Panasonic
ideas for life

Image Processing Device
MICRO-IMAGECHECKER®

A210·A110

MultiChecker Ver.2 Series

It won't stop advancing. The monstrously small A Series!

Panasonic Electric Works

The MultiChecker V2 Series - more powerful than ever!

Our highly acclaimed, compact A210 and A110 MultiChecker image processing units are now even more powerful! The V2 (Ver. 2) upgrade includes new functions for even greater convenience. To meet your diverse range of inspection requirements, we have increased the number of checkers by a factor of three. In addition to making more inspection locations possible, they now come equipped with a new mode that allows two-level branch inspection using one image checker, and an extensive range of functions that allow use in a wide range of applications.

Three times the processing capacity of their predecessors!
Designed to meet a diverse variety of inspection needs!

You can now register three times more checkers per type!

A210 MultiChecker: increased from 32 to **96**

A110 MultiChecker: increased from 16 to **48**

Possible to choose from three execution modes to suit your inspection requirements!

MICRO-IMAGECHECKER A210 and A110 MultiChecker V2 (Photo shows A210)

Automatic Switch Mode

Branch inspection without complicated settings provides great convenience!

Example

It is possible to first make a direction judgment, and then perform a separate inspection (character appearance or mark width measurement) based on this direction.
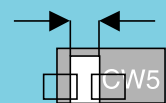
Conventional method

Execute all checkers and output results
Perform direction judgment externally and compare results
Execution time: 65msec.

Automatic Switch Mode

Perform direction judgment and execute the required checker
Execution time: 35msec!   *Execution time reduced by half!*

Detect the direction judgment marker

Execute block 1 (5 msec)

Normal direction   Direction judgment   Reverse direction

Execute Block 2 (30msec)
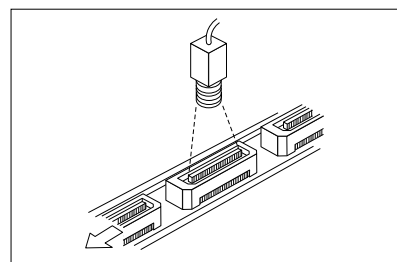
Execute Block 3 (30msec)

New

User-Defined Mode

Multiple inspections of up to three blocks with no switching time!

Example

When you wish to perform multiple continuous inspections because the work will not fit in the field of view of a single image capture.
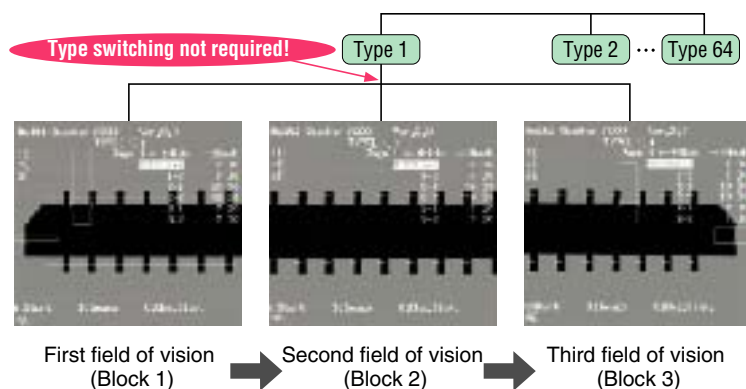
Conventional method

Handled by type switching using an external device.
Type switching requires time and usage restrictions apply.

User-Defined Mode

Internally switches to the process block via an external signal.
External device is not used, so inspection time is greatly reduced!
*Can be executed from the keypad as well.

Type switching not required! — Type 1   Type 2 ··· Type 64

First field of vision (Block 1) → Second field of vision (Block 2) → Third field of vision (Block 3)

Execute All Mode

Three times the number of checkers can now be registered per type, so you can inspect many points at one time!

Example

Multiple simultaneous point inspection possible for applications such as inspecting LED lighting.

Plenty of external outputs for judgment results (96 points for the A210 and 48 points for the A110) allow simultaneous output of judgment results for multiple inspection points.
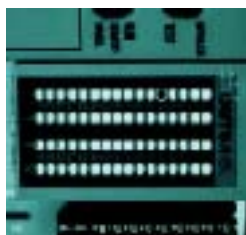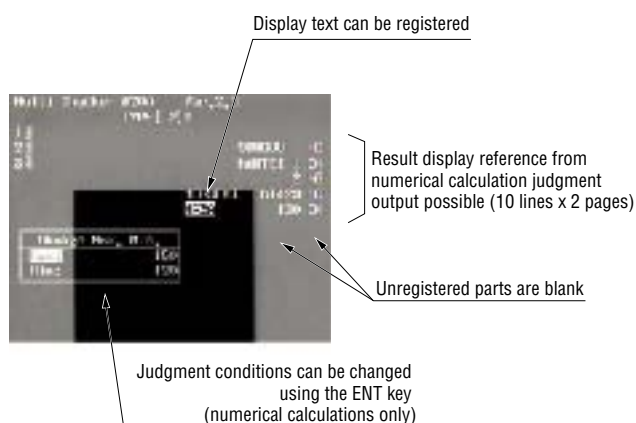
As always, the A Series is packed with easy-to-use features.

In addition to the ease-of-use and reliability that you expect from the No. 1 manufacturer in the field, we also provide convenient new functions for a diverse range of solutions.

Convenient new display function

Data Monitor Function

Titles and results of numerical calculations and judgment outputs can be displayed on the inspection screen. You can register your own text for display, and change the maximum and minimum limits for numerical calculations directly from the menu.

Display text can be registered

Result display reference from numerical calculation judgment output possible (10 lines x 2 pages)

Unregistered parts are blank

Judgment conditions can be changed using the ENT key (numerical calculations only)

Marker Function

Up to eight graphics (circles, ellipses, rectangles and lines) can be displayed on the inspection screen. This is very convenient when performing manual positioning for camera adjustment with production equipment.
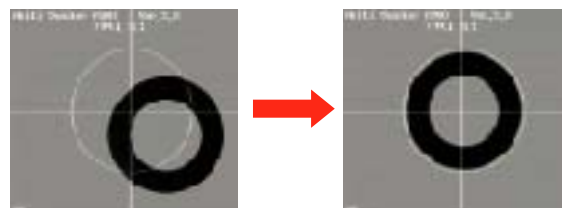
Two-image switch/split function (A210 only)

When using two cameras simultaneously for an operation such as measuring the distance between two points, you can use an external signal to switch the display. It is also possible to split images captured by two cameras for display as one image on the screen. You can select either vertical or horizontal for the image split direction.

