Eyesight vision system – everything is possible

At last. You can do what you want!

Most image-processing applications can be rapidly and easily solved with pre-configured VISOR® vision sensors. However, their range of functions is not always sufficient for particularly demanding or specific tasks – but here, too, SensoPart has the right solution: the freely programmable Eyesight vision system offers comprehensive configuration possibilities so that you can also implement very complex automation applications with the smart camera. Whereby complex is not synonymous with complicated: graphic programming by means of drag & drop makes it easy for you to "construct" your own applications.

You can choose between two expansion stages:
Eyesight Basic already has all the important routines for object measurement, position determination and tracking, and data communication. Eyesight Advanced offers you additional tools such as warpage point determination, contour inspection/tracking, colour selection/monitoring, brightness correction as well as a variety of filter functions. What can otherwise only be achieved by fully-fledged image-processing systems, you can implement with Eyesight Basic and Eyesight Advanced with considerably less effort – and at a relatively reasonable price.

Taking measures:
The dimensional accuracy of an object (e.g. a turned or pressed part) is an important quality feature, and can indirectly provide information on its consistency, stresses or wear, preventing rejects in downstream processes.

Providing direction:
The correct alignment of an object is an important prerequisite for downstream processes, e.g. for positioning and tracking a gripper. Colours, shapes and contours are suitable for monitoring correct orientation

EYESIGHT HIGHLIGHTS

- Complete image-processing package with robust and flexible smart camera
- Programming via drag & drop of function blocks
- Complex iterative linkage of individual inspections
- Image and result visualisation in inspection mode
- Interpreter for programming one's own functions
- Image processing simulated on PC without camera
- Freely programmable data protocol for Ethernet and serial interface

Preventing faults:
Very different features can be checked at a glance with the Eyesight – here, for example, the position and colour of the cap, filling level and presence of the use-by date. This pays, because each unnoticed fault may be expensive later.

Eyesight Vision Systems – Product Overview

	Firmware Option	Focal length	Integrated illumination	Page
V10-EYE-A1-xxx	Advanced	6	White, red or infrared LEDs	76
V10-EYE-A1-xxx	Advanced	12	White, red or infrared LEDs	78
V10-EYE-A1-xxx	Advanced	C-mount	None	80
FA 45-300-xxx-EBxxx	Basic	6	White or red LEDs	82
FA 45-300-xxx-EBxxx	Basic	12	White or red LEDs	84
FA 45-300-xxx-EBxxx	Basic	C-mount	None	86
FA 45-300-xxx-EAxxx	Advanced	6	White or red LEDs	88
FA 45-300-xxx-EAxxx	Advanced	12	White or red LEDs	90
FA 45-300-xxx-EAxxx	Advanced	C-mount	None	92

V10 Eyesight

Advanced vision system for complex image-processing applications, 6 mm

PRODUCT HIGHLIGHTS

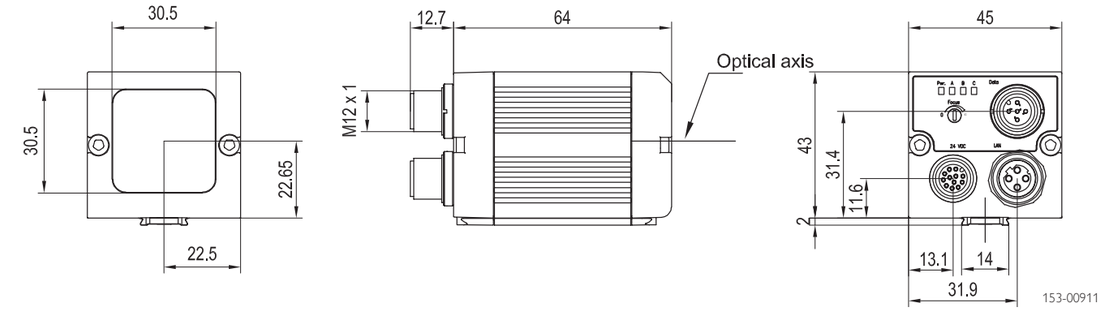
- Complete image-processing package with robust and flexible hardware
- Programming via drag & drop of function blocks
- Complex, iterative linkage of individual inspections
- Image processing can be simulated on the PC without camera
- Image and result visualisation in inspection mode
- Script interpreter for advanced user functions
- Advanced range of commands for complex inspection tasks

