DATAVS1 SERIES

DataVS1

The **DATAVS1** series is the easiest solution for machine vision applications. The setup is very quick and intuitive thanks to the VSC unit, the external configurator with 3.5" colour display. The sensor setting is carried-out through three simple steps: region of interest definition, control type selection, parameter adjusting. **DATAVS1** is a fully embedded vision sensor able to acquire images, control them and activate digital outputs according to the result. The VSC unit can provide a real time monitoring of the images, but it is not required during the functioning of the sensor and so it can be disconnected and used to setup multiple sensors. **DATAVS1** is able to carry-out 8 different controls: Brightness, Contrast, Position, Width, Edge counting, Pattern match, Pattern match counting, OCV. Its flexibility together with the VSC configurator make the sensor ideal for plants with frequent format changes (packaging, food, cosmetic, bottling, labelling, …)..

VISION

HIGHLIGHTS

- Quick setup without PC
- Fully embedded vision sensor
- 3.5'' colour display, 8 push-buttons, 8 LEDs
- 8 different controls
- Memorisation of 20 differrent inspections

APPLICATIONS

DATAVS1 is ideal for the control of text presence in overprinting and logo position on food packages, product completeness before packaging, logo position on cosmetic bottles, correct stamp on post envelopes, liquid level inside a plastic bottle, correct product orientation on a conveyor belt, expiry date or lot number integrity.
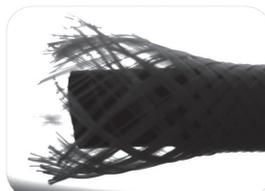
Surface control
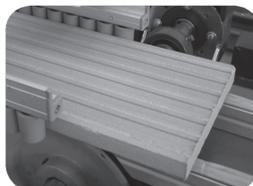
Part orientation

Expiring date integrity

Level control

Product conformity

Bottling check

DIMENSIONS

The extremely compact size of the DATAVS1 sensors is not an obstacle for the full integration of all the elements for a reliable image-based control.

- Compact housing
- 640 x 480 image sensor
- VSC configurator with 3.5'' colour display, 8 push-buttons, 8 LEDs
- Red light LED illuminator
- Selectable lenses
- Standard M12 connectors
- Configurator preset for DIN rail or panel mounting
- 3 PNP outputs
- 4 signalling LEDs: output1, output2, power supply, communication
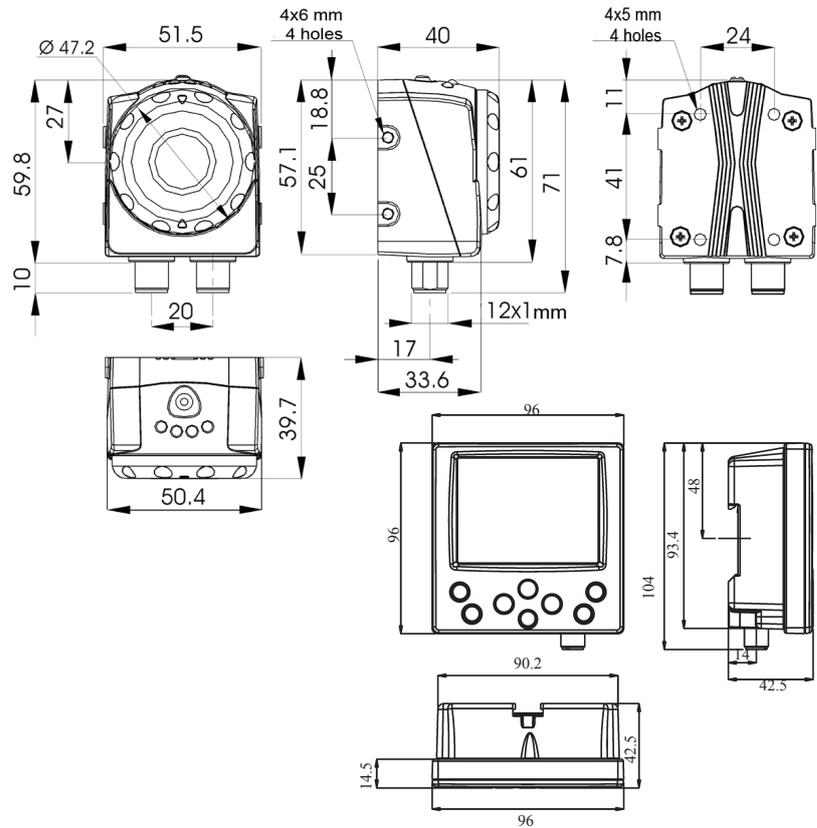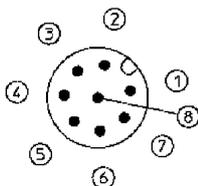
INDICATORS AND SETTINGS