Camera A

Camera B

Switch

Split display
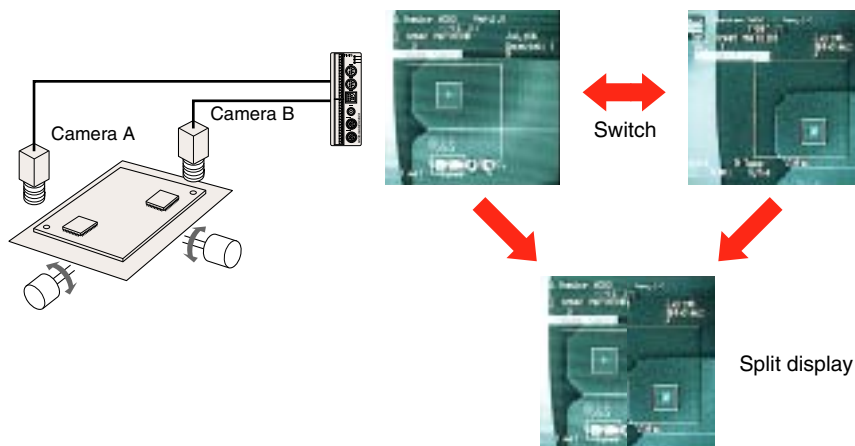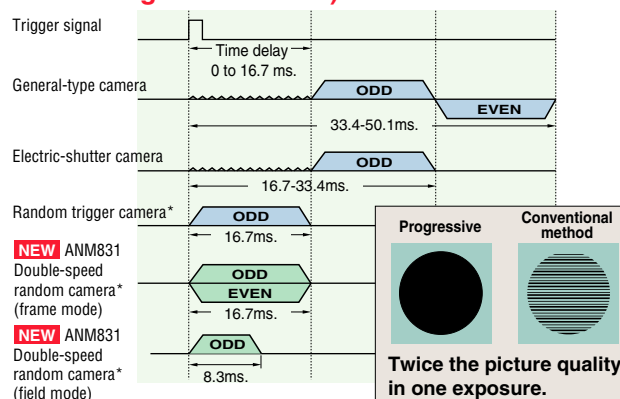
Extensive array of image capture functions

Double-speed random camera (progressive rectangular-lattice CCD element)

With the A series, we introduced a progressive double-speed random camera that provides 3 times the maximum ratio of conventional units with 1/60 second for a high-quality picture and no image degradation. In field mode, it reaches 4 times for 1/120 second. The result is fast inspection without having to worry about inspection time or image quality.

Internal synchronous signal inspection

Compatible with the internal synchronous signal of NTSC, video scopes and special cameras can also be used. However, depending on the model, some may not be able to be connected. Consult your Matsushita Electric Works representative (there is one connection port).

(Fastest images in its class)

Trigger signal

Time delay 0 to 16.7 ms.

General-type camera

ODD

EVEN

33.4-50.1ms.

Electric-shutter camera

ODD

16.7-33.4ms.

Random trigger camera*

ODD

16.7ms.

NEW ANM831 Double-speed random camera* (frame mode)

ODD

EVEN

16.7ms.

NEW ANM831 Double-speed random camera* (field mode)

ODD

8.3ms.

Progressive

Conventional method

Twice the picture quality in one exposure.

*The shutter speed on the random camera, before exposure, needs to be set to 1/120 to 1/20000 seconds.

Connects to a variety of PLCs

The A Series can connect to a range of PLCs without a communication program. In addition to the Matsushita Electric Works PLC-FP Series, it can be used with PLC products from Mitsubishi, Omron, and Allen-Bradley (Ver. 2.2 or later).

The A Series can perform type switching data communication and read and write measurement data and inspection results to and from PLCs without requiring that you create a communication program.

Compatible PLC products

Matsushita Electric Works FP Series
Mitsubishi MELSEC A series/FX Series
Omron SYSMAC-C Series
Allen-Bradley SLC500 (Ver. 2.2 or later)

Data registers				
DT100	1	2	3	5
DT101	2	4	3	0
DT102			:	
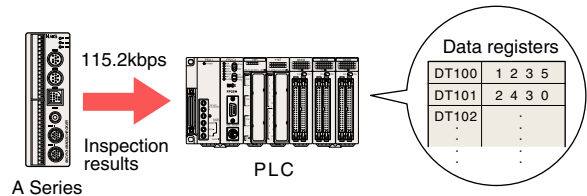
Inspection conditions can also be modified from the PLC!

Speed and precision (Strongest in its class)

The A series comes equipped with a 32-bit RISC, 200 MHz CPU with pipeline processing.

It attains 360 MIPS and 1.4 GFLOPS for astronomically high-speed processing. With the super-quick CPU, increased floating point operation speed, pipeline processing, specially designed algorithms, and a large memory capacity, it achieves not only extremely high-speed inspection, but also the ultimate in precision as well.

360 MIPS
32bit RISC CPU
Floating point operations 1.4 billion times/sec.
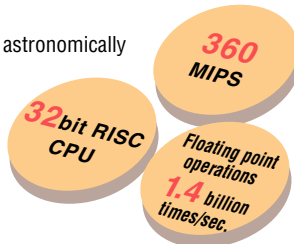
Reduced size (Smallest in its class)

With a small 120 × 40mm footprint, installation is simple. Tight installation with checkers next to each other is also possible. With considerations for wiring, connectors, and removable terminal blocks, installation with all units facing one direction is possible for no wasted space. Installation on DIN rails is also possible.

40mm
120mm

Side-by-side OK!

Removable terminal block

Two types available to suit your application

A210 with two camera connections and high-end functions

A210 (set)

A110 with one camera connection and good cost performance

We offer true cost performance and wipe away the concept that image processing is expensive.

A110 Controller

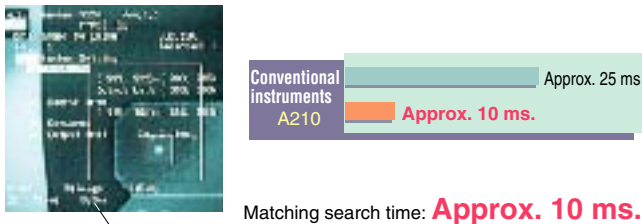A110 (set)

Further refined inspection functions.

