DATALOGIC AUTOMATION

DATAVS2 PRO

The DataVS2 vision sensor series presents all the characteristics to solve artificial machine vision applications in a flexible and intuitive way.

DataVS2 is a completely embedded device: the optic, the red LED illuminator and the electronics are included in an extremely compact housing. The sensor is configured via PC through Ethernet communication. The configuration software is included in the product and it has been developed in order to lead the customer through the configuration process step by step.

DataVS2 is available in four different versions according to the installed control tools: Object Recognition (OBJ), Advanced Object Recognition (AOR), Identification (ID) and Professional (PRO).

Many different control typologies are available: brightness, contrast, position, width, count, pattern match, countour match, 360° pattern match, barcode and datamatrix reader, OCV, 360° contour match & counter, 360° defect finder.







HIGHLIGHTS

- · Flexible and intuitive setup via PC through Ethernet
- · Memorisation of 20 inspections
- 14 different controls
- 360° pattern match for Advanced models
- · Logical operators: AND, OR, NOT, NAND, NOR, ecc.
- TURBO mode to double elaboration speed
- VSM compatibility
- Inspection & Identification functionalities together available on Professional models

APPLICATIONS

DataVS2 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, barcode and datamatrix reading.

Part orientation

Stamp control



Level control



Logo control





Overprinting



Barcode & Datamatrix



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

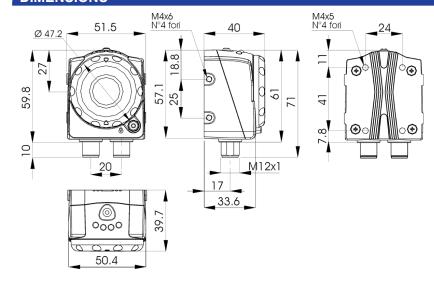
- · Compact housing
- Red light LED illuminator
- Selectable lenses
- Focus knob
- Standard M12 connectors
- Ethernet communication
- 3+1 PNP outputs
- 4 signalling LEDs: output1, output2, power supply, communication
 • Teach push-button
- 640x480 pixel greyscale image sensor







DIMENSIONS



INDICATORS AND SETTINGS

Teach push-button with double function:

- reference image update
- recovery mode

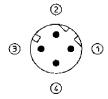


- A Power supply, green
- B Digital output 1, orange
- C Digital output 2, orange
- D Network connection, green

CONNECTIONS

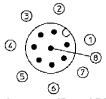


M12 4-pole Ethernet



- 1 = white/orange = RX+
- 2 = white/green = TX+
- 3 = orange = RX-
- 4 = green = TX-

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



OBJ and AOR models

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

ID and PRO models

- 1 = white = RS232 RX
- 2 = brown = 24 Vdc
- 3 = green = configurable output
- 4 = yellow = output 1
- 5 = grey = output 2
- 6 = pink = RS232 TX
- 7 = blue = GND
- 8 = red = external trigger

TECHNICAL DATA

Power supply:	24 Vcc ±10 %			
Ripple:	1 Vpp max with illuminator 2 Vpp without illuminator			
Consumption:	100 mA at 24 Vdc (without illuminator)			
Output type:	3+1 PNP			
Output current:	100 mA max			
Saturation voltage:	< 2 V			
Network interface:	M12 4-poli Ethernet 10/100 Mbs			
Serial interface:	RS232 (only ID and PRO models)			
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:	TEACH push-button			
Indicators:	4 LED			
Connections:	M12 8 pole A-code M12 4 pole D-code			
Mechanical protection:	IP50			
Protection devices:	A, B			
Housing material:	aluminium alloy / ABS			
Weight:	125 g			
Operating temperature:	-10 +50°C			
Storage temperature:	-25 +70°C			

TECHNICAL NOTES

¹Limit values

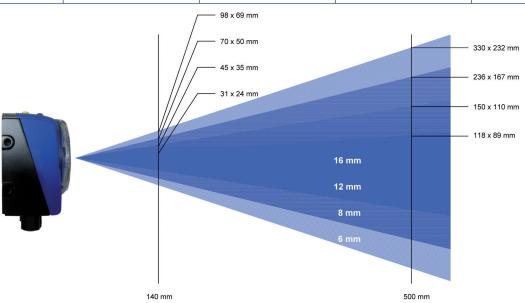
- ²A reverse polarity protection B overload and short-circuit protection