Optical data		Functions	
Resolution	736 x 480 pixels	Number of inspection programs	No limitation (max. ca. 40 MB)
CMOS	1/3", monochrome	Functions	All function blocks for object measurement, position determination / tracking, sequence control, data and image transfer, contour inspection, sub-programs, Basic Interpreter.
Integrated lens, focal length	6 mm, adjustable focal position		
Adjustment range	6 mm to infinity		
Integrated illumination	White, red, infrared LEDs		
Minimum field of view, X x Y	5 x 4 mm²	Properties	See overview of commands
		Typical cycle times	Dependent on inspection program
Electrical data		**Mechanical data**	
Operating voltage, $+U_B$	18 … 26.4 V DC[1]	Dimensions	65 x 45 x 45 mm³ (without plug)
Current consumption (without illumination and I/O)	≤ 120 mA	Enclosure rating	IP 67
Current consumption (without I/O)	≤ 200 mA	Material, housing	Aluminium, plastic
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs	Material, front screen	Plastic
		Ambient temperature: operation	0 … +50 °C[2]
Readiness delay	Ca. 13 s after Power on	Ambient temperature: storage	-20 … +60 °C[2]
Outputs	PNP	Weight	Ca. 160 g
Max. output current (per output)	50 mA, 100 mA (pin 12)	Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Inputs	PNP High > U_B-1 V, Low < 3 V		
Input resistance	> 20 kΩ	Vibration and impact resistance	EN 60947-5-2
Interfaces: Eyesight vision system, Advanced	Ethernet (LAN), RS422		
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs		

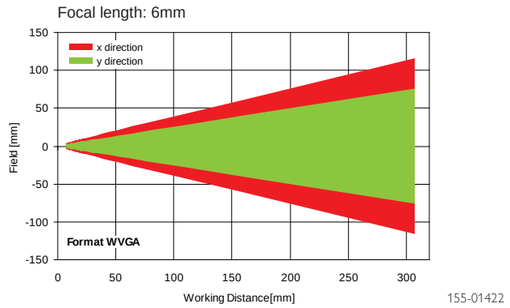
[1] Max. ripple < 5 V_{SS} [3] 80 % air humidity, non-condensing

Illumination	Depth of field	Part number	Article number
White	Normal	V10-EYE-A1-W6	537-91000
Red	Normal	V10-EYE-A1-R6	537-91002
Infrared	Normal	V10-EYE-A1-I6	537-91005

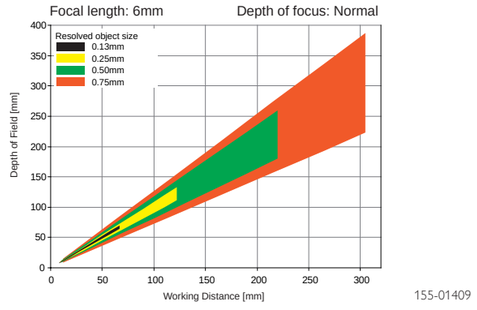
V10 vision system



Field of view



Depth of field: normal



Accessories

Connection cables	From Page 670
Illumination	From Page 663
Brackets	From Page 642
Interface accessories	From Page 674

V10 Eyesight

Advanced vision system for complex image-processing applications, 12 mm

PRODUCT HIGHLIGHTS

- Complete image-processing package with robust and flexible hardware
- Programming via drag & drop of function blocks
- Complex, iterative linkage of individual inspections
- Image processing can be simulated on the PC without camera
- Image and result visualisation in inspection mode
- Script interpreter for advanced user functions
- Advanced range of commands for complex inspection tasks

Optical data	
Resolution	736 x 480 pixels
CMOS	1/3", monochrome
Integrated lens, focal length	12 mm, adjustable focal position
Adjustment range	30 mm to infinity
Integrated illumination	White, red, infrared LEDs
Minimum field of view, X x Y	8 x 6 mm²

Functions	
Number of inspection programs	No limitation (max. ca. 40 MB)
Functions	All function blocks for object measurement, position determination/ tracking, sequence control, data and image transfer, contour inspection, sub-programs, Basic Interpreter.
Properties	See overview of commands
Typical cycle times	Dependent on inspection program

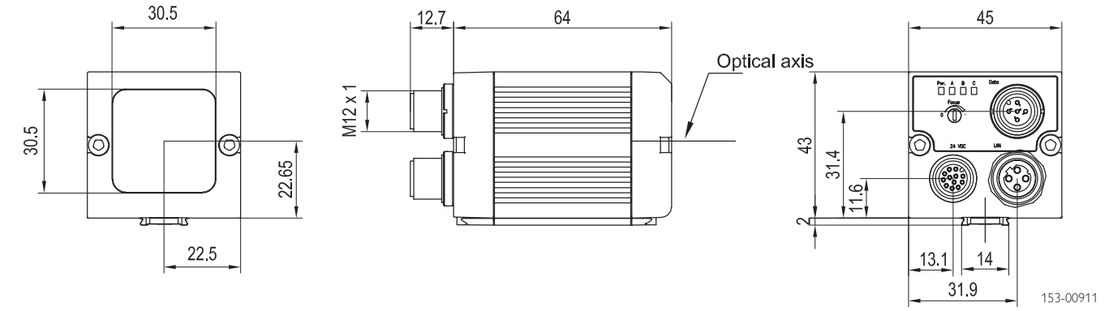
Electrical data	
Operating voltage, +U_B	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Readiness delay	Ca. 13 s after Power on
Outputs	PNP
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP High > U_B-1 V, Low < 3 V
Input resistance	> 20 kΩ
Interfaces: Eyesight vision system, Advanced	Ethernet (LAN), RS422
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