The A Series is loaded with inspection know how that we have distilled over our years in this industry.
With a single unit you can perform fast and accurate detection, dimension measurement and coordinate detection!

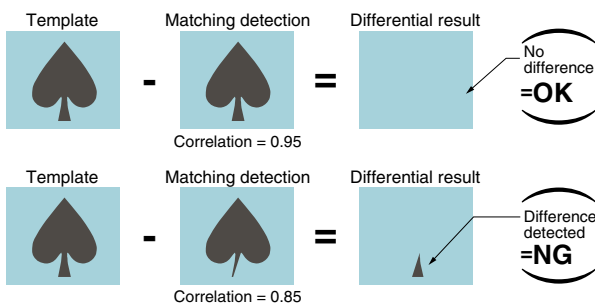## 1 Smart matching (A210) / Matching (A110).

A High-speed, high-precision sub-pixel detection (Fastest level in its class).

With a high-speed CPU, vast memory, and original algorithm, even with a 64 × 64-pixel template, 256 × 256-pixel search area, and sub-pixel precision detection, you still get a processing time of about 10 ms. As you can see, this is the ultimate in speed and precision for position detection.

|	
Conventional instruments	Approx. 25 ms
A210	Approx. 10 ms.

Matching search time: **Approx. 10 ms.**

B Smart matching (A210).

Sub-pixel position detection takes place with gray-scale matching and the gray-scale differential function gives even more detailed work inspection.
This gives you accurate inspection even in cases where matching processing alone would fail.

Template − Matching detection = Differential result
Correlation = 0.95
No difference =OK

Template − Matching detection = Differential result
Correlation = 0.85
Difference detected =NG

C Smart template (A210).

Just by showing multiple examples of the correct products, correct product images can be automatically composed. This allows simple inspection without setting complex parameters.

Smart template
OK + OK + OK → NG
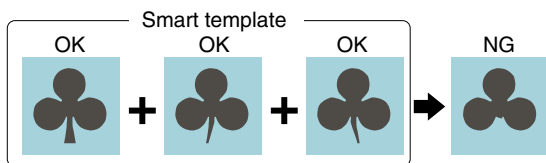
D Smart matching rotational adjustment (A210)

With the rotational adjustment function and the A210, a search is conducted by tilting the matching and smart matching search areas and templates. Therefore, even if the work has been tilted, a more precise position inspection is obtained.

Rotation of the search area

Template is tilted and searched
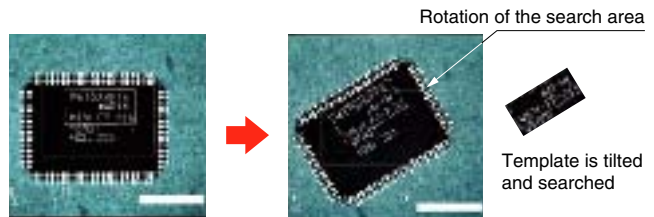
E Rotation position/tilt detection.

With the rotation search function (±30 degrees), no matter how much the detection image is tilted, the position and angle of tilt are accurately ascertained.

F Multiple position detection

Supports the multiple detection function with matching to allow the separate detection of multiple objects of the same pattern in the search area. It is an efficient function when loading is performed by robot or the like.

Multiple position detection.
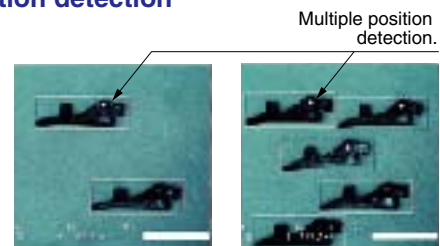

G Teaching function.

Teaching allows changes to be made to the template for matching even from an external signal. Registering the change can be done simply by showing the object for detection.
Teaching also supports positional corrections so that even when work is displaced, teaching can occur.

Teaching with the touch of a button.
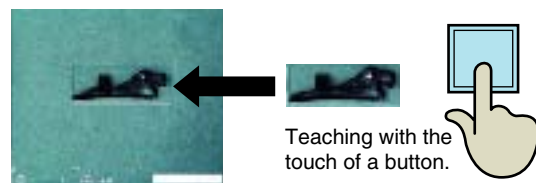
2 Sub-pixel gray-scale edge

Edge positions are measured accurately at the sub-pixel level. Also supports an edge counting function. Also equipped with the projection scanning formula so that the required edge position is detected even with products with a poor surface. With rotational adjustment, diagonal scanning performs sub-pixel edge detection with the gray-scale inter-pixel compensating function.

Pitch calculated by number of pins

Projection scanning edge detection
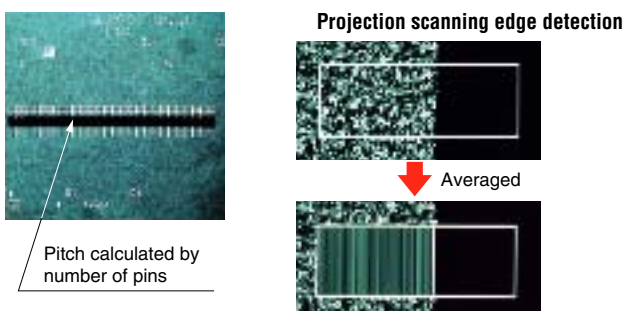
Averaged

3 Gray-scale window

Since the average value for brightness within the area is quickly calculated, directional distinction can still occur even when binary distinction is difficult due to the small differences in the gray-scale levels. You can set mask processing with free shapes (rectangular, oval, polygonal) set to match the inspected object.
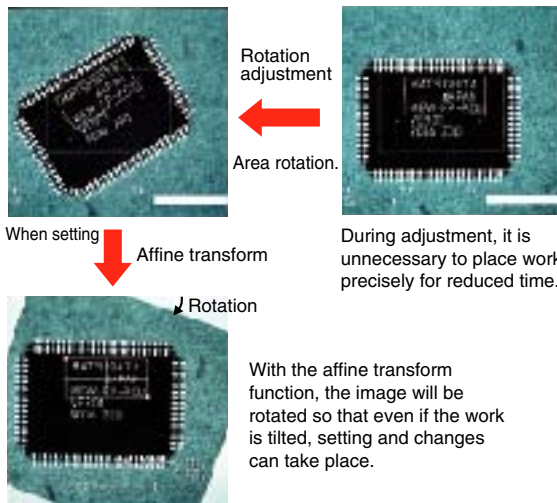

Direction: OK   Direction: Reject

GW1 GW2 GW3 GW4

When the direction is correct:
GW1 becomes brighter than GW2, so
GW1 - GW2 > 0 and GW3 - GW4 = 0.