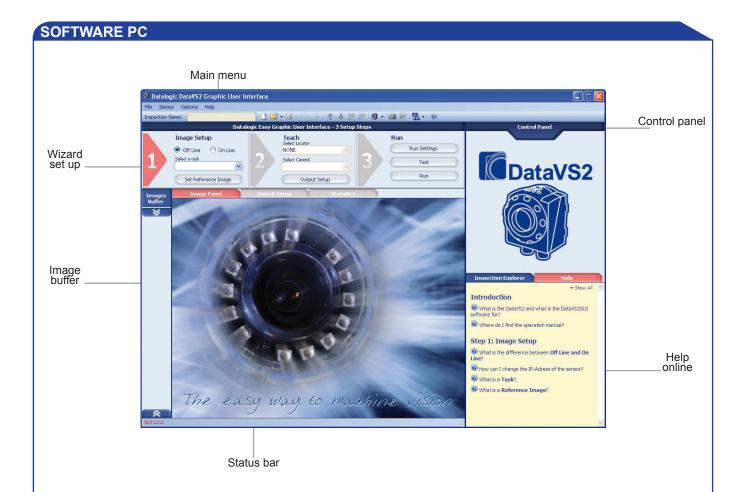




FIELD OF VIEW

OPERATING	FIELD OF VIEW (WIDTH X HEIGHT) IN MM					
DISTANCE (MM)	DATAVS2-16-xx-xxx	DATAVS2-12-xx-xxx	DATAVS2-08-xx-xxx	DATAVS2-06-xx-xxx		
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		









The first step consists in connecting the sensor and configuring the image quality parameters. When the desired results are obtained, the user can memorise the image that will be used as a template during sensor functioning.

Step 2: Teach



The second step establishes the acceptance criteria to distinguish objects from wastes. One or more controls can be selected according to the task to carry-out.

Step 3: Run



The third step configures the sensor digital outputs, simulates sensor functioning on the PC to verify the controls chosen and activates the operating phase on the sensor using the PC only to control the diagnostics.







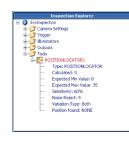
Discovery

The Discovery function finds all the sensors connected to the network.



Help

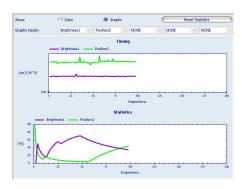
A Help is available for each step, supplying useful suggestions on the options available.



Inspection explorer

All the parameters connected to the inspection are grouped together and can be easily reached by the user.

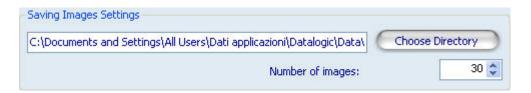
Statistics



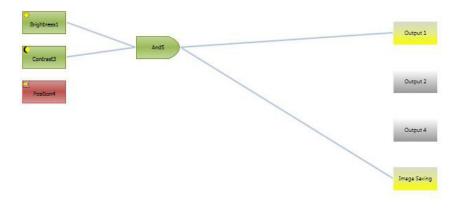
Show:	Data	Graphs			(Reset Statistics		
Graphs inputs:	NONE	F	NONE	7	NONE	Ŧ	NONE -	NONE
Operator			Execution	Time	Total PASSED)	Total FAILED	Executed
Image acquisition	n time		16,42 ms					
Brightness1			0,11 ms		215 (100%)	0 (0%)	215
Contrast3			0,83 ms		215 (100%)	0 (0%)	215
Position4			0,79 ms		0 (0%)		215 (100%)	215
Output delay time	e:		0,00 ms					
Output duration t	ime:		0,00 ms					
Total execution t	ime:		18,16 ms		0 (0%)		215 (100%)	215
Insp. per second:								55,06 Inspe

The statistics panel displays all the information about inspection results and execution time. Data can be shown also in a graph.

Image saving

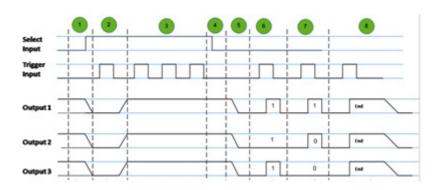


The image saving panel allows to set a folder where the acquired pictures are stored. An image saving condition can be also specified through a dedicated panel.