A Power supply, green

B Digital output 2, yellow

C Digital output 1, yellow

D VSC connection, green

A Setting mode, green

B Adjust mode, green

C Monitor mode, green

D Main menu, green

E Power supply, green

F Digital output 1, yellow

G Digital output 2, yellow

H Sensor connection, green

CONNECTIONS

M12 8-pole (VSC connection)

PIN 1 = Ethernet TX+
PIN 2 = Ethernet RX+
PIN 3 = Ethernet RX-
PIN 4 = Not used
PIN 5 = 24 Vdc
PIN 6 = Not used
PIN 7 = Ethernet TX-
PIN 8 = GND

M12 8-pole (power supply and I/O)

PIN 1 = white = digital input 1
PIN 2 = brown = 24 Vdc
PIN 3 = green = STROBE for external illuminator
PIN 4 = yellow = output 1
PIN 5 = grey = output 2
PIN 6 = pink = output 3
PIN 7 = blue = GND
PIN 8 = red = external trigger

TECHNICAL DATA

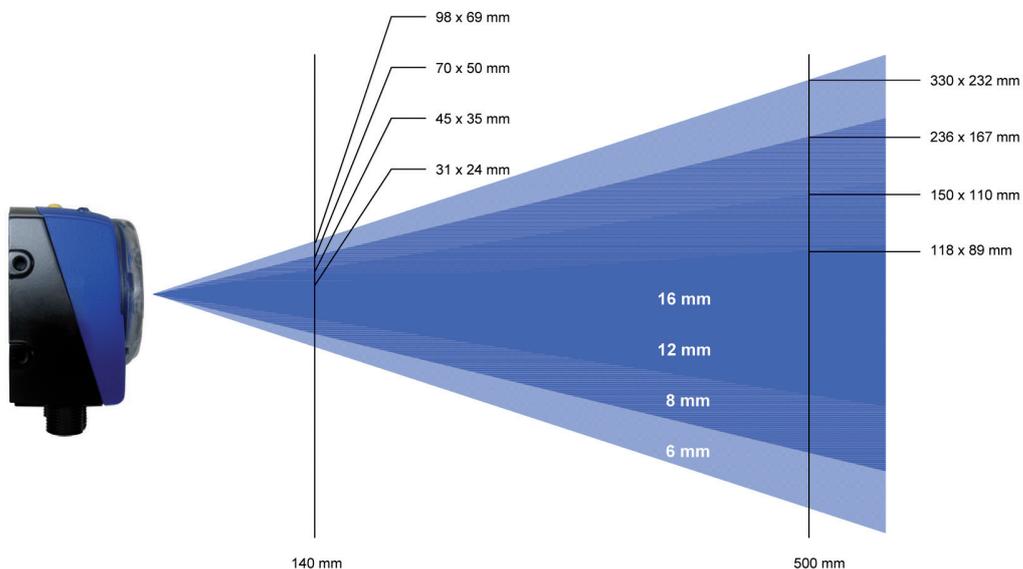|	
Power supply:	24 Vcc ±10 %
Ripple:	1 Vpp max with illuminator 2 Vpp without illuminator
Consumption (SVS1+VSC):	300 mA @ 24 Vdc (illuminator excluded)
Output type:	3 PNP
Output current:	100 mA max
Saturation voltage:	< 2 V
VSC connection:	M12 8-pole A-code
External illuminator interface:	Strobe signal (24 V PNP N.O.)
Frame rate:	60 fps
Optics:	integrated (6 mm / 8 mm / 12 mm / 16 mm)
Setting:	VSC configurator
Sensor indicators:	4 LEDs
VSC indicators:	8 LEDs
Connections:	2 x M12 8-poli A-code
Mechanical protection:	IP50 (DATAVS1) IP40 (VSC)
Protection devices:	A, B²
Housing material:	aluminium alloy / ABS
Sensor weight:	125 g
VSC weight:	170 g
Operating temperature:	-10 ... +50°C
Storage temperature:	-25 ... +70°C

TECHNICAL NOTES

[1]Limit values
[2]A - reverse polarity protection
 B - overload and short-circuit protection