Mechanical data	
Dimensions	65 x 45 x 45 mm³ (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[2]
Ambient temperature: storage	-20 … +60 °C[2]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

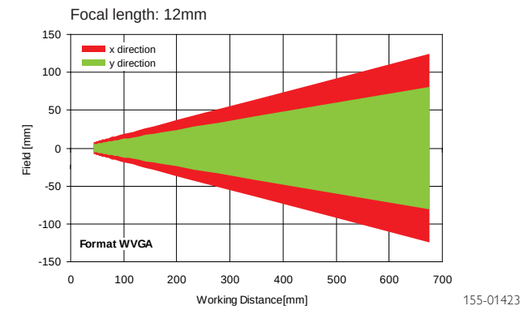
[1] Max. ripple < 5 V_{SS} [2] 80 % air humidity, non-condensing

Illumination	Depth of field	Part number	Article number
White	Normal	V10-EYE-A1-W12	537-91001
Red	Normal	V10-EYE-A1-R12	537-91003
Infrared	Normal	V10-EYE-A1-I12	537-91006

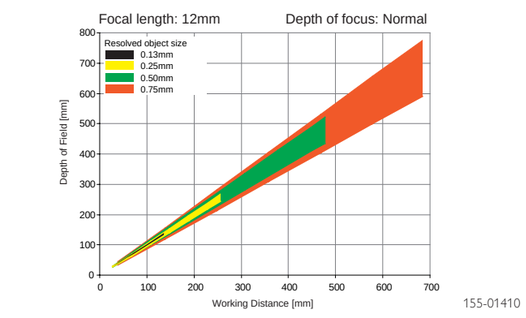
V10 vision system



Field of view



Depth of field: normal



Accessories

Connection cables	From Page 670
Illumination	From Page 663
Brackets	From Page 642
Interface accessories	From Page 674

V10 Eyesight

Advanced vision system for complex image-processing applications, C-mount

PRODUCT HIGHLIGHTS

- Complete image-processing package with robust and flexible hardware
- Programming via drag & drop of function blocks
- Complex, iterative linkage of individual inspections
- Image processing can be simulated on the PC without camera
- Image and result visualisation in inspection mode
- Script interpreter for advanced user functions
- Advanced range of commands for complex inspection tasks

Optical data	
Resolution	736 x 480 pixels
CMOS	1/3", monochrome
Integrated lens, focal length	C-mount
Adjustment range	Dependent on lens
Integrated illumination	None
Minimum field of view, X x Y	Dependent on lens

Functions	
Number of inspection programs	No limitation (max. ca. 40 MB)
Functions	All function blocks for object measurement, position determination/ tracking, sequence control, data and image transfer, contour inspection, sub-programs, Basic Interpreter.
Properties	See overview of commands
Typical cycle times	Dependent on inspection program

Electrical data	
Operating voltage, $+U_B$	18 … 26.4 V DC[1]
Current consumption (without illumination and I/O)	≤ 120 mA
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Readiness delay	Ca. 13 s after Power on
Outputs	PNP
Max. output current (per output)	50 mA, 100 mA (pin 12)
Inputs	PNP High > U_B-1 V, Low < 3 V
Input resistance	> 20 kΩ
Interfaces: Eyesight vision system, Advanced	Ethernet (LAN), RS422
Inputs/outputs	2 inputs, 4 outputs, 4 selectable inputs/outputs

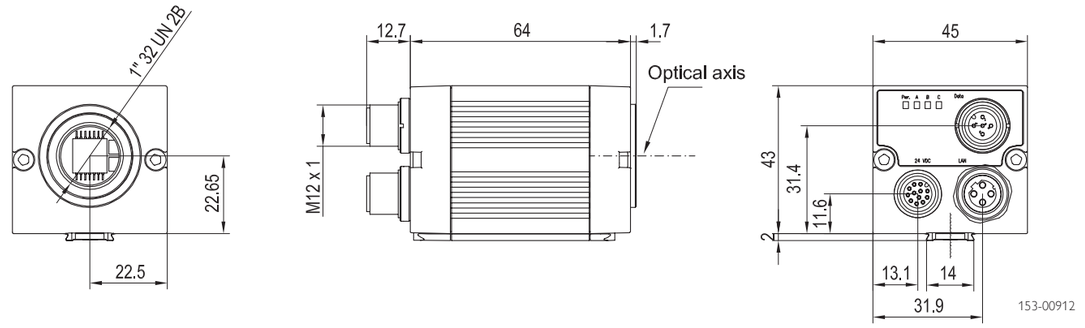
Mechanical data	
Dimensions	65 x 45 x 45 mm³ (without plug)
Enclosure rating	IP 65[2]
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[3]
Ambient temperature: storage	-20 … +60 °C[3]
Weight	Ca. 160 g
Plug connections	Supply and I/O M12, 12-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V_{SS} [2] With LPT45 C-mount protective casing [3] 80 % air humidity, non-condensing

