

Sensor Catalog 2013 - 2014

CONTRINEX

NEW

Miniature inductive sensors (Ø3 & M5) for harsh or pressurized environments

Weld-immune, full-metal inductive sensors

Cubic inductive sensors with rotatable active face, IP 68 & IP 69K

Full-metal inductive sensors with long operating distance (15 mm in M12 housing)

Ecolab-approved photoelectric sensors with Plexiglas® window (40 x 50 mm)

Expanded capacitive sensor range copes with sticky and viscous materials

Food-approved PVC cables and connectors, IP 69K



Swiss
Quality

INTRODUCTION

AT A GLANCE

- ✓ Technology leading manufacturer of inductive and photoelectric sensors as well as Safety and RFID systems
- ✓ World market leader for miniature sensors, sensors with long operating distance and devices for particularly demanding operating conditions
- ✓ Represented in over 60 countries worldwide, headquarters in Switzerland
- ✓ Production sites in Switzerland, Hungary (since 1995), China (since 2003) and Brazil (2009)
- ✓ 14 own subsidiaries in all major markets
- ✓ More than 500 employees worldwide



Contrinex Headquarters, Switzerland

PETER HEIMLICHER HANDS OVER CEO ROLE TO ANNETTE HEIMLICHER

On 1st September 2012 Peter Heimlicher, the founder and President of the Contrinex Group, handed over as CEO to his daughter and fellow member of the Management Board, Annette Heimlicher.

As Director of Corporate Development, Annette Heimlicher has overseen much of the Group's recent expansion, particularly in India and Brazil, and is on the Board of several Contrinex subsidiaries. Annette Heimlicher holds a post-graduate degree in economics from the London School of Economics and formerly held the post of Associate Director at the World Economic Forum in Geneva.

In her new role, Mrs Heimlicher will continue to pursue a growth strategy for the Group.



40 YEARS OF INNOVATION

- 1979 Sensor business starts with self-contained subminiature inductive sensors: Ø4 mm (instead of M8 before)
- 1982 Launch of inductive sensor with patented Condist® technology – market leadership with operating distances 3x standard
- 1986 Launch of Ø3 mm inductive sensors, now market leader for subminiature inductive sensors
- 1996 Market launch of Ø4 mm subminiature photoelectric sensors
- 1999 Launch of world's first inductive sensor with full-metal housing – thanks to patented Condet® technology
- 2005 Integration of Contrinex's excellent performance for inductive sensors in CMOS-ASIC (Application-Specific Integrated Circuit), a proprietary development
- 2007 Launch of RFID products for closed loop industrial applications. First RFID product range with tags and readers in full-metal housing
- 2008 Launch of Safetinex®, the industrial safety product range
- 2009 The smart sensor is born. Launch of next generation ASIC, a "system on a chip", including IO-Link interface
- 2011 Development starts on Contrinex's first ASIC for photoelectric sensors

2012 Contrinex celebrates 40 years:

- More than 500 employees
- Represented in 60 countries
- 8000 products
- 4 production sites
- 14 own subsidiaries in all major markets



Early inductive sensor produced for own use in 1973 (special version for extreme conditions)