FIELD OF VIEW

OPERATING DISTANCE (mm)	FIELD OF VIEW (Width x Height) in mm			
	DATAVS1-16-DE-xxx	DATAVS1-12-DC-S	DATAVS1-08-DC-x	DATAVS1-06-DC-S
50	-	17 x 12	25 x 20	42 x 30
80	-	25 x 20	40 x 30	60 x 41
110	-	33 x 25	55 x 40	80 x 55
140	31 x 24	45 x 35	70 x 50	98 x 69
170	39 x 29	53 x 38	85 x 60	118 x 83
200	46 x 34	60 x 50	100 x 70	138 x 92
300	70 x 53	90 x 65	145 x 103	201 x 140
400	94 x 71	121 x 82	186 x 132	265 x 189
500	118 x 89	150 x 110	236 x 167	330 x 232
600	143 x 107	185 x 130	282 x 232	385 x 270

98 x 69 mm
70 x 50 mm
45 x 35 mm
31 x 24 mm

330 x 232 mm
236 x 167 mm
150 x 110 mm
118 x 89 mm

16 mm
12 mm
8 mm
6 mm

140 mm
500 mm

DATAVS1 CONFIGURATOR

The configuration of DATAVS1 sensors is obtained exclusively via VSC unit. No PC is necessary and thus sensor setting is easy and quick. Once the configuration has been completed, the VSC display can be used to visualise inspection results in real time or to configure a new sensor.

The interface available on the configurator, composed of 8 signalling LEDs and 8 push-buttons, allows the operator to quickly and intuitively set the sensor functioning parameters.

PUSH-BUTTONS

Push-button label	Main functions
Status	Go to next configuration step
Teach	Setting memorisation Acquisition of a new reference image
Set	Confirmation of option selected Confirmation of parameter value
Esc	Exit without saving Return to previous panel Return to previous configuration step
Arrows	Change of option selected Movement/resizing of ROI Parameter change

Step 1:
Image adjustment
and control definition

In the first configuration step, the user has to set the sensor parameters in order to obtain a good image quality in terms of focus, brightness and contrast. The control type and the part to inspect have to be then defined.

Step 2:
Parameter setting

The second configuration step consists in setting the functioning parameters of the control previously selected and the acceptance thresholds.

Step 3:
Inspection check and
memorisation

The third step consists in the control of the correct inspection functioning and the saving on the sensor memory. Once completed, the sensor can operate in a stand-alone mode.

EXCELLENT FLEXIBILITY

Password

A Password that prevents the access to the configuration parameters to unauthorised personnel can be defined.
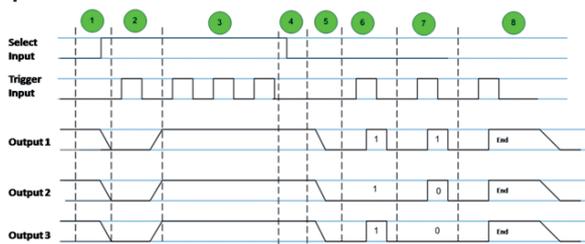

Fail inspector

The latest 8 inspected parts that have caused a control failure can be recalled by the Fail Inspector. This tool provides an immediate control of the production non-conformities.

Inspection selection

Each inspection is composed of a template and parameters. A specific inspection can be thus referred to different products in progress on the same production line.
The different inspections can be recalled using digital pulses. Different inspection selection protocols with or without acknowledge are available.

The inspection change can be carried-out also directly by the operator using the bankset manager panel.

MONITORING USE OF THE VSC

Standard mode

### Camera mode

Zoom mode


Fail mode

Production statistics

Besides the four monitoring modes, indicated above, the VSC configurator can visualise some production statistics, such as the number of inspected items and percentage of non-conformities.

Object Recognition

|			
Eight different controls able to cover the most varied applications.			
Control	Functioning	Applications	Image
Pattern Match	Searches a sample inside a specific area	• Packaging: logo check • Assembling: product orientation • Post automation: stamp check	
OCV	Verifies the readability of printed characters	• Packaging: production lot control • Food: expiry date control	
Position	Check of object border position	• Bottling: liquid level control: • Food: label position control	
Width	Measures object width	• Assembling: plastic part control • Wood industry: branch thickness measurement	
Counting	Counts the objects along a line	• Electronics: component counting • Pharmaceutical: blister stack counting	
Contrast	Contrast calculation	• Food: date and lot presence control • Metal working: laser marking control	
Brightness	Brightness calculation	• Bottling: cap presence control • Packaging: object counting	
Pattern match count	Count the number of templates inside a specific area	• Bottling: bottle count • Packaging: object counting	
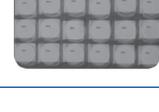
ACCESSORIES