Part number	Article number
V10-EYE-A1-C	537-91004

Version: 06/2012. Subject to changes; diagrams similar

V10 vision system



Lens

	LO C 8	LO C 12	LO C 16	LO C 25	LO C 50
Focal length	8 mm	12 mm	16 mm	25 mm	50 mm
Article number	526-51513	526-51514	526-51515	526-51516	526-51113

Accessories	
Connection cables	From Page 670
Illumination	From Page 663
Lenses	From Page 661
Brackets	From Page 642
Interface accessories	From Page 674

Version: 06/2012. Subject to changes; diagrams similar

FA 45 Eyesight

Basic vision system for complex image-processing applications, 6 mm

PRODUCT HIGHLIGHTS

- Complete image-processing package with robust and flexible hardware
- Programming via drag & drop of function blocks
- Complex, iterative linkage of individual inspections
- Image processing can be simulated on the PC without camera
- Basic range of commands for simple inspection tasks

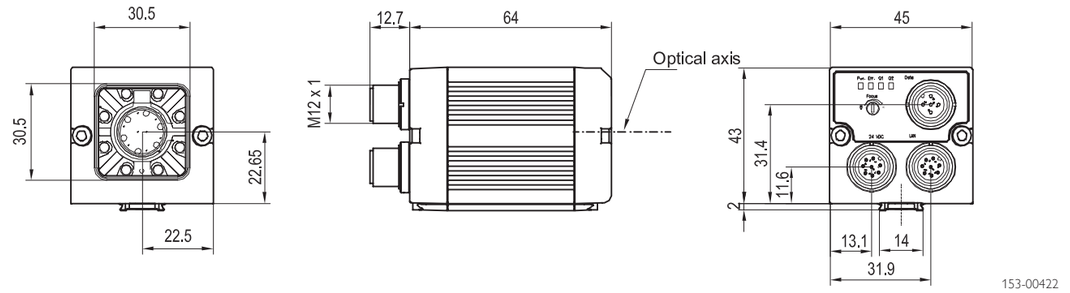
Optical data		Functions	
Resolution	640 x 480 pixels	Number of inspection programs	No limitation (max. ca. 3 MB)
CCD	1/4", monochrome	Functions	All important function blocks for object measurement, position determination/tracking, data transfer and sequence control
Integrated lens, focal length	6 mm, adjustable focal position		
Adjustment range	20 mm to infinity		
Integrated illumination	White, red LEDs	Properties	See overview of commands
Minimum field of view, X x Y	18 x 14 mm²	Typical cycle times	Dependent on inspection program
Electrical data		**Mechanical data**	
Operating voltage, $+U_B$	18 … 30 V DC[1]	Dimensions	65 x 45 x 45 mm³ (without plug)
Current consumption (without I/O)	≤ 200 mA	Enclosure rating	IP 67
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs	Material, housing	Aluminium, plastic
		Material, front screen	Plastic
Readiness delay	Ca. 6 s after Power on	Ambient temperature: operation	0 … +50 °C[2]
Outputs	PNP (N.O.)	Ambient temperature: storage	-20 … +50 °C[2]
Max. output current (per output)	200 mA (max. 9.6 W)	Weight	Ca. 170 g
Inputs	High 10 … 24 V (+10 %), Low 0 … 3 V	Plug connections	Supply and I/O M12, 8-pin Ethernet M12, 4-pin Data M12, 5-pin
Input resistance	> 20 kOhm		
Interfaces: Eyesight vision system, Basic	Ethernet (LAN), RS422	Vibration and impact resistance	EN 60947-5-2
Inputs/outputs	2 inputs, 4 outputs		

[1] Max. ripple < 5 V_{SS} [2] 80 % air humidity, non-condensing

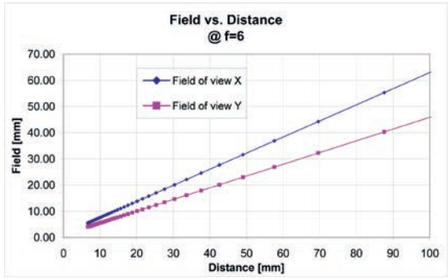
Illumination	CCD	Part number	Article number
White	Monochrome	FA45-300-WCC-EBO6HS6	522-91133
Red	Monochrome	FA45-300-RCC-EBO6HS6	522-91139

SENSOPART

FA 45 vision system



Field of view



155-01223 (6 mm)