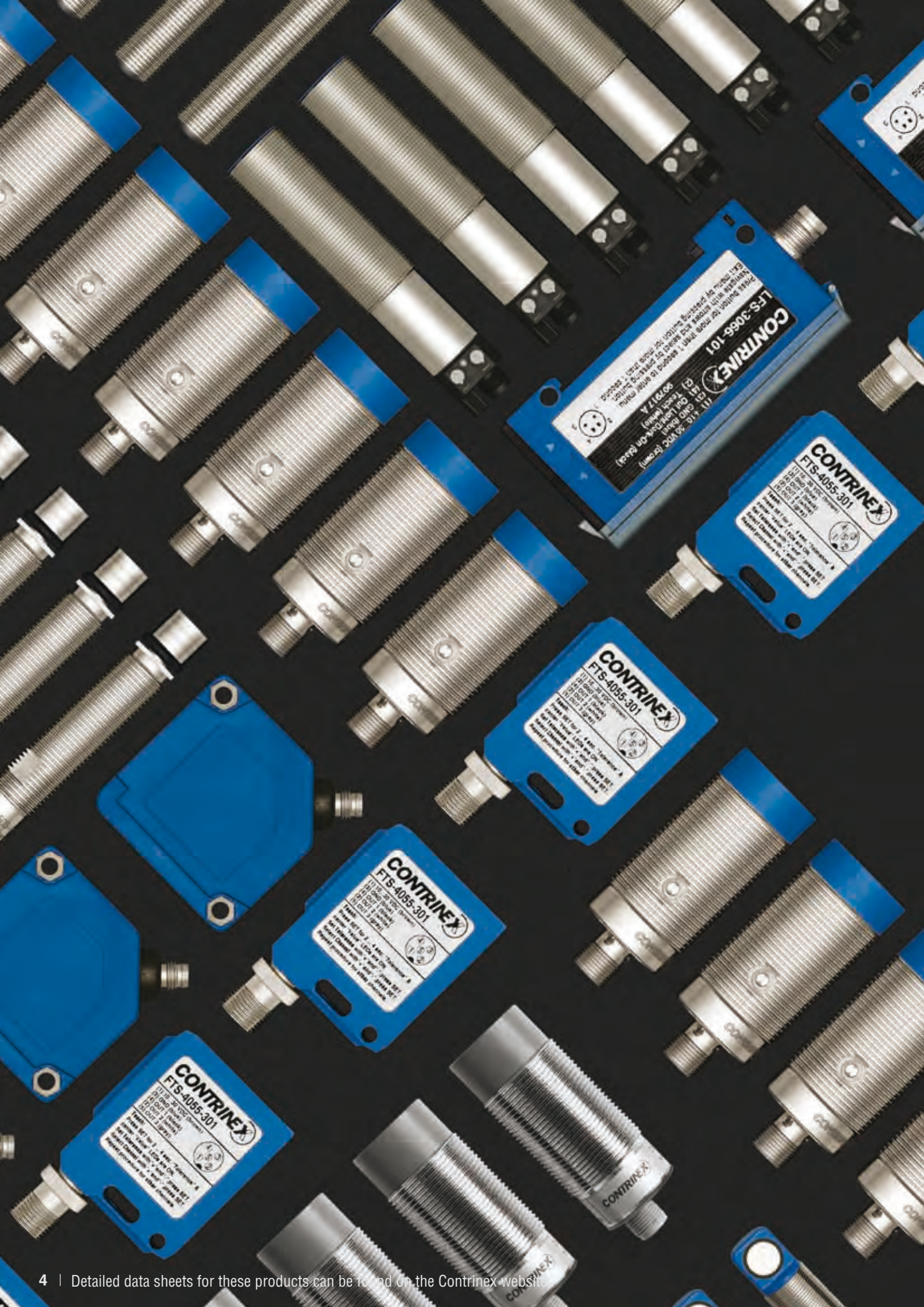
Next generation ASIC



Safety product range



Subminiature photoelectric sensor





INDUCTIVE SENSORS 24-127

**PHOTOELECTRIC SENSORS /
OPTICAL FIBERS** 128-239

ULTRASONIC SENSORS 240-265

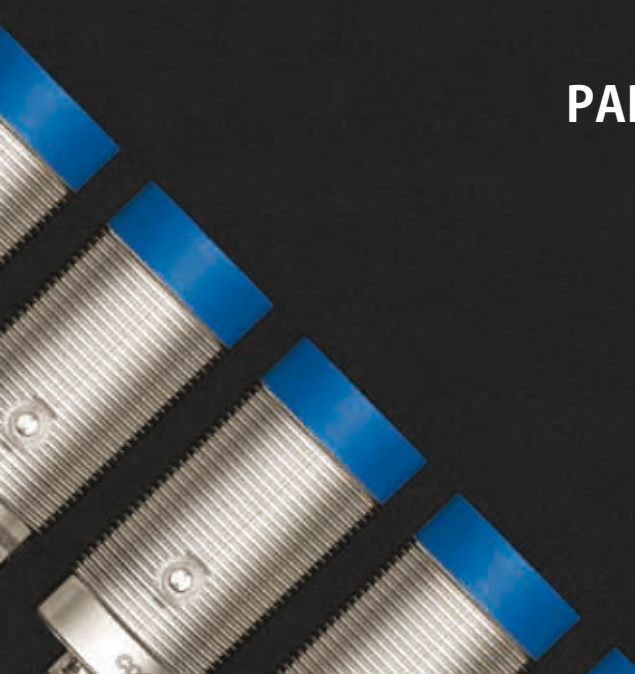
CAPACITIVE SENSORS 266-287

CONNECTIVITY 288-297



ACCESSORIES 298-303

GLOSSARY 304-325

PART REFERENCE KEY 326-336



SENSOR SELECTOR

	INDUCTIVE	PHOTOELECTRIC
		
SENSING DISTANCE	1 mm - 40 mm	1 mm - 50,000 mm
TARGET MATERIAL	Metal only	Any material that reflects light
SENSING SPEED	0.02 - 10 kHz	1 - 5 kHz
ENVIRONMENT	Versions for normal or harsh and dirty environments, with protection class up to IP 68 / IP 69K	For clean environments without dust or steam, with protection class up to IP 67
PROGRAM OVERVIEW	p. 14 - 17	p. 130 - 133
TASKS	<ul style="list-style-type: none"> ✓ Presence detection of metal objects ✓ Position control of all kinds of metal targets ✓ Counting tasks ✓ Distance control on end positions ✓ Quality control 	<ul style="list-style-type: none"> ✓ Sensing of light reflective objects ✓ Position control of cartons and other objects on conveyors ✓ Detection of small objects over large distances

ULTRASONIC



10 mm - 6000 mm

Any material that reflects sounds

1 - 10 Hz

For industrial environments, with protection class up to IP 67

p. 242 - 243

- ✓ Detection of all objects that reflect ultrasound
- ✓ Monitoring of winding and un-winding processes
- ✓ Liquid level control
- ✓ Loop tension control
- ✓ Position feedback
- ✓ Distance or height control

CAPACITIVE



1 mm - 40 mm

Metals, non-metals, liquids, powders

15 - 500 Hz

For normal or demanding environments, with protection class up to IP 67

p. 268 - 269

- ✓ Level control of fluids, bulk materials and powder
- ✓ Presence detection of almost all materials
- ✓ Counting tasks for non-metallic materials
- ✓ Detection through non-metallic container walls

APPLICATIONS

AUTOMOTIVE MANUFACTURING INDUSTRY

Today, sensors of all types are common in automotive factories around the globe. Highly automated plants with demanding conformity requirements rely heavily on sensor technology to maintain world-class quality standards, particularly where harsh processes such as welding, metal finishing and high-temperature coating are required.

