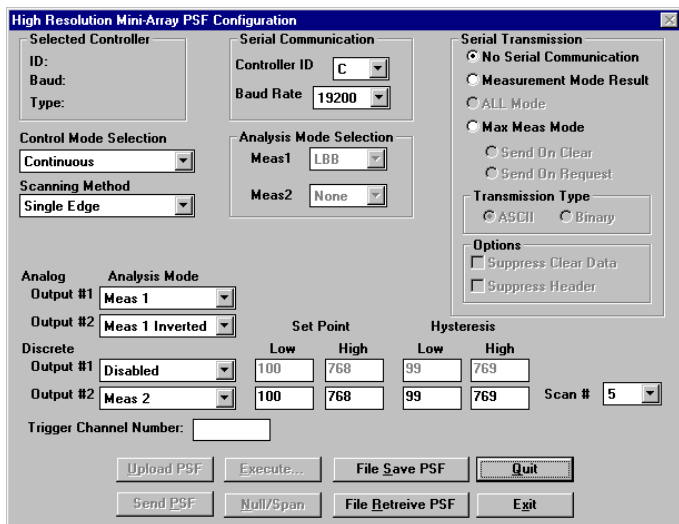
Dimensions [mm]



MAHC...Controller



Configuration software window



Wave length	IR (infrared)	880 nm
Resolution	Minimum object detection size	2,5 mm
	Scan time (straight scanning)	70 µs per light beam plus 1 ms processing time per scan
Supply	Supply voltage	16...30 VDC
	No load current	≤ 1,2 A
	Delay upon power up	5 s
Protection		short-circuit
Output	Continuous load current	≤ 150 mA (switched output)
	Load impedance	≥ 1,5 kΩ (analogue output)
Material	Housing	aluminium (light curtain) polycarbonate (controller)
	Lens	acrylic
	Protection class (IEC 529/DIN 40050-9)	IP65 (light curtain) IP20 (controller)
	Temperature range	0...+50 °C
Indicator LEDs	Red (emitter)	power-on
	Red (receiver)	object detected or light curtain not aligned
	Green (receiver)	proper alignment
	Green + yellow (receiver)	marginal alignment
Controller LEDs	Red Output	analog outputs or discrete output 1 is energised
	Red Alarm	discrete output 2 is energised
	Red Gate	GATE input energised
	Green Alignment	proper alignment
	Diagnostic Indicator	identifies system errors and/or status

Accessories

Cable (2 per system)	
QDC-515C (4,6 m)	30 374 42
QDC-525C (7,6 m)	30 374 43
QDC-550C (15,2 m)	30 374 98

Configuration software included

Mounting stand
MSA... on request

A-Gage™ High-Resolution MINI-ARRAY™ Measuring Light Curtain

	Range [mm]	Housing length L [mm] *	Array height Y [mm] *	Total beams	Connection mode	Type	Ident number
Emitter/receiver	380...1800	236	163	64	connector	MAHE6A emitter	30 493 51
	380...1800	399	325	128	connector	MAHR6A receiver	30 493 59
	380...1800	399	325	128	connector	MAHE13A emitter	30 493 52
	380...1800	399	325	128	connector	MAHR13A receiver	30 493 60
	380...1800	561	488	192	connector	MAHE19A emitter	30 493 53
	380...1800	561	488	192	connector	MAHR19A receiver	30 493 61
	380...1800	724	650	256	connector	MAHE26A emitter	30 493 54
	380...1800	724	650	256	connector	MAHR26A receiver	30 493 62
	380...1800	887	813	320	connector	MAHE32A emitter	30 493 55
	380...1800	887	813	320	connector	MAHR32A receiver	30 493 63
	380...1800	1049	975	384	connector	MAHE38A emitter	30 493 56
	380...1800	1049	975	384	connector	MAHR38A receiver	30 493 64
	380...1800	1215	1138	448	connector	MAHE45A emitter	30 493 57
	380...1800	1215	1138	448	connector	MAHR45A receiver	30 493 65
380...1800	1377	1300	512	connector	MAHE51A emitter	30 493 58	
380...1800	1377	1300	512	connector	MAHR51A receiver	30 493 66	
380...1800	1540	1463	576	connector	MAHE58A emitter	30 535 91	
380...1800	1540	1463	576	connector	MAHR58A receiver	30 535 92	
380...1800	1703	1626	640	connector	MAHE64A emitter	30 495 93	
380...1800	1703	1626	640	connector	MAHR64A receiver	30 495 94	
380...1800	1865	1788	704	connector	MAHE70A emitter	30 535 95	
380...1800	1865	1788	704	connector	MAHR70A receiver	30 535 96	
380...1800	2028	1951	768	connector	MAHE77A emitter	30 495 97	
380...1800	2028	1951	768	connector	MAHR77A receiver	30 495 98	
Controllers	Outputs / Interface** pnp (2 x) / RS232 or RS485 npn (2 x) / RS232 or RS485 4...20 mA (2 x), npn (1 x) / RS232 only 0...10 V (2 x), npn (1 x) / RS232 only					Type MAHCP-1 MAHCN-1 MAHCI-1 MAHCV-1	Ident-No. 30 493 68 30 493 67 30 535 90 30 493 69

* Refer to dimension drawing

** Configuration only via RS232

Subject to changes without notice • Edition 09.99 • P/N ED04319A



IMPORTANT SAFETY WARNING ! These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can result in either an energised or de-energised output condition. These products should not be used as sensing devices for personnel safety.