Accessories	
Connection cables	From Page 670
Illumination	From Page 663
Brackets	From Page 642
Interface accessories	From Page 674

Version: 06/2012. Subject to changes; diagrams similar

FA 45 Eyesight

Basic vision system for complex image-processing applications, 12 mm

PRODUCT HIGHLIGHTS

- Complete image-processing package with robust and flexible hardware
- Programming via drag & drop of function blocks
- Complex, iterative linkage of individual inspections
- Image processing can be simulated on the PC without camera
- Basic range of commands for simple inspection tasks

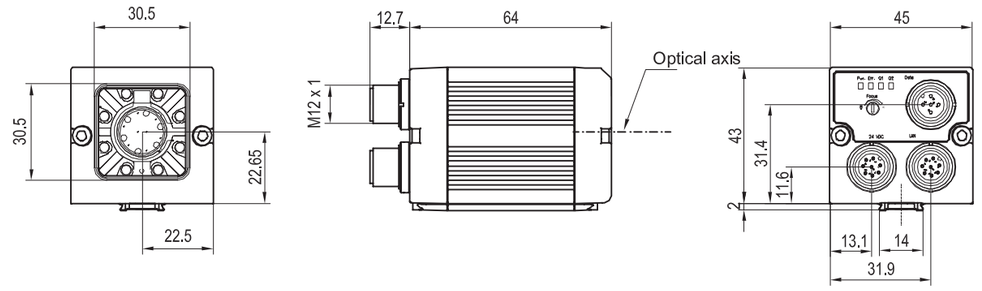
Optical data		Functions	
Resolution	640 x 480 pixels	Number of inspection programs	No limitation (max. ca. 3 MB)
CCD	1/4", monochrome	Functions	All important function blocks for object measurement, position determination/tracking, data transfer and sequence control
Integrated lens, focal length	12 mm, adjustable focal position		
Adjustment range	20 mm to infinity		
Integrated illumination	White, red LEDs		
Minimum field of view, X x Y	8 x 6 mm²	Properties	See overview of commands
		Typical cycle times	Dependent on inspection program
Electrical data		**Mechanical data**	
Operating voltage, $+U_B$	18 … 30 V DC[1]	Dimensions	65 x 45 x 45 mm³ (without plug)
Current consumption (without I/O)	≤ 200 mA	Enclosure rating	IP 67
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs	Material, housing	Aluminium, plastic
		Material, front screen	Plastic
Readiness delay	Ca. 6 s after Power on	Ambient temperature: operation	0 … +50 °C[2]
Outputs	PNP (N.O.)	Ambient temperature: storage	-20 … +50 °C[2]
Max. output current (per output)	200 mA (max. 9.6 W)	Weight	Ca. 170 g
Inputs	High 10 … 24 V (+10 %), Low 0 … 3 V	Plug connections	Supply and I/O M12, 8-pin Ethernet M12, 4-pin Data M12, 5-pin
Input resistance	> 20 kOhm		
Interfaces: Eyesight vision system, Basic	Ethernet (LAN), RS422		
Inputs/outputs	2 inputs, 4 outputs	Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V_{SS} [2] 80 % air humidity, non-condensing

Illumination	CCD	Part number	Article number
White	Monochrome	FA45-300-WCC-EBO12HS6	522-91134
Red	Monochrome	FA45-300-RCC-EBO12HS6	522-91140

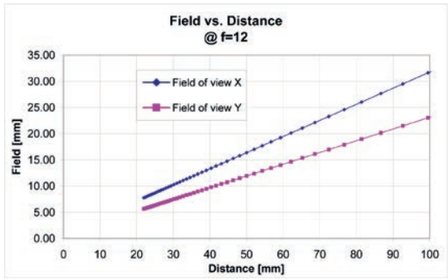
SENSOPART

FA 45 vision system



153-00422

Field of view



155-01224 (12 mm)

Accessories	
Connection cables	From Page 670
Illumination	From Page 663
Brackets	From Page 642
Interface accessories	From Page 674

FA 45 Eyesight

Basic vision system for complex image-processing applications, C-mount

PRODUCT HIGHLIGHTS

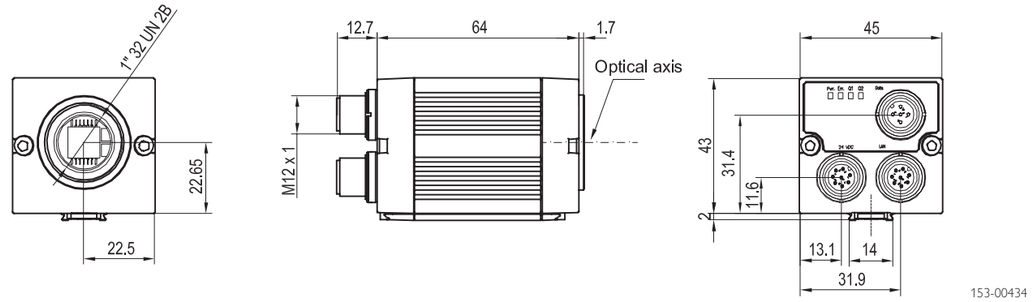
- Complete image-processing package with robust and flexible hardware
- Programming via drag & drop of function blocks
- Complex, iterative linkage of individual inspections
- Image processing can be simulated on the PC without camera
- Basic range of commands for simple inspection tasks