EXCELENT FLEXIBILITY

Inspection selection



Each inspection is composed of a template and parameters. The user can store up to 20 different inspections on the sensor memory in order to manage different items on the same production line.

The different inspections can be recalled in several different ways:

- (1) using digital pulses on OBJ and AOR models
- (2) through an Ethernet command on AOR, ID and PRO models
- (3) through a Serial command on ID and PRO models

VSM COMPATIBILITY

All DataVS2 models (i.e. OBJ, AOR, ID and PRO) are compatible with VSM, the monitoring device that allows to display elaborated images together with inspection results. The unit also offers the possibility to change the running inspection as well as to fine-tune the vision sensor functioning parameters on-the-fly.

The device integrates a 3.5" LCD color display and 8 push buttons. It features a standard TCP/IP Ethernet interface thus it can be connected either directly to a specific vision sensor or to a Local Area Network (LAN) where more DataVS2 have been previously installed.





CONTROL TABLE

Object Recognition

Control	Functioning	Applications	Image
Pattern Match	Searches a sample inside a specific area	Packaging: logo check Assembling: product orientation Post automation: stamp check	BEAUTY Cream C
Contour Match	Shape control	Metal working: integrity control Food: coffee waffle shape 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	Control of the contro
Brightness	Brightness calculation	Bottling: cap presence control Packaging: object counting	900 900

ADVANCED MODELS (AOR)

The Advanced Object Recognition (AOR) models integrate new important functionalities, including:



360° Pattern Match LocatorObject detection independent from rototranslations.



Logical tools Possibility to combine the results of the single tools through boolean operator (AND, OR, NOT, etc.)



Advanced Ethernet Current inspection results available also on Ethernet communication.



Speed-up High execution speed thanks to the management of reduced resolution and TURBO mode.

360° Pattern match

The Advanced Object Recognition (AOR) models include all the controls and locators available on Object Recognition models as well as the new 360° Geometric Pattern Match Locator.











IDENTIFICATION MODELS (ID)

Control	Functioning	Image	
Barcode reader	Decode: read and decode one (or more) barcode in the Region Of Interest. String match: read and decode one (or more) barcode and compare it with a set of reference strings. Counter: count the number of barcodes in the Region Of Interest.		
Datamatrix reader	Decode: read and decode one (or more) datamatrix in the Region Of Interest. String match: read and decode one (or more) datamatrix and compare it with a set of reference strings. Counter: count the number of datamatrix in the Region Of Interest.	Gedruc mit krat. Zweidin	
OCV	Verify the readability of printed characters.	Intervention professionente enten 09 10 11 ITH face > Rej 3/25	

Symbologies

	Codabar		UPC-E
	Code 39		PDF417
	Code 128		Pharmacode
	EAN-8 EAN-13 EAN-128	halladallaladallaladalladalladalladladlad	Postnet
	Interleaved 2 of 5	արգիիոկիկությիվիարերգրիկիկիկիկի	IMB
0 12345 67890 5	UPC-A		ECC200

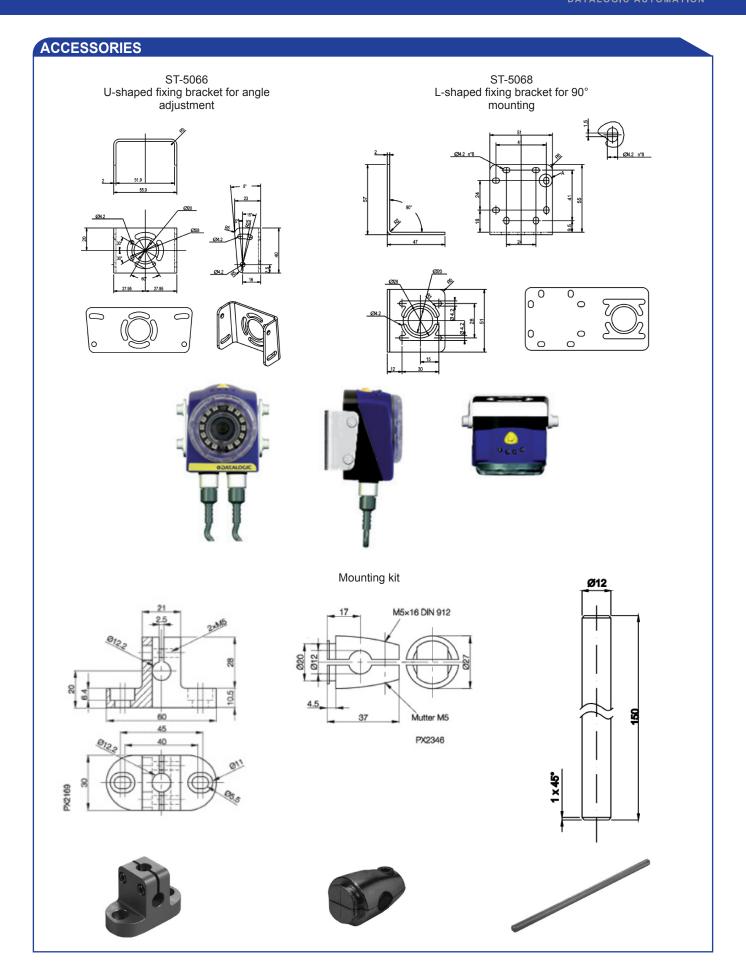
PROFESSIONAL MODELS (PRO)