4 — Rotational* position adjustment function

Automatic adjustment and precise inspection takes place even if the work is tilted or displaced.
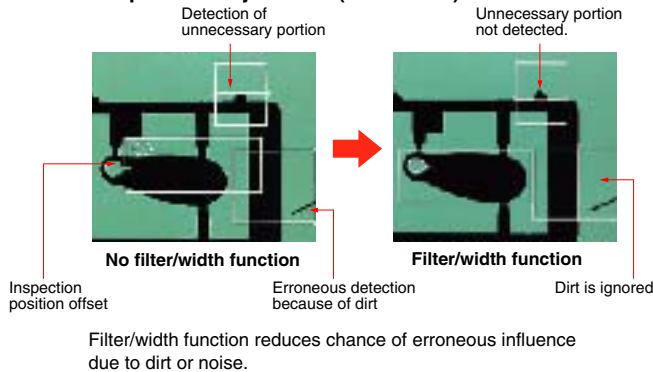Adjustments can be made using the gray-scale data so that differences in brightness can allow accurate corrections. With multiple and priority functions, complex adjustments are also greatly simplified.

*A210 = rotational position adjustment function (X/Y/)
 A110 = position adjustment function (X/Y)

Rotational adjustment (A210)

Rotation adjustment

Area rotation.

When setting

Affine transform

Rotation

During adjustment, it is unnecessary to place work precisely for reduced time.

With the affine transform function, the image will be rotated so that even if the work is tilted, setting and changes can take place.

Accurate position adjustment (A210/A110)

Detection of unnecessary portion

Unnecessary portion not detected.

No filter/width function

Filter/width function

Inspection position offset

Erroneous detection because of dirt

Dirt is ignored

Filter/width function reduces chance of erroneous influence due to dirt or noise.

## 5 — Improved binary processing function

A A wide range of inspection functions

- Position/size/attitude/size detection with optimum feature extraction labeling.
- Presence/size/orientation inspection with optimum binary window functions.
- High-speed dimension measurements with optimum binary edge detection functions.
- High-speed length/number/presence inspections with optimum line functions.

mounts

Reject location lit up.

Bearing inspection.   Gear tooth inspection.   LED lighting inspection.
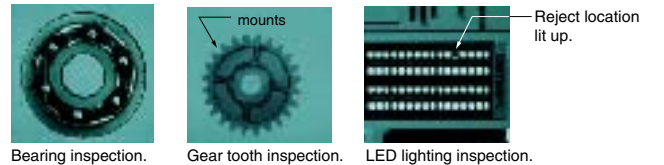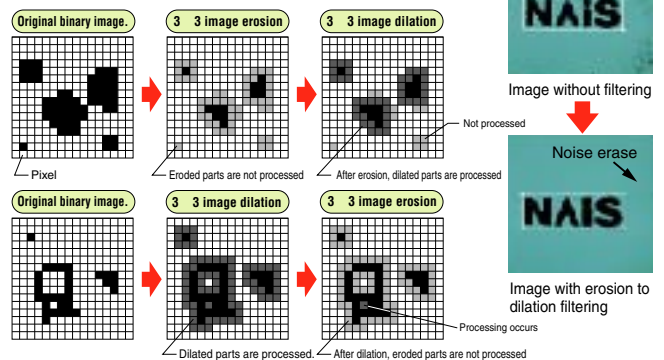
B Free shape

The shape of the inspection area can be freely adjusted between rectangular, oval, or polygonal to match the inspection object. Moreover the mask area (where no inspection takes place) can also be adjusted freely as desired.

Inspection area

Masking area

Base area
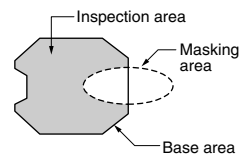
C Image filter function.

Even with binary images containing substantial noise, stable image processing is possible using filter processing such as [image erosion]   [image dilation].
The filter functions will differ depending on the inspection processing.

Original binary image.   3 3 image erosion   3 3 image dilation

Pixel   Eroded parts are not processed   After erosion, dilated parts are processed

Not processed

Original binary image.   3 3 image dilation   3 3 image erosion

Dilated parts are processed.   After dilation, eroded parts are not processed

Processing occurs

Noise

Image without filtering

Noise erase

Image with erosion to dilation filtering

6 — More numerical calculation and judgement output functions.

A Supports 96 numerical calculation formulas (48 for the A110)

Includes sine, cos, square root, arctan absolute differential and projection distance functions in addition to addition, subtraction, multiplication and division, and you can set up to 96 formulas (48 for the A110). You can also reference up to 16 items per formula for complex calculations.

Calculating distances and angles

New calculation formula copy function
(also compatible with judgment formulas)

B Leeway in judgement calculations

Even for complex pass/fail judgement outputs, internal judgment formulae can be made without using the external PLC. Depending on the application, Judgement output can be set for individual and general judgement for each inspection area freely as desired.

Judgement output formula

	Internal judgement calculations	External judgement calculations	Total
A210	96 formulae	96 formulae	192 formulae
A110	48 formulae	48 formulae	96 formulae

C Programless data transfer to the PLC

Using the Matsushita Electric Works. FP-series PLC, the Mitsubishi MELSEC A/FX series PLC, the Omron SYSMAC C series PLC, or the Allen-Bradley SLC 500 PLC (Ver. 2.2 or later), numerical calculation result data and judgement output results can be automatically written to the data register of the PLC at a maximum baud rate of 115200 bps. The image processing data can be used with the I/O sensitivity of the PLC.
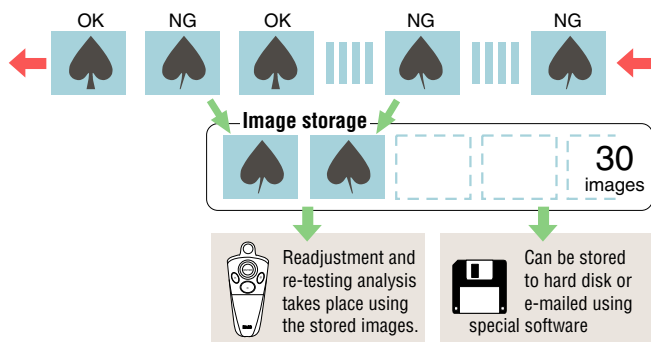
Excellent maintenance characteristics and global compatibility.