Optical data		Functions	
Resolution	640 x 480 pixels	Number of inspection programs	No limitation (max. ca. 3 MB)
CCD	1/4", monochrome	Functions	All important function blocks for object measurement, position determination/tracking, data transfer and sequence control
Integrated lens, focal length	C-mount		
Adjustment range	Dependent on lens		
Integrated illumination	None		
Minimum field of view, X x Y	Dependent on lens	Properties	See overview of commands
		Typical cycle times	Dependent on inspection program
Electrical data		**Mechanical data**	
Operating voltage, $+U_B$	18 … 30 V DC[1]	Dimensions	65 x 45 x 45 mm³ (without plug)
Current consumption (without I/O)	≤ 200 mA	Enclosure rating	IP 65[2]
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs	Material, housing	Aluminium, plastic
		Material, front screen	Plastic
Readiness delay	Ca. 6 s after Power on	Ambient temperature: operation	0 … +50 °C[3]
Outputs	PNP (N.O.)	Ambient temperature: storage	-20 … +50 °C[3]
Max. output current (per output)	200 mA (max. 9.6 W)	Weight	Ca. 170 g
Inputs	High 10 … 24 V (+10 %), Low 0 … 3 V	Plug connections	Supply and I/O M12, 8-pin Ethernet M12, 4-pin Data M12, 5-pin
Input resistance	> 20 kOhm		
Interfaces: Eyesight vision system, Basic	Ethernet (LAN), RS422	Vibration and impact resistance	EN 60947-5-2
Inputs/outputs	2 inputs, 4 outputs		

[1] Max. ripple < 5 V_{SS} [2] With LPT45 C-mount protective casing [3] 80 % air humidity, non-condensing

CCD	Part number	Article number
Monochrome	FA45-300-CC-EBOCSHS6	522-91135

FA 45 vision system



Lens

	LO C 8	LO C 12	LO C 16	LO C 25	LO C 50
Focal length	8 mm	12 mm	16 mm	25 mm	50 mm
Article number	526-51513	526-51514	526-51515	526-51516	526-51113

Accessories	
Connection cables	From Page 670
Illumination	From Page 663
Lenses	From Page 661
Brackets	From Page 642
Interface accessories	From Page 674

FA 45 Eyesight

Advanced vision system for complex image-processing applications, 6 mm

PRODUCT HIGHLIGHTS

- Complete image-processing package with robust and flexible hardware
- Programming via drag & drop of function blocks
- Complex, iterative linkage of individual inspections
- Image processing can be simulated on the PC without camera
- Image and result visualisation in inspection mode
- Script interpreter for advanced user functions
- Advanced range of commands for complex inspection tasks

Optical data	
Resolution	640 x 480 pixels
CCD	1/4", monochrome or colour
Integrated lens, focal length	6 mm, adjustable focal position
Adjustment range	20 mm to infinity
Integrated illumination	White, red LEDs
Minimum field of view, X x Y	18 x 14 mm²

Functions	
Number of inspection programs	No limitation (max. ca. 3 MB)
Functions	All function blocks for object measurement, position determination/tracking, sequence control, data and image transfer, contour inspection, sub-programs, Basic Interpreter; with colour CCD, additional function blocks for colour.
Properties	See overview of commands
Typical cycle times	Dependent on inspection program

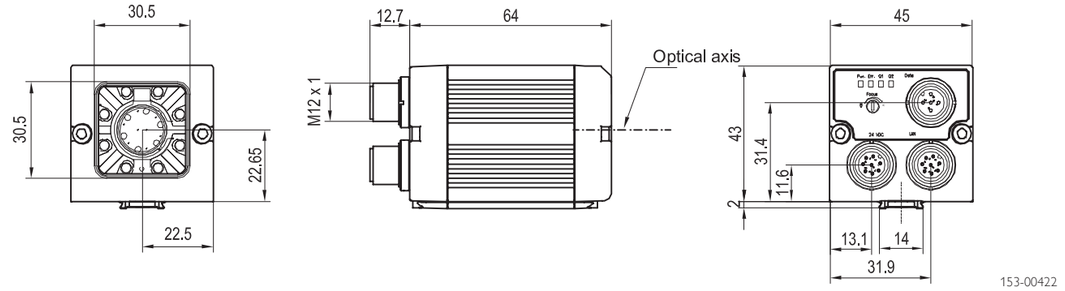
Electrical data	
Operating voltage, $+U_B$	18 … 30 V DC[1]
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Readiness delay	Ca. 6 s after Power on
Outputs	PNP (N.O.)
Max. output current (per output)	200 mA (max. 9.6 W)
Inputs	High 10 … 24 V (+10 %), Low 0 … 3 V
Input resistance	> 20 kOhm
Interfaces: Eyesight vision system, Advanced	Ethernet (LAN), RS422, EtherNet/IP
Inputs/outputs	2 inputs, 4 outputs