The professional model includes in the same software all the functionalities already available on Advanced and Identification versions. Moreover it features 5 new software tools: 3 locators and 2 controls.

Locators	Functioning
Barcode	Finds a barcode in the Region Of Interest and re-locates all the other inspection controls accordingly.
Datamatrix	Finds a datamatrix code in the Region Of Interest and re-locates all the other inspection controls accordingly. Gedruc mit krat.
360° Contour Match	Finds a reference template in the Region Of Interest and re-locates all the other inspection controls accordingly.

Controls	Functioning	
360° Contour Counter	Counts how many times a reference contour is present in the Region Of Interest.	8
360° Defect Finder	Detects even smallest defects on a part.	





MODEL SELECTION TABLE

MODEL	SOFTWARE	LOGICAL TOOLS	ETHERNET	RS232	I/O	OPTIC	ORDER N°
DATAVS2-06-DE-OBJ	Object Rec.		Base		2IN; 4 OUT	6mm	959951050
DATAVS2-08-DE-OBJ	Object Rec.		Base		2IN; 4 OUT	8mm	959951060
DATAVS2-12-DE-OBJ	Object Rec.		Base		2IN; 4 OUT	12mm	959951070
DATAVS2-16-DE-OBJ	Object Rec.		Base		2IN; 4 OUT	16mm	959951030
DATAVS2-06-DE-AOR	Adv. Obj. Rec.	•	Advanced		2IN; 4 OUT	6mm	959951000
DATAVS2-08-DE-AOR	Adv. Obj. Rec.	•	Advanced		2IN; 4 OUT	8mm	959951010
DATAVS2-12-DE-AOR	Adv. Obj. Rec.	•	Advanced		2IN; 4 OUT	12mm	959951020
DATAVS2-16-DE-AOR	Adv. Obj. Rec.	•	Advanced		2IN; 4 OUT	16mm	959951040
DATAVS2-06-RE-ID	Identification	•	Advanced	•	1 IN; 3 OUT	6mm	959951130
DATAVS2-08-RE-ID	Identification	•	Advanced	•	1 IN; 3 OUT	8mm	959951140
DATAVS2-12-RE-ID	Identification	•	Advanced	•	1 IN; 3 OUT	12mm	959951120
DATAVS2-16-RE-ID	Identification	•	Advanced	•	1 IN; 3 OUT	16mm	959951190
DATAVS2-06-RE-PRO	Professional	•	Advanced	•	1 IN; 3 OUT	6mm	959951220
DATAVS2-06-RE-PRO	Professional	•	Advanced	•	1 IN; 3 OUT	8mm	959951230
DATAVS2-06-RE-PRO	Professional	•	Advanced	•	1 IN; 3 OUT	12mm	959951240
DATAVS2-06-RE-PRO	Professional	•	Advanced	•	1 IN; 3 OUT	16mm	959951250

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-ST-5068	L-shaped fixing bracket for 90° mounting	95A901320	
DATAVS-ST-5066	U-shaped fixing bracket for angle adjustment	95A901330	
DATAVS-CV-RJ45C-03	3 m crossed Ethernet cable	95A901340	
DATAVS-CV-RJ45D-03	3 m direct Ethernet cable	95A901350	
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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