Powerful support for startup and maintenance and designed for worldwide use.

Image storage function (A210, A110)

The A Series can store up to 30 defect images, and with the dedicated software tools you analyze the cause of defects at remote locations using e-mail.

Storing up to 30 pictures* of fault occurrences in its memory, it possible for analyzing error causes and making adjustments. When setting up the equipment, inspection images are stored and can be used when making new adjustments and changes. Moreover, the stored images can be used for testing. Also, using special software, image data and inspection conditions can be stored, and then faults can be analyzed and adjustments made at any location using e-mail. Furthermore, the location of all errors are clearly displayed and illuminated so that they can be seen at a glance.

| OK | NG | OK | NG | NG |

Image storage

30 images

Readjustment and re-testing analysis takes place using the stored images.

Can be stored to hard disk or e-mailed using special software

*A210 = 30 image, A110 = 8 images

Vision Backup-Tool Ver.2

The product data created with the MICRO-IMAGECHECKER A series and the image data stored in the controller can be stored on a PC using Windows.
Stored data can be restored to the A series controller.

* However, it is not possible to directly restore type data backed up using Vision Backup-Tool with the previous product (Ver. 1) to V2 (Ver. 2). In this case, use the dedicated data conversion software (freeware) to convert the Ver. 1 type data for V2 use, then transfer it to V2 and perform a backup again. If you require the data conversion software, contact your Matsushita Automation Controls Co. Ltd. representative.

Setup help function

Quantitative support for settings that once relied on intuition.

With the setup help function, focusing, brightness adjustment, exposure adjustment, binary level settings, and other adjustments that used to be performed by the operator's professional experience, these adjustments can now be performed quantitatively. Equipped with an input monitor and test output functions, connections to external equipment are also greatly simplified. Great savings can be made in debugging and adjustment by the combination of the trap function, which halts inspection when an error is found, and the image storage and spreadsheet functions.

Focus adjustment   Aperture adjustment   Binarization adjustment

Global application

English-Japanese interchange and CE certification

Displays for the one controller can be set to either English or Japanese to allow use in a great number of countries around the globe. The controller and high-speed random trigger camera are standard products and are certified with CE markings.
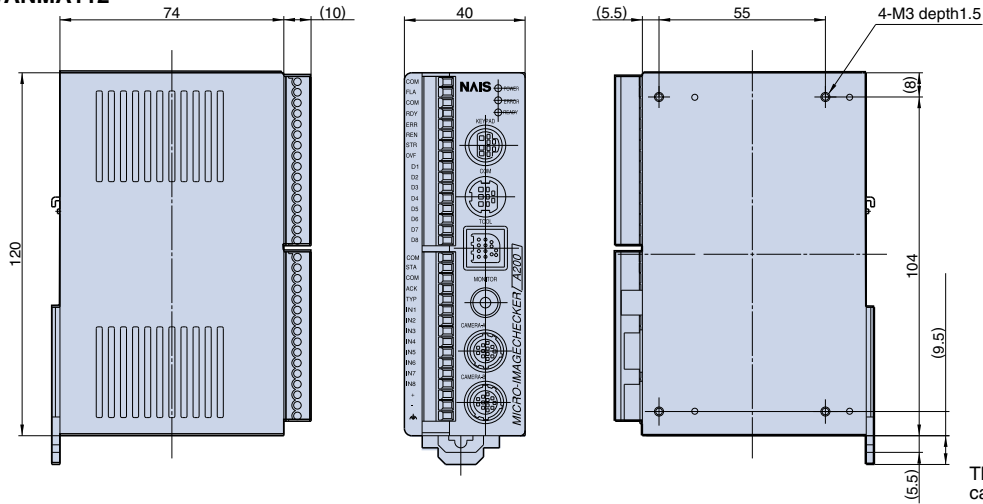
English

Japanese

Video game style control

Dimensions (unit: mm)

A110/A210 Controller
ANMA212V2/ANMA212
ANMA112V2/ANMA112

74 (10)   40   (5.5) 55   4-M3 depth1.5

120   (8)   104   (9.5)   (5.5)

The A110 does not have a camera B port

Double-speed random camera: C mount
ANM831

31   54.5   46.5   8   10   29

19   24.5±0.6   4-M3 (depth 2.5mm)   31   24.5±0.6   1/4-20UNC (depth 9mm)
13   26±0.6   31
2-M3(depth 4mm)   2.5
(3.25)   (19)   (31.3)

Without mounting bracket   With mounting bracket
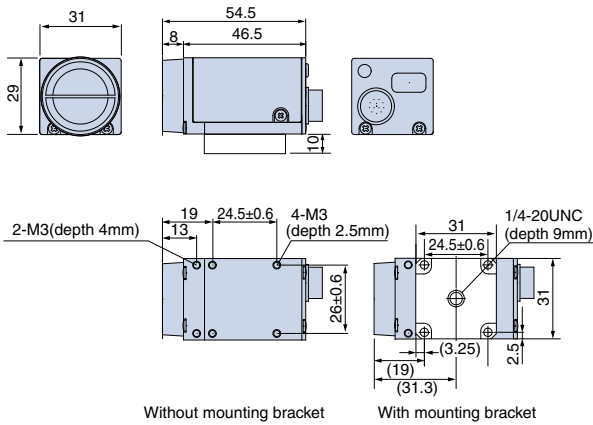
CS mount camera: CS mount
ANM832/ANM832CE/ANM83203

31   49.5   8   *1)   (43)   (depth 14.7)   29
(depth 6.7)   38   10.5±0.2

14   24.5±0.2   4-M3(depth 2.5mm)   2-M3(depth 7mm)
8   26±0.2   18   15   28±0.2   23±0.2
2-M3(depth 4mm)   32.15   1/4-20UNC depth 10mm

