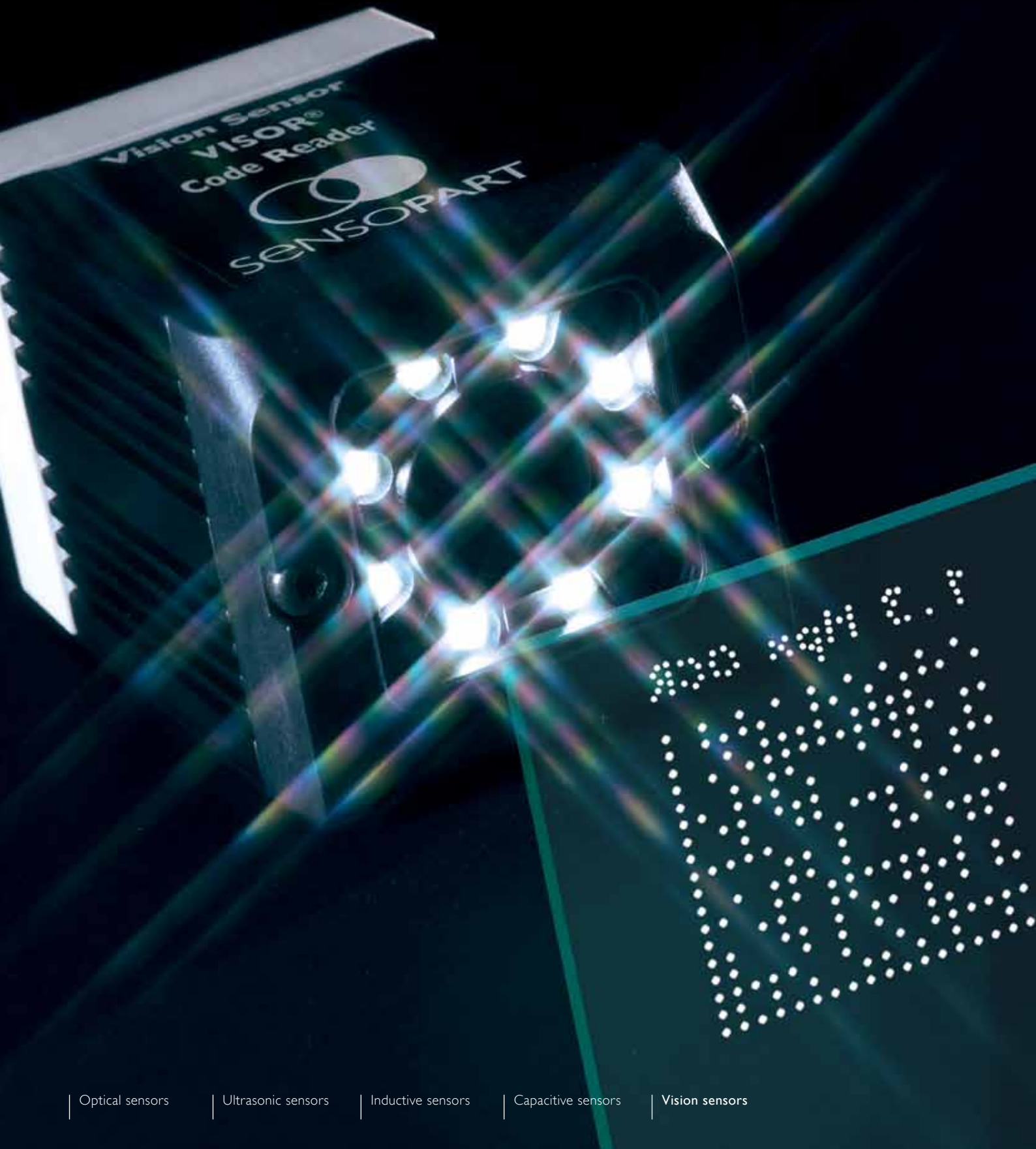
SENSOPART

VISOR® Code Reader.

Now with OCR reading and increased resolution



In a class of its own.