ST-5066
U-shaped fixing bracket for angle adjustment
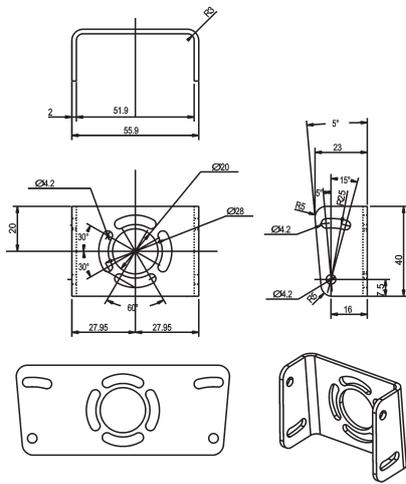
ST-5068
L-shaped fixing bracket for 90° mounting

Mounting kit

PX2169

PX2346

M5×16 DIN 912

Mutter M5

Ø12

150

1 x 45°
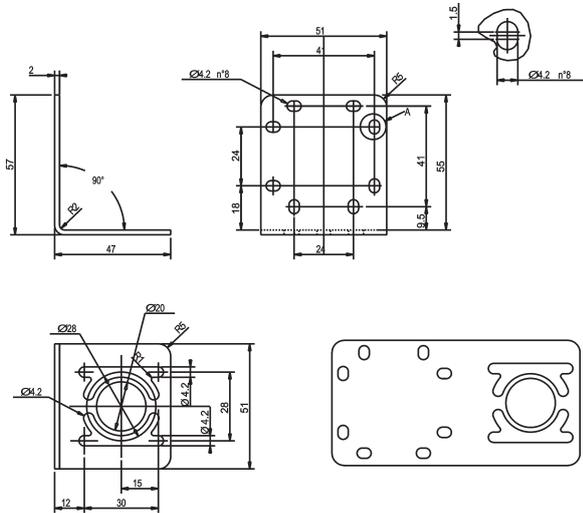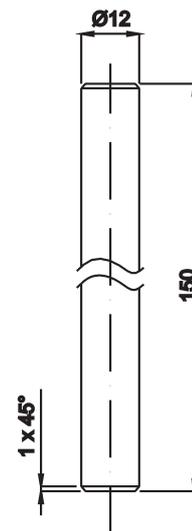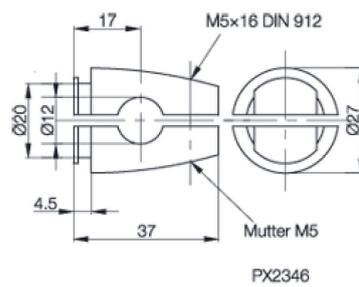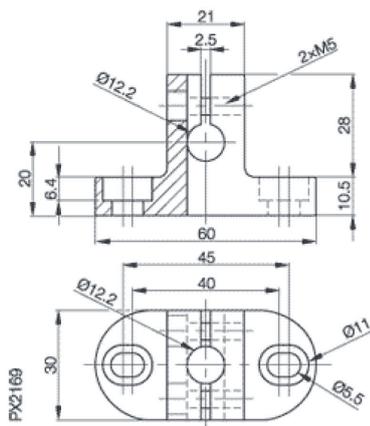
MODEL SELECTION TABLE

MODEL	OPTIC	VSC INCLUDED	POWER SUPPLY CABLES	DIGITAL INPUT	DIGITAL OUTPUT	ORDER N°
DATAVS1-08-DC-K	8 mm	•	•	2	4	959941000
DATAVS1-06-DC-S	6 mm			2	4	959941010
DATAVS1-08-DC-S	8 mm			2	4	959941020
DATAVS1-12-DC-S	12 mm			2	4	959941030
DATAVS1-16-DC-S	16 mm			2	4	959941050

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CV-A1-36-B-03	M12 8-pin shielded cable 3m	95A255430
CV-A1-36-B-05	M12 8-pin shielded cable 5m	95A255440
CV-A1-36-B-10	M12 8-pin shielded cable 10m	95A255450
DATAVS-CV-VSC-02	DATAVS-VSC connection cable 2 m	95A901360
DATAVS-CV-VSC-04	DATAVS-VSC connection cable 4 m	95A901370
DATAVS1-VSC	VSC configurator	959941040
DATAVS1 UPDATING KIT	Updating kit	95A901540
DATAVS-ST-5068	L-shaped fixing bracket for 90° mounting	95A901320
DATAVS-ST-5068	U-shaped fixing bracket for angle adjustement	95A901330
DATAVS-MK-01	Mounting kit	95A901380

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

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