Mechanical data	
Dimensions	65 x 45 x 45 mm³ (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[2]
Ambient temperature: storage	-20 … +50 °C[2]
Weight	Ca. 170 g
Plug connections	Supply and I/O M12, 8-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

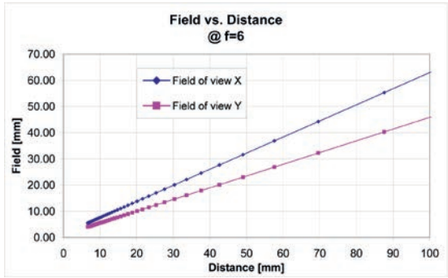
[1] Max. ripple < 5 V_{SS} [2] 80 % air humidity, non-condensing

Illumination	CCD	Part number	Article number
White	Monochrome	FA45-300-WCC-EAO6HS6	522-91136
Red	Monochrome	FA45-300-RCC-EAO6HS6	522-91141
White	Colour	FA45-300-WCCC-EAO6HS6	522-91143

FA 45 vision system



Field of view



155-01223 (6 mm)

Accessories

Connection cables	From Page 670
Illumination	From Page 663
Brackets	From Page 642
Interface accessories	From Page 674

Version: 06/2012. Subject to changes; diagrams similar

FA 45 Eyesight

Advanced vision system for complex image-processing applications, 12 mm

PRODUCT HIGHLIGHTS

- Complete image-processing package with robust and flexible hardware
- Programming via drag & drop of function blocks
- Complex, iterative linkage of individual inspections
- Image processing can be simulated on the PC without camera
- Image and result visualisation in inspection mode
- Script interpreter for advanced user functions
- Advanced range of commands for complex inspection tasks

Optical data	
Resolution	640 x 480 pixels
CCD	1/4", monochrome or colour
Integrated lens, focal length	12 mm, adjustable focal position
Adjustment range	20 mm to infinity
Integrated illumination	White, red LEDs
Minimum field of view, X x Y	8 x 6 mm²

Functions	
Number of inspection programs	No limitation (max. ca. 3 MB)
Functions	All function blocks for object measurement, position determination/tracking, sequence control, data and image transfer, contour inspection, sub-programs, Basic Interpreter; with colour CCD, additional function blocks for colour.
Properties	See overview of commands
Typical cycle times	Dependent on inspection program

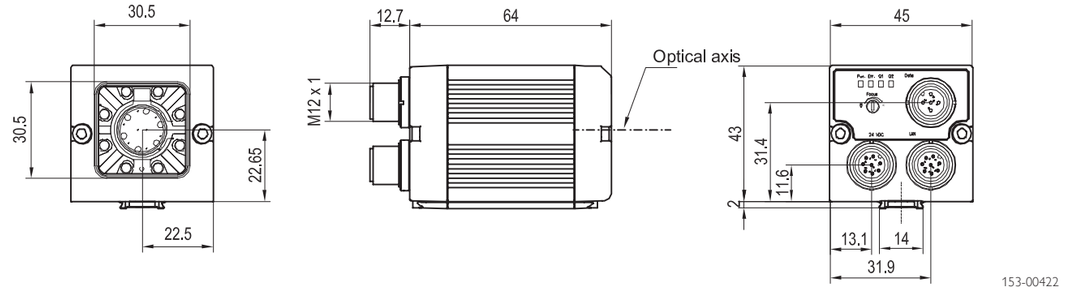
Electrical data	
Operating voltage, $+U_B$	18 … 30 V DC[1]
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Readiness delay	Ca. 6 s after Power on
Outputs	PNP (N.O.)
Max. output current (per output)	200 mA (max. 9.6 W)
Inputs	High 10 … 24 V (+10 %), Low 0 … 3 V
Input resistance	> 20 kOhm
Interfaces: Eyesight vision system, Advanced	Ethernet (LAN), RS422, EtherNet/IP
Inputs/outputs	2 inputs, 4 outputs

Mechanical data	
Dimensions	65 x 45 x 45 mm³ (without plug)
Enclosure rating	IP 67
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[2]
Ambient temperature: storage	-20 … +50 °C[2]
Weight	Ca. 170 g
Plug connections	Supply and I/O M12, 8-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