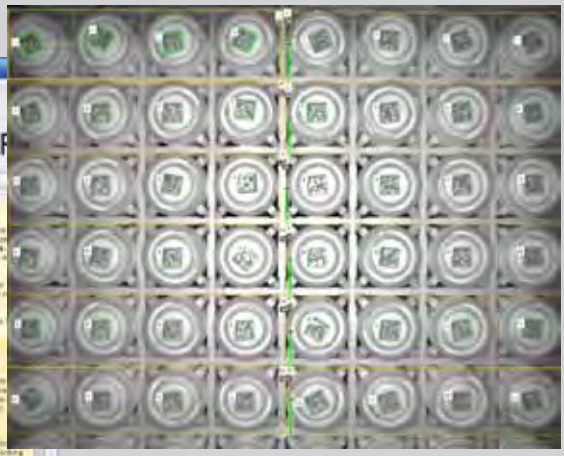
With the VISOR® Code Reader, you are always on the safe side.

With its integrated object detection, the VISOR® Code Reader is unique in its price class. The compact sensor reads the common 1D barcodes, 2D data matrix codes and now also OCR.
In addition, it features four object detectors (pattern matching, contrast, brightness, grey level) that allow reliable evaluations of additional object features – such as stamps or logos – in a single detection pass. Its position tracking – in a single detection pass. Its position tracking (enabled as an option) allows for reliable detection of codes and object features, even if they deviate from the taught position.

Special image filters with expandable configuration options guarantee an outstanding detection performance, even under difficult detection conditions. The inspection results can be analysed largely inside the sensor itself – either through string comparison or regular expressions – so that it can operate without a PLC or PC connection in many cases. With integrated quality parameters based on ISO and AIM standard, the VISOR® Code Reader also enables a meaningful evaluation of printed and directly marked 1D and 2D codes.

Integrated red, infrared or white light variants enable highest performance reliability through optimal illumination of the code. In addition, the robust and compact enclosure suitable for industrial environments (IP 67 and 65) guarantees safety even under difficult spatial conditions. Integrated 6-mm or 12-mm optics or C-mount devices provide additional savings with respect to time, effort and costs through optimal adaptation to all types of code sizes and working distances. The new V20 version provides a resolution of 1.3 megapixels for particularly small codes or large search areas.

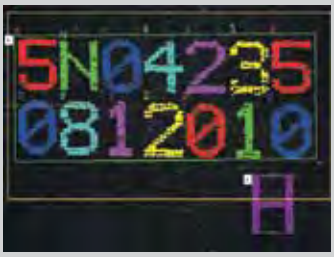
User interface of the V10 Code Reader



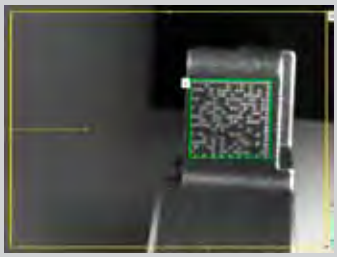
V20 Code Reader -
four times more pixels means: up to four times more codes in one image or a search area four times as large.

Punched code on rough surface
Becomes readable through a powerful detection algorithm. The punched imprint in plain text can be checked for its presence via object detection.

Code with low contrast
Becomes readable through high tolerance, even compared to low-contrast codes.



OCR reading
of a dot code.



Code with small quiet zone
Even codes with a small quiet zone or damaged finder pattern can be read.

Code reading on solar cells
Even extremely small codes e.g. on silicone solar cells or highly reflective codes e.g. on thin-film solar cells can be read.

Printed codes on pharmaceutical packaging
Simultaneous searching for ECC200 or barcodes (e.g. EAN 13) is possible. Besides reading the code, the presence of plain text can be checked via object detection.