Without mounting bracket   With mounting bracket

*1) ANM832: 3000 $^{+80}_{0}$
ANM832CE: 2780 $^{+80}_{-10}$
ANM83203: 300 $^{+10}_{0}$
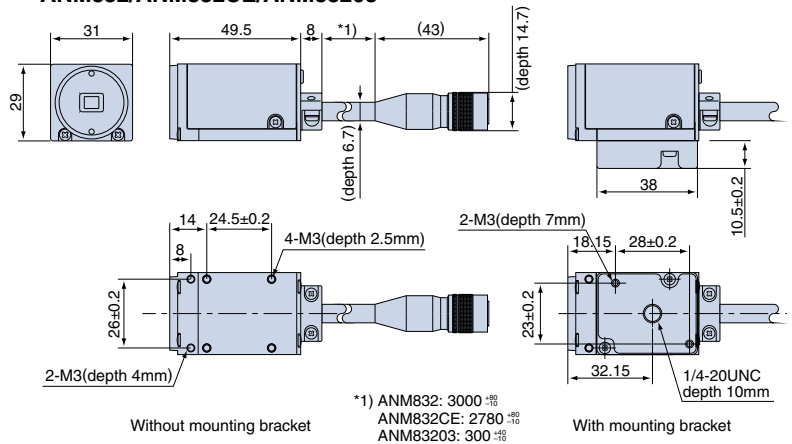
Operating key pad
ANM8520 □
ANM8520 □ CE
□: Length of cable

54.4   46   124.6   18   *A   ø11.5
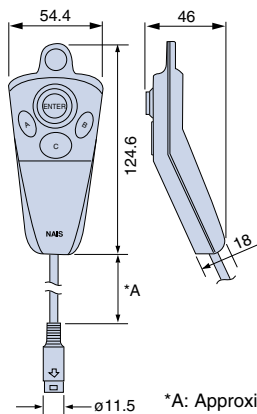
*A: Approximated length of cable for keypad used
The cable is slightly shorter on keypads with CE marking.

Monitor
ANMA810 (100 V AC)

220 ±1   280 ±2
215 ±1   125 REF
4-M3   ø20 ±1   160 ±0.3   7 ±1   68.2 ±1   144.5 ±0.3
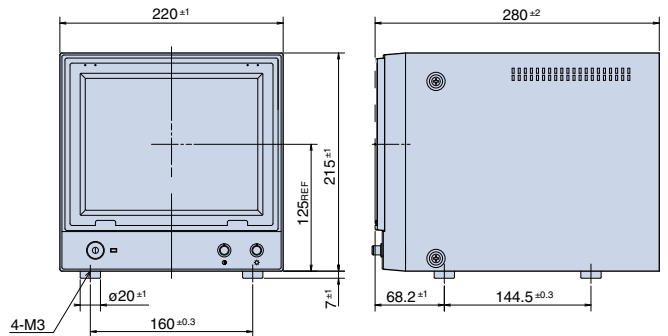
Note: Allow 80 mm behind the monitor for wiring and heat radiation.
Monitor input/output uses a BNC terminal.

Lens

Mounting screws (locked lens only)

A   B

C Mount lens		A	B
ANB842	f=6.5	=48	42
ANB843(L)	f=8.5	=42	40
ANB845N(L)	f=16	=30	33
ANB846N(L)	f=25	=30	37.3
ANB88161	f=16	=30.5	25
ANB88251	f=25	=30.5	25.5
ANB847(L)	f=50	=48	48
ANM8850	f=50	=27.5	38.5
ANM88501	f=50	=30.5	38.5

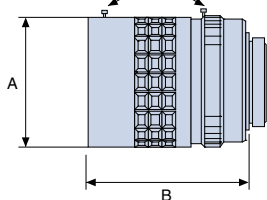| CS Mount lens		A	B
ANM8808	f=8	=34	35
ANM88081	f=8	=31	35
ANM8804	f=4	=34	41
ANM88041	f=4	=31	40
ANM8828	f=2.8	=34	38
ANM88281	f=2.8	=31	37.5

Camera cable
ANM84303/ANM84303CE
ANM840 □ A
ANM840 □ ACE
□: Length of cable

*B   (43)   ø14.7
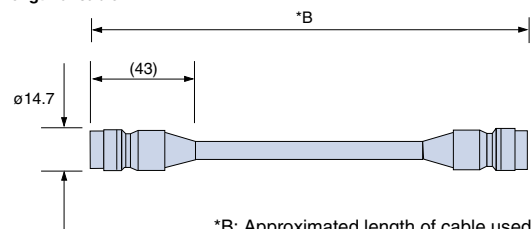
*B: Approximated length of cable used
The cable is slightly shorter on keypads with CE marking.