Manufacturing engineers working for automotive manufacturers and for first- and second-tier suppliers expect robust, reliable sensors that deliver accurate, repeatable results with minimal downtime.



Typical application

See our website or scan this QR code:



Recommended product ranges:

- Inductive - Full Inox - Extreme
- Inductive - Classics - Basic
- Inductive - Full Inox - Weld-Immune
- Inductive - Extra Distance - Basic



PACKAGING MACHINES

On the journey from manufacturer to consumer, packaging protects all types of product, including foods, pharmaceuticals, white goods and cosmetics. Although packaging helps bring competitive products to target markets in the best possible condition, costs are often significant, and automation helps minimize the impact.

The packaging industry is highly innovative, using sensors to identify, select and position packaging of all types. Reducing manufacturing costs and ensuring environmental sustainability are key objectives, and sensors for packaging machines are chosen to maximize efficiency while ensuring reliable, repeatable operation.



Typical application

See our website or scan this QR code:



Recommended product ranges:

- Photoelectric - Cubic small
- Photoelectric - Cylindrical small
- Photoelectric - Cubic miniature



MACHINE TOOLS

Machine tools impose harsh operating conditions on the sensors needed to control cutting, forming and joining processes that run continuously in many metalworking factories. Common hazards include cutting fluid, cooling sprays, swarf particles and electromagnetic interference, making sensor selection particularly difficult where world-class performance is essential.

Size is another key factor, as modern tool-holders allow only limited space for the sensors needed to identify and position individual tools during rapid tool-changing. The right sensors contribute to efficient production, without interruption or error.



Typical application

See our website or scan this QR code:



Recommended product ranges:

Inductive - Classics - Miniature
Photoelectric - Cylindrical subminiature
Inductive - Extra Distance - Basic



LOGISTICS

Whatever the logistics system, choosing the right sensors is crucial to achieving the six “rights” of logistics: ensuring that the right goods, in the right quantities, in the right condition, are delivered to the right place, at the right time, for the right cost.