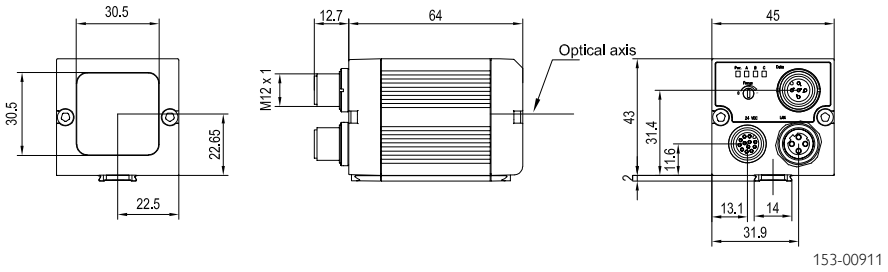
VISOR® CODE READER – HIGHLIGHTS

- Suited for all common 2D codes (such as ECC200) and the common 1D codes
- Optimal efficiency by combining two functions in one unit: code reading and object detection
- High operational reliability through safe detection of even hard to read codes and under difficult field conditions
- Flexible and simple connection to PC and PLC environments through extensive options for archiving images and detection results or through PLC function blocks for Siemens S7, Codesys and Allen Bradley
- Extremely high flexibility, e.g., even detecting several similar or different codes in one detection process
- OCR reading based on neural networks, especially suited for dot codes

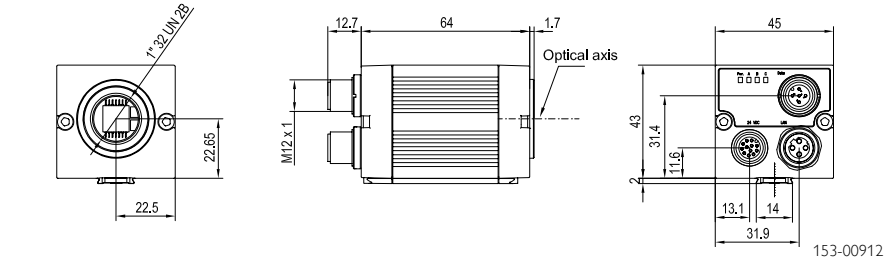
Technical data and order information

Vision sensors

The VISOR® vision camera



153-00911



153-00912

Electrical data

Operating voltage U_B	24 V DC (-25 %/+10 %)
Ripple	< 5 Vss
Power consumption (without I/O)	≤ 200 mA
Power consumption (without illumination and I/O)	≤ 120 mA
All inputs	PNP/NPN High > U_B-1 V, Low < 3 V
Input resistance	> 20 kOhm
Encoder input	High > 4 V
Outputs	PNP/NPN
Max. output current (per output)	50 mA 100 mA (Pin 12)
Short-circuit protection (all outputs)	Yes
Reverse-polarity protection	Yes
Interfaces, VISOR V10-XX Standard Interfaces, VISOR V10-XX Advanced Interfaces, VISOR V20-XX Professional	Ethernet (LAN) Ethernet (LAN), RS422 Ethernet (LAN), RS422, RS232
Time to readiness	Approx. 13 s after power on

Optical data

Integrated measurement illumination	8 LEDs		
Integrated lens, focal length	6 or 12 mm, focal position adjustable		
Type	V10	V10	V20
Lens (adjustable to ∞)	6	12	12
Min. measurement distance	6 mm	30 mm	30 mm
Min. field of view X x Y	5 mm x 4 mm	8 mm x 6 mm	16 mm x 13 mm

Mechanical data

Length x Width x Height	65 x 45 x 45 mm³ (without plug)
Weight	Approx. 160 g
Vibrations/impacts	EN 60947-5-2
Operating ambient temperature	0 °C ... 50 °C (80 % air humidity, non-condensing)
Storage temperature	- 20 °C ... 60 °C (80 % air humidity, non-condensing)
Enclosure rating	IP 65/67
Plug connection	Power and I/O M12 12-pin, Ethernet M12 4-pin, Data M12 5-pin
Housing material	Aluminium, plastic

Functions and features

Code Reader	
Number of jobs/detectors	VISOR® - XX Standard: 8/1 VISOR® - XX Advanced: n/n VISOR® - XX Professional: n/n
Evaluation modes	• Data matrix code acc. to ECC200 in any orientation; square and rectangle • QR code, Model 1 and Model 2, version 1…40 • PDF 417 Code • Barcode Interleaved 2 of 5, Code 39, EAN 13 group (EAN8, EAN13, UPC-A, UPC-E), EAN128 (codes A, B, C) • Freely selectable position and size of field of view • String comparison/verify • Professional version: OCR reading for printed codes and dot codes
Typical cycle time	40 ms for one evaluation

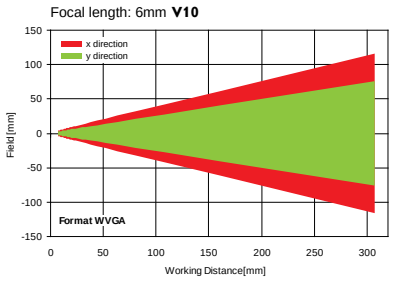
Part no. [1]	Type designation	Description	Optics	Depth of focus	Illumination	Interfaces
V20 Professional						
536-91004	V20-CR-P2-C	VISOR V20 Code Reader, Professional, for 1D/2D codes and object detection, unlimited number of jobs and detectors, position tracking, several different types of code with one detection process, OCR detector, resolution 1280 x 1024	C-Mount	-	-	10 IO channels, Encoder input, interface to IO box, RS422, RS232 Ethernet, EtherNet/IP
536-91005	V20-CR-P2-W12		12	Normal	White	
536-91006	V20-CR-P2-R12				Red	
536-91007	V20-CR-P2-I12				Infrared	
V20 Advanced						
536-91000	V20-CR-A2-C	VISOR V20 Code Reader, Advanced, for 1D/2D codes and object detection, unlimited number of jobs and detectors, position tracking, several different types of code with one detection process, resolution 1280 x 1024	C-Mount	-	-	10 IO channels, encoder input, interface to IO box, RS422, RS232 Ethernet, EtherNet/IP
536-91001	V20-CR-A2-W12		12	Normal	White	
536-91002	V20-CR-A2-R12				Red	
536-91003	V20-CR-A2-I12				Infrared	
V10 Advanced White						
535-91021	V10-CR-A1-W6	VISOR V 10 Code Reader, Advanced, for 1D/2D codes and object detection, unlimited number of jobs and detectors, position tracking, several different types of code with one detection process, resolution 736 x 480	6	Normal	White	10 IO channels, encoder input, interface to IO box, RS422, Ethernet, EtherNet/IP
535-91022	V10-CR-A1-W12		12			
535-91023	V10-CR-A1-W6D		6	Enhanced		
535-91024	V10-CR-A1-W12D		12			
V10 Advanced Red						
535-91025	V10-CR-A1-R6		6	Normal	Red	
535-91026	V10-CR-A1-R12		12			
535-91027	V10-CR-A1-R6D		6	Enhanced		
535-91028	V10-CR-A1-R12D		12			
V10 Advanced IR						
535-91029	V10-CR-A1-I6		6	Normal	Infrared	
535-91030	V10-CR-A1-I12		12			
535-91031	V10-CR-A1-I6D		6	Enhanced		
535-91032	V10-CR-A1-I12D		12			
V10 Advanced C-Mount						
535-91033	V10-CR-A1-C		C-Mount			
V10 Standard White						
535-91034	V10-CR-S1-W6	VISOR V10 Code Reader, Standard for 1D/2D codes, max. 8 jobs each with 1 detector (max. 5 similar codes per reading), resolution 736 x 480	6	Normal	White	8 IO channels, encoder input, interface to IO box, RS422, Ethernet, EtherNet/IP
535-91035	V10-CR-S1-W12		12			
535-91036	V10-CR-S1-W6D		6	Enhanced		
535-91037	V10-CR-S1-W12D		12			
V10 Standard Red						
535-91038	V10-CR-S1-R6		6	Normal	Red	
535-91039	V10-CR-S1-R12		12			
535-91040	V10-CR-S1-R6D		6	Enhanced		
535-91041	V10-CR-S1-R12D		12			
V10 Standard IR						
535-91042	V10-CR-S1-I6		6	Normal	Infrared	
535-91043	V10-CR-S1-I12		12			
535-91044	V10-CR-S1-I6D		6			
535-91045	V10-CR-S1-I12D		12	Enhanced		

[1] Further types on request.

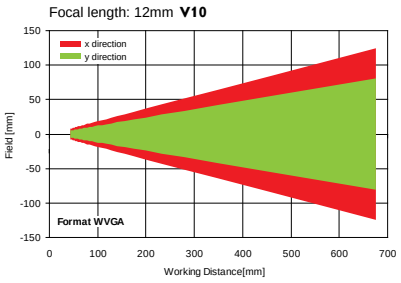
Technical data

Field size/Working distances

V10 Field of view

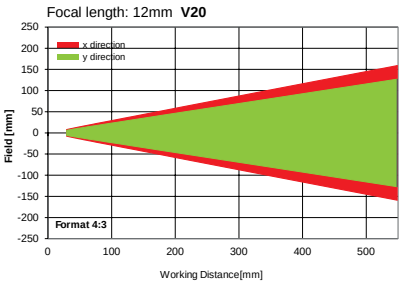


155-01422



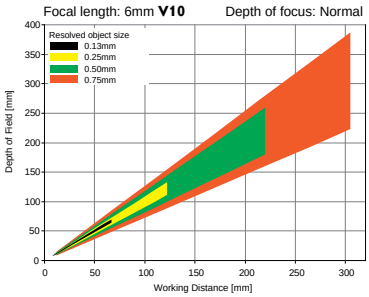
155-01423

V20 Field of view

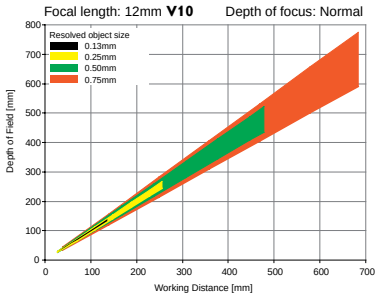


155-01637

V10 Depth of focus: Normal

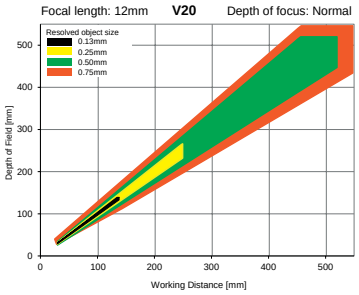


155-01409



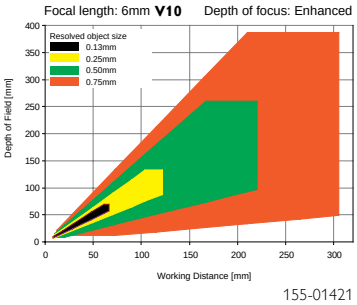
155-01410

V20 Depth of focus: Normal

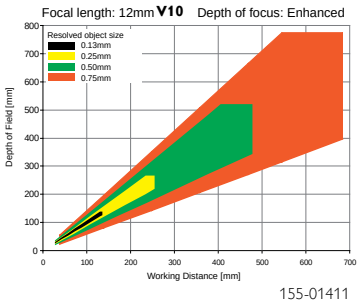


155-01636

V10 Depth of focus: Enhanced



155-01421



155-01411

For moving objects, a sensor with standard depth of field should be used. In this case, shorter shutter times are possible to avoid blur due to movement.

Connection, interface and illumination cables

Power supply and I/O cable, straight

Power supply and I/O cable, 90°

Ethernet cable, straight

Ethernet cable, 90°

Data cable, straight

Data cable, 90°

Illumination cable, straight

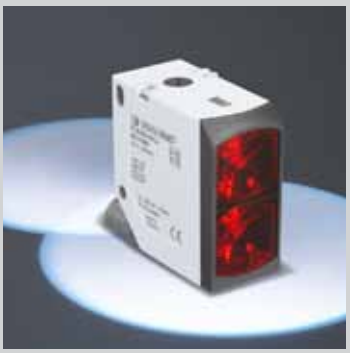
Illumination cable, 90°

Part no.	Order designation	Description
902-51801	C L12FG-2m-PUR	Power supply and I/O cable, M12/12-pin, 2 m, straight connector, shielded
902-51796	C L12FG-5m-PUR	Power supply and I/O cable, M12/12-pin, 5 m, straight connector, shielded
902-51797	C L12FG-10m-PUR	Power supply and I/O cable, M12/12-pin, 10 m, straight connector, shielded
902-51798	C L12FW-2m-PUR	Power supply and I/O cable, M12/12-pin, 2 m, 90° connector, shielded
902-51799	C L12FW-5m-PUR	Power supply and I/O cable, M12/12-pin, 5 m, 90° connector, shielded
902-51800	C L12FW-10m-PUR	Power supply and I/O cable, M12/12-pin, 10 m, 90° connector, shielded
902-51813	CI L5FS-2m-G-PUR	Data cable, 2 m, straight connector, shielded
902-51814	CI L5FS-5m-G-PUR	Data cable, 5 m, straight connector, shielded
902-51815	CI L5FS-10m-G-PUR	Data cable, 10 m, straight connector, shielded
902-51816	CI L5FS-2m-W-PUR	Data cable, 2 m, 90° connector, shielded
902-51817	CI L5FS-5m-W-PUR	Data cable, 5 m, 90° connector, shielded
902-51818	CI L5FS-10m-W-PUR	Data cable, 10 m, 90° connector, shielded
902-51754	CI L4MG / RJ45G-GS-3m-PUR	Ethernet cable, 3 m, M12, straight, 4-pin / RJ45, shielded
902-51782	CI L4MG / RJ45G-GS-5m-PUR	Ethernet cable, 5 m, M12, straight, 4-pin / RJ45, shielded
902-51784	CI L4MG / RJ45G-GS-10m-PUR	Ethernet cable, 10 m, M12, straight, 4-pin / RJ45, shielded
902-51786	CI L4MW / RJ45G-SG-3m-PUR	Ethernet cable, 3 m, M12, 90°, 4-pin / RJ45, shielded
902-51788	CI L4MW / RJ45G-SG-5m-PUR	Ethernet cable, 5 m, M12, 90°, 4-pin / RJ45, shielded
902-51790	CI L4MW / RJ45G-SG-10m-PUR	Ethernet cable, 10 m, M12, 90°, 4-pin / RJ45, shielded
902-51806	CB L12FS / L12FS-0,5m-GG-PUR	Illumination cable 2 x M12/12-pin, 0.5 m, straight connector, shielded
902-51807	CB L12FS / L12FS-2m-GG-PUR	Illumination cable 2 x M12/12-pin, 2 m, straight connector, shielded
902-51808	CB L12FS / L12FS-0,5m-WW-PUR	Illumination cable 2 x M12/12-pin, 0.5 m, 90° connector, shielded
902-51809	CB L12FS / L12FS-2m-WW-PUR	Illumination cable 2 x M12/12-pin, 2 m, 90° connector, shielded
902-51810	CB L12FS / L8MS-0,15m-GG-PUR	Adapter cable 12-pin to 8-pin
994-51135	ST M12-12	Mains VISOR power supply with M12 12-pin connector, Euro-plug
994-51138	ST M12-12-M	Mains VISOR power supply with M12 12-pin connector, multi-plug
543-11022	ST V10	Testbox VISOR®

We look ahead.

Yesterday, today and in the future.

SENSOPART



"We gauge ourselves not by what is possible today, but by our vision of what can be achieved" – this has been our motto since the foundation of SensoPart in 1994. Our goal is to always be a step ahead and to be able to offer our customers the most innovative sensor for industrial automation.

With our easy to integrate VISOR® Vision sensors and our compact laser sensors with an amazing background suppression made in Germany, we stick up to this motto.

Get ready – we still have a lot of ideas for the future.

SENSOR TECHNOLOGY

- Light barriers
- Proximity switches
- Laser sensors
- Miniature sensors
- Distance sensors
- Colour sensors
- Contrast sensors
- Anti-collision sensors
- Slot sensors
- Fibre-optic amplifiers
- Inductive sensors
- Capacitive sensors
- Ultrasonic sensors

VISION

- Vision sensors
- Smart cameras
- Vision systems
- Object detection
- Object measurement
- Colour detection
- Code reading
- Lighting
- Lenses

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