9

A210 and A110 MultiChecker Performance Specifications

Comparison Table

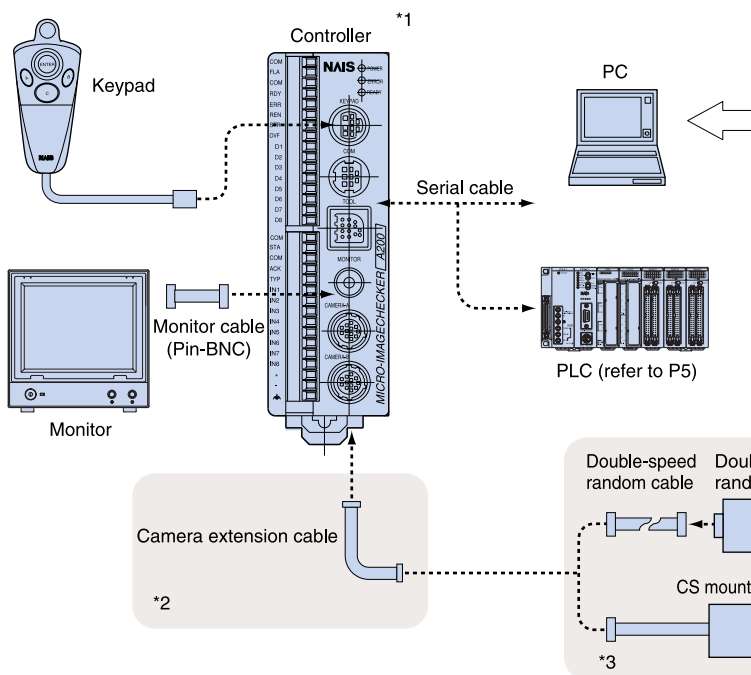| Item		A210 MultiChecker V2	A110 MultiChecker V2	A210 MultiChecker	A110 MultiChecker
CPU		32-bit RISC CPU (high-speed processing version)	32-bit RISC CPU	32-bit RISC CPU (high-speed processing version)	32-bit RISC CPU
Frame memory		512 480 (pixels) 256 gradations			
Operator interface		Menu selection by specialized keypad Menu selection using the key emulation function (ver. 2.2 or later).		Menu selection by specialized keypad	
Monitor display		Change between Gray-scale memory, Gray-scale through, Binary memory (A/B/C/D/E/F), Binary through (A/B/C/D/E/F), Gray-scale NG, Binary NG (A/B/C/D/E/F)		Change between Gray-scale memory, Gray-scale through, Binary memory (A/B/C/D), Binary through (A/B/C/D), Gray-scale NG, Binary NG (A/B/C/D)	
Processing	Gray-scale	8-bit 256 gradations			
	Binarization	6 groups of binary processing from the gray-scale memory (upper and lower threshold settings)		4 groups of binary processing from the gray-scale memory (upper and lower threshold settings)	
Number of product types		64	32	64	32
Execution modes		Execute all mode: Execute all set checkers Automatic switch mode: Change the checker to be executed in accordance with the judgment output result User-defined mode: Specify the checker for execution when the start signal is input		Not available	
Inspection function	Position and Rotation position adjustment function (per product type)	Max. 96 Rotation position adjustment function	Max. 48 X-Y position adjustment function	Max. 32 Rotation position adjustment function	Max. 4
		Priority adjustment function, Multi-stage adjustment function, Sequence setting by matching, gray-scale edge, binary edge or feature extraction detection position			
	Exposure adjustment (per product type)	Max. 96	Max. 48	Max. 8	Max. 4
		Shape: Rectangular, Slice level adjustment according to changes in the gray-scale data, Gray-scale average value detection and judgement			
	Smart matching and matching (sub-pixel processing)	Smart matching: Max. 96 per product type Equipped with post-detection differential processing function	Matching: Max. 48 per product type	Smart matching: Max. 32 per product type Equipped with post-detection differential processing function	Matching: Max. 4 per product type
		Sub-pixel accurate multiple detection matching by gray-scale correlation processing Rotation by raster detection and raster detection position (±30 degrees) Output: Number of detected items, Correlation numbers, Position, Angle Teaching registered changes can be imported from external source Smart matching (A210): Judgement learning function by the smart template			
	Gray-scale edge detection (sub-pixel processing)	Max. 96 per product type	Max. 48 per product type	Max. 32 per product type	Max. 16 per product type
		Scanning method: Single/Projection, Gray-scale Filter/Width function, Detection by sub-pixel unit Detection position: Start point/Start and End points/Largest differential/Multiple edge			
	Gray-scale window (per product type)	Max. 96	Max. 48	Max. 32	Max. 16
		Shape: Rectangular/Polygonal/Oval, Mask Shape: Rectangular/Polygonal/Oval, Gray-scale average value detection and judgement			
	Feature extraction (per product type)	Max. 96	Max. 48	Max. 32	Max. 16
		Shape: Rectangular/Polygonal/Oval, Mask shape: Rectangular/Polygonal/Oval, Image filtering, Labeling, Output values: Counter/Center of gravity (to one decimal place) /Area/Projection width/Principle axis angle			
	Binary window (per product type)	Max. 96	Max. 48	Max. 32	Max. 16
		Shape: Rectangular/Polygonal/Oval, Mask shape: Rectangular/Polygonal/Oval, Image filtering, White/Black pixel dot count and judgement			
	Binary edge detection (per product type)	Max. 96	Max. 48	Max. 64	Max. 32
		Shape: Line/Plane, Filter/Width function, Start point edge detection			
	Line (per product type)	Max. 96	Max. 48	Max. 32	Max. 16
		Shape: Straight line/Polygonal line/Circle/Arc, Image filtering, White/Black pixel dot/land count and judgement			
	Conversion data	4 registers, Can quote to numerical calculation, Can convert numerical calculation result to actual distance, Base distance, Base pixel, Coefficient			
	Numerical calculations (per product type)	96	48	32	
		Sine, Cosine, Absolute differential, Projection distance, Arithmetic calculations (addition, subtraction, multiplication and division), Arctangent, Root, Distance between points, Specific substitution, Referencing of previous data, Output control		Arithmetic calculations (addition, subtraction, multiplication and division), Arctangent, Root, Distance between points, Specific substitution, Referencing of previous data, Output control	
	Judgement output	External output register (D): Max. 96 per product type Internal output register (R): Max. 96 per product type	External output register (D): Max. 48 per product type Internal output register (R): Max. 48 per product type	External output register (D): Max. 32 per product type Internal output register (R): Max. 32 per product type	External output register (D): Max. 8 per product type Internal output register (R): Max.8 per product type
External interface	Serial	RS232C: 2ch (max.115200bps) Compatible with Matsushita Electric Works PLC FP series, Mitsubishi MELSEC A Series/FX Series, Omron C series, and Allen-Bradley SLC 500 series (Ver 2.2 or later)		RS232C: 2ch (max.115200bps) Compatible with Matsushita Electric Works PLC FP series,	
	Parallel	Input = 11points, Output = 14 points, Removable screw-down terminal block			
Inspection start		Image trigger (timing sensor unnecessary), External sensor timing, Repeat start			