From large-scale containerized shipping to everyday internal logistics, engineers select the right sensor technology for each container, conveyor, palletizer or robot, ensuring reliable, repeatable detection and identification, together with trouble-free operation.



Typical application

See our website or scan this QR code:



Recommended product ranges:

Inductive - Extra Distance - Basic
Photoelectric - Cubic small
Inductive - Classics - Basic
Photoelectric - Cylindrical small



APPLICATIONS

TEXTILE

Machinery manufacturers supplying the textile, leather and clothing industries rely on sensors for efficiency, reliability and precision. World-class accuracy is essential for production of technical textiles and for making the carbon or chemical fibers used in modern, innovative products, often in highly automated factories.

The high-speed machinery used by textile manufacturers must operate continuously and safely, relying on top-quality sensors for all aspects of access and control. The environmental challenges include industrial cleaning routines that test every sensor to the limit of its capability.



Typical application

See our website or scan this QR code:



Recommended product ranges:

- Inductive - Classics - Basic
- Inductive - Extra Distance - Basic
- Photoelectric - Cylindrical small



FILLING MACHINES

Filling machines are widespread in many industries, including solids handling, chemical, food, beverage and pharmaceutical, often operating continuously around the clock. Industrial sensors detect containers, lids, labels and caps, measure fill levels and more, and play a vital role in keeping automated filling equipment running reliably, accurately and with minimal downtime.

When handling bulk solids or aggressive chemicals, or working in environments that may operate harsh clean-in-place routines, choosing robust, high-quality sensors is essential to maximize operational efficiency and minimize total cost of ownership.



Typical application

See our website or scan this QR code:



Recommended product ranges:

- Photoelectric - Cubic small
- Capacitive - Cylindrical - Basic
- Photoelectric - Cylindrical small



GREEN ENERGY AND ENVIRONMENT

The Green Economy relies heavily on technology for its continued advancement, and sensors are a major component of any eco-friendly strategy. Environmental initiatives include wind-, wave- and solar-power generation, industrial and domestic recycling, energy management and development of alternative fuels.

To deliver the green agenda, all of these sectors utilize sensors extensively for reliable detection and identification of materials, accurate measurement of operational parameters and consistent control of processes.

Typical application

See our website or scan this QR code:



Recommended product ranges:

Inductive - Full Inox - Washdown

Inductive - Classics - Basic

Inductive - Extra Distance - Basic



MOBILE EQUIPMENT

Repairing and servicing equipment on site can be difficult and costly at best, and sometimes impossible. In these circumstances, robust, highly reliable sensors are vital for continuous operation in environments that may be challenging in the extreme. Exposure to dirt and dust, impact, vibration, seawater, corrosive chemicals and extremes of temperature and pressure are all part of a regular day's work.

Manufacturers of mobile and portable equipment, including forklifts, agricultural machines, construction plant, aircraft, vehicles and ships, expect exceptional reliability and life-expectancy when selecting fit-and-forget sensors for these demanding applications.

Typical application

See our website or scan this QR code:



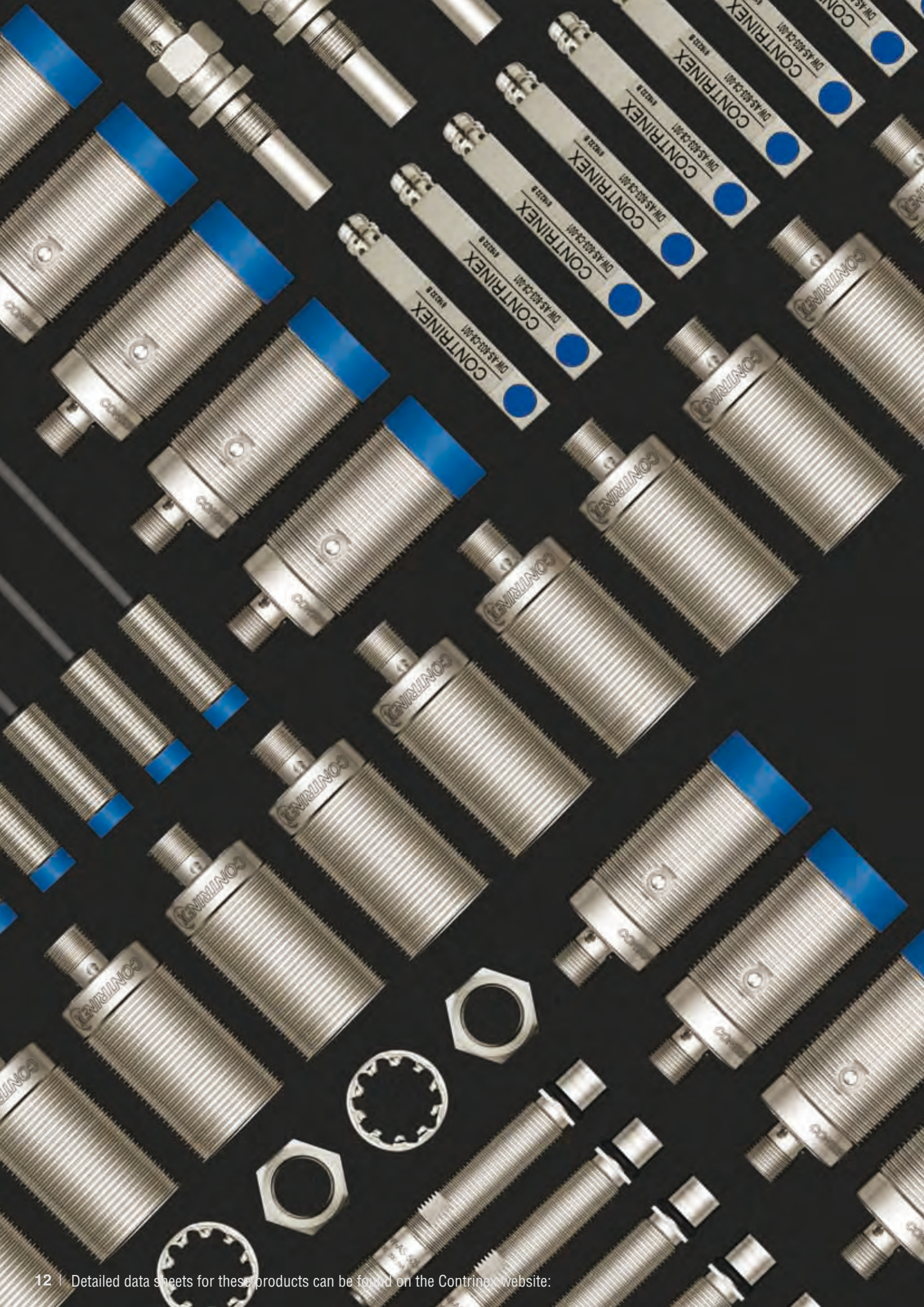
Recommended product ranges:

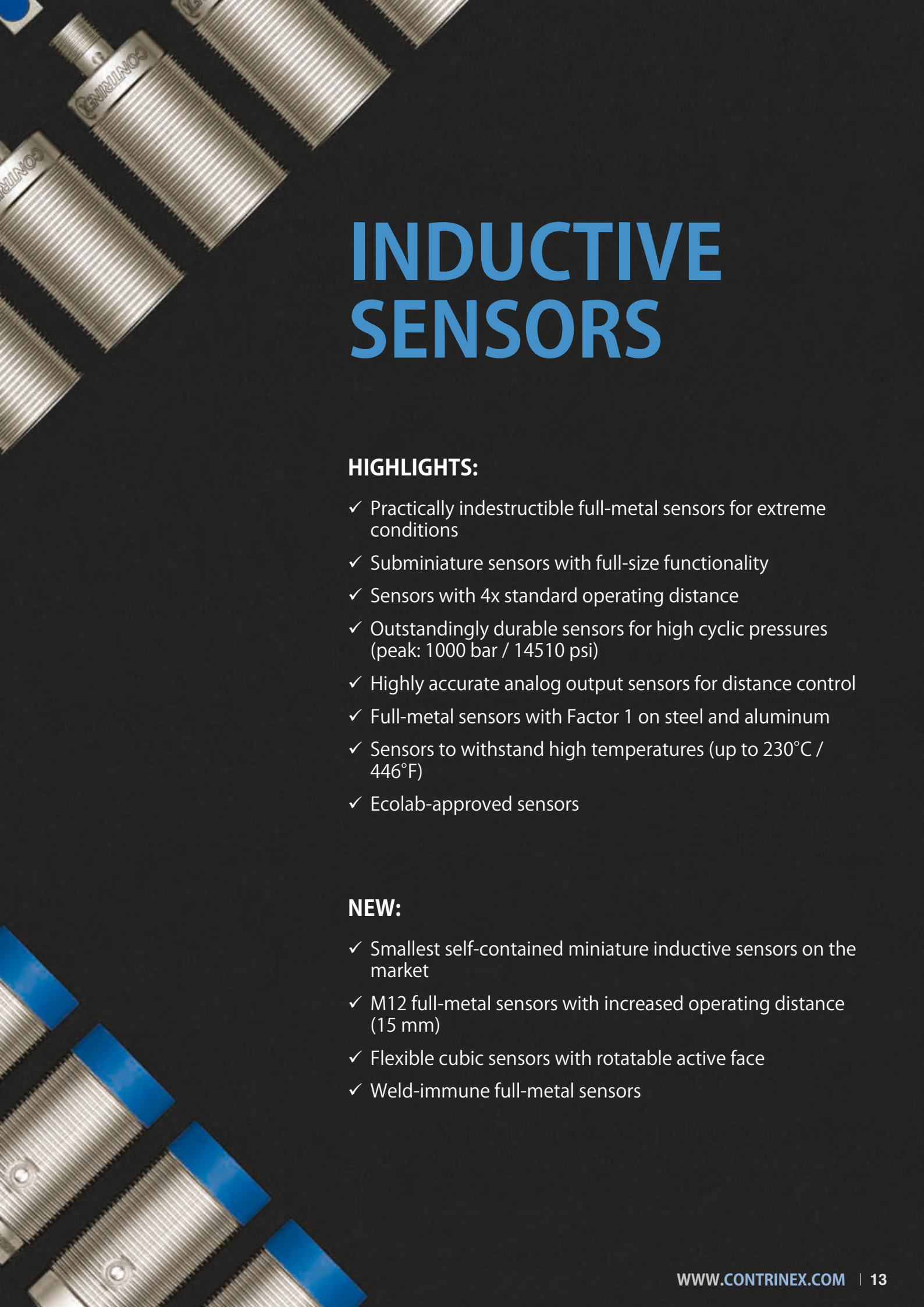
Inductive - Extra Distance - High pressure

Inductive - Full Inox - Extreme

Inductive - Extra Distance - Basic







INDUCTIVE SENSORS

HIGHLIGHTS:

- ✓ Practically indestructible full-metal sensors for extreme conditions
- ✓ Subminiature sensors with full-size functionality
- ✓ Sensors with 4x standard operating distance
- ✓ Outstandingly durable sensors for high cyclic pressures (peak: 1000 bar / 14510 psi)
- ✓ Highly accurate analog output sensors for distance control
- ✓ Full-metal sensors with Factor 1 on steel and aluminum
- ✓ Sensors to withstand high temperatures (up to 230°C / 446°F)
- ✓ Ecolab-approved sensors

NEW:

- ✓ Smallest self-contained miniature inductive sensors on the market
- ✓ M12 full-metal sensors with increased operating distance (15 mm)
- ✓ Flexible cubic sensors with rotatable active face
- ✓ Weld-immune full-metal sensors

PROGRAM OVERVIEW

FAMILY	HOUSING SIZE	OPERATING DISTANCE	BASIC	MINIATURE	EXTREME	EXTRA PRESSURE up to 100 bar	HIGH PRESSURE up to 1000 bar peak	
IO-Link <i>coming soon</i> CLASSICS Series 600 1 x S _n / 2 x S _n	∅ 3	0.6 ... 1 mm		p.65-66		p.85		
	M4	0.6 ... 1 mm		p.66-67				
	∅ 4	0.8 ... 1.5 mm		p.67-68		see online		
	M5	0.8 ... 1.5 mm		p.69-70		p.85		
	C5	0.8 ... 1.5 mm		p.71				
	∅ 6.5	1.5 ... 2 mm	p.27-31					
	M8	1.5 ... 2.5 mm	p.32-37					
	8 x 8	1.5 ... 2 mm	p.41-42					
	M12	2 ... 8 mm	p.43-47					
	M18	5 ... 8 mm	p.50-53					
	M30	10 ... 15 mm	p.55-56					
	M50	25 mm						
	40 x 40 mm	15 ... 40 mm	p.59-60					
	40 x 120 mm	15 ... 40 mm	p.60-61					
EXTRA DISTANCE Series