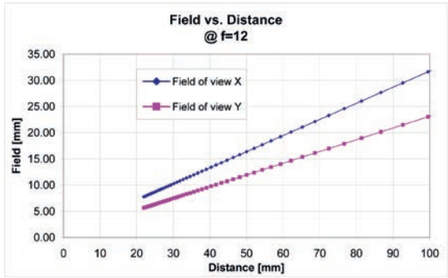
[1] Max. ripple < 5 V_{SS} [2] 80 % air humidity, non-condensing

Illumination	CCD	Part number	Article number
White	Monochrome	FA45-300-WCC-EAO12HS6	522-91137
Red	Monochrome	FA45-300-RCC-EAO12HS6	522-91142
White	Colour	FA45-300-WCCC-EAO12HS6	522-91144

FA 45 vision system



Field of view



155-01224 (12 mm)

Accessories	
Connection cables	From Page 670
Illumination	From Page 663
Brackets	From Page 642
Interface accessories	From Page 674

Version: 06/2012. Subject to changes; diagrams similar

FA 45 Eyesight

Advanced vision system for complex image-processing applications, C-mount

PRODUCT HIGHLIGHTS

- Complete image-processing package with robust and flexible hardware
- Programming via drag & drop of function blocks
- Complex, iterative linkage of individual inspections
- Image processing can be simulated on the PC without camera
- Image and result visualisation in inspection mode
- Script interpreter for advanced user functions
- Advanced range of commands for complex inspection tasks

Optical data	
Resolution	640 x 480 pixels
CCD	1/4", monochrome or colour
Integrated lens, focal length	C-mount
Adjustment range	Dependent on lens
Integrated illumination	None
Minimum field of view, X x Y	Dependent on lens

Functions	
Number of inspection programs	No limitation (max. ca. 3 MB)
Functions	All function blocks for object measurement, position determination/tracking, sequence control, data and image transfer, contour inspection, sub-programs, Basic Interpreter; with colour CCD, additional function blocks for colour.
Properties	See overview of commands
Typical cycle times	Dependent on inspection program

Electrical data	
Operating voltage, $+U_B$	18 … 30 V DC[1]
Current consumption (without I/O)	≤ 200 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection of all outputs
Readiness delay	Ca. 6 s after Power on
Outputs	PNP (N.O.)
Max. output current (per output)	200 mA (max. 9.6 W)
Inputs	High 10 … 24 V (+10 %), Low 0 … 3 V
Input resistance	> 20 kOhm
Interfaces: Eyesight vision system, Advanced	Ethernet (LAN), RS422, EtherNet/IP
Inputs/outputs	2 inputs, 4 outputs

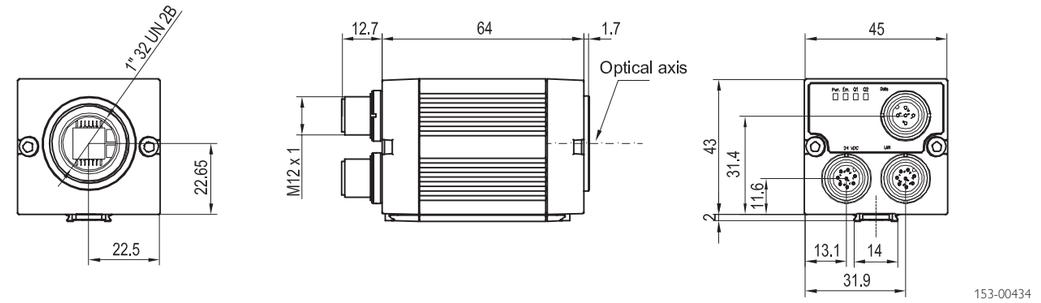
Mechanical data	
Dimensions	65 x 45 x 45 mm³ (without plug)
Enclosure rating	IP 65[2]
Material, housing	Aluminium, plastic
Material, front screen	Plastic
Ambient temperature: operation	0 … +50 °C[3]
Ambient temperature: storage	-20 … +50 °C[3]
Weight	Ca. 170 g
Plug connections	Supply and I/O M12, 8-pin Ethernet M12, 4-pin Data M12, 5-pin
Vibration and impact resistance	EN 60947-5-2

[1] Max. ripple < 5 V_{SS} [2] With LPT45 C-mount protective casing [3] 80 % air humidity, non-condensing

CCD	Part number	Article number
Monochrome	FA45-300-CC-EAOCSHS6	522-91138
Colour	FA45-300-CCC-EAOCSHS6	522-91145

SENSOPART

FA 45 vision system



Lens

	LO C 8	LO C 12	LO C 16	LO C 25	LO C 50
Focal length	8 mm	12 mm	16 mm	25 mm	50 mm
Article number	526-51513	526-51514	526-51515	526-51516	526-51113

Accessories	
Connection cables	From Page 670
Illumination	From Page 663
Lenses	From Page 661
Brackets	From Page 642
Interface accessories	From Page 674