	Item	A210 Multi-checker V2	A110 Multi-checker V2	A210 Multi-checker	A110 Multi-checker
Other	Display functions	Display item suppressing function (menu display hide function), Display image brightness modification, Image suppress function when setting checkers, Image rotation function when setting checkers (A210), Bright display of reject location, Rotational adjustment angle display (A210), Data monitor function, Display of image processed with image filter, Spreadsheet, Display list of checkers		Display item suppressing function (menu display hide function), Display image brightness modification, Image suppress function when setting checkers, Image rotation function when setting checkers (A210), Bright display of reject location, Rotational adjustment angle display (A210), Numerical calculations result display (A210), Display of image processed with image filter, Spreadsheet, Display list of checkers	
	Marker function	Maximum of 8 graphics per product type, Shape: Straight line/Rectangle/Circle, Registered graphics are displayed on the main screen		Not available	
Setup support tools	Image storage function	30 screens	8 screens	32 screens	8 screens
		Save/load function for inspection image (all screens/problem screens), Store images for reinspection/resetting, Windows-PC image save/load function			
	Debugging	Trap function, Image storage function			
	Setup help	Focus setup, Aperture setup, Lighting adjustment, Gray-scale profile monitor, Recommended slice level display, Input monitor, Forced output function			
Moving object inspection		Double-speed random camera (progressive), Flash, Electronic shutter used			
Camera support		High-speed random camera (progressive): ANM831, Standard camera: ANM832, Composite video (NTSC) input used (however the connection requires one port)			
Number of support cameras		2	1	2	1
Operating voltage		24 V DC less than 0.9 A	24 V DC less than 0.7 A	24 V DC less than 0.9 A	24 V DC less than 0.7 A
Setup data backup		Image data and setup data can be saved to a Windows PC using Vision Backup Tool Ver. 2			

* Type data saved in the previous controller of the MICRO-IMAGECHECKER A Series (Ver. 1) cannot be directly restored to V2 using the Vision Backup-Tool. In this case, you will need the dedicated data conversion software (freeware) to convert the Ver. 1 type data for V2 use. If you require the data conversion software or information about how to use it, please contact your dealer.

MICRO-IMAGECHECKER® A210·A110 MultiChecker V2 Series

■ System configuration diagram

*1

Controller
Keypad
PC
Serial cable
Monitor cable
(Pin-BNC)
Monitor
PLC (refer to P5)

Camera extension cable

*2

Double-speed random cable
Double-speed random camera
Lens
Middle ring
CS mount camera
*3

■ Vision Backup-Tool Ver.2

The product data created with the MICRO-IMAGECHECKER A series and the image data stored in the controller can be stored on a PC using Windows.
Stored data can be restored to the A series controller.

* However, it is not possible to directly restore type data backed up using Vision Backup-Tool with the previous product (Ver. 1) to V2 (Ver. 2). In this case, use the dedicated data conversion software (freeware) to convert the Ver. 1 type data for V2 use, then transfer it to V2 and perform a backup again. If you require the data conversion software, contact your Matsushita Automation Controls Co. Ltd. representative.

*1 The A100 series connects to one camera.
*2 Use where necessary.
*3 When using 2 cameras with the A200 series, connect the same type of camera.

■ Table of Product Numbers

● MICRO-IMAGECHECKER A-Series Controller

Item	Specifications		Part No.
MICRO-IMAGECHECKER A200 Series	A210 MultiChecker V2 : CE	NPN Output	ANMA212V2
		PhotoMos Output	ANMA218V2
	A210 MultiChecker : CE	NPN Output	ANMA212
MICRO-IMAGECHECKER A100 Series	A110 MultiChecker V2 : CE	NPN Output	ANMA112V2
		PhotoMos Output	ANMA118V2
	A110 MultiChecker : CE	NPN Output	ANMA112

● Camera / Keypad / Monitor

Item	Specifications	Part No.
C mount camera	Progressive Double-speed Random: CE	ANM831
CS mount camera	support electric-shutter with 3 m cable	ANM832
	support electric-shutter with 3 m cable: CE	ANM832CE
Keypad	with 2 m cable	ANM85202*
	with 3 m cable	ANM85203*
	with 5 m cable	ANM85205*
	with 10 m cable	ANM85210*
CRT Monitor	100 V AC, monochrome	ANMA810

*When ordering CE products, please add "CE" to the end of the product number.

● Camera cable

Item	Specifications	Part No.
Double-speed random camera cable	3 m	ANM84303
	3 m: CE	ANM84303CE
Camera extension cable	2 m extension: total 5 m	ANM84002A
	7 m extension : total 10 m	ANM84007A
	12 m extension: total 15 m	ANM84012A
	17 m extension: total 20 m	ANM84017A
	2 m extension : total 5 m: CE	ANM84002ACE
	7 m extension: total 10 m: CE	ANM84007ACE
	12 m extension: total 15 m: CE	ANM84012ACE
	17 m extension: total 20 m: CE	ANM84017ACE

● Serial Cable

Item	Specifications	Part No.
COM port connecting cable	COM port and PC (D-SUB : 9 pin) connection, 3 m	ANM81103
	COM port and PLC (discrete-wire cable) connection, 3 m	ANM81303
TOOL port connecting cable	COM port and PC (D-SUB : 9 pin) connection, 10 cm	ANM812001

● Lens / middle ring

Item	Specifications	Part No.
CS mount lens	f2.8 CS mount compact lens	ANM8828
	f2.8 CS mount compact lens with lock	ANM88281
	f4 CS mount compact lens	ANM8804
	f4 CS mount compact lens with lock	ANM88041
	f8 CS mount compact lens	ANM8808
	f8 CS mount compact lens with lock	ANM88081
C mount lens	f6.5 C mount lens	ANB842
	f8.5 C mount lens	ANB843
	f8.5 C mount lens with lock	ANB843L
	f16 C mount compact lens	ANB845N
	f16 C mount compact lens with lock	ANB845NL
	f25 C mount compact lens	ANB846N
	f25 C mount compact lens with lock	ANB846NL
	f50 C mount lens	ANB847
	f50 C mount lens with lock	ANB847L
	f50 C mount compact lens	ANM8850
	f50 C mount compact lens with lock	ANM88501
Middle ring	5 mm middle ring	ANB84805
	(0.5/1/5/10/20/40 mm) middle ring	ANB848

● Data backup software

Item	Specifications	Part No.
Vision Backup-Tool Ver.2	English version	ANM70131V2

Microsoft windows NT4.0/95/98/Me/2000 compatible. An operating system is not included with this software.

● Accessories

Item	Specifications	Part No.
I/O terminal block	For input: 1 piece, for output, 1 piece	ANMA8001
BNC connector	Monitor BNC jack to PIN jack adapter	ANM8606

Unless otherwise specified, estimate and delivery prices do not include technician dispatching and other related services. Therefore, for the situations given below, additional charges may be added.
• Installation and trial operation guidance • Inspections, adjustments, and repairs
• Technical support and instruction

To USA Customer
• Products sold by seller are covered by the warranty and patent indemnification provisions in its Terms and Conditions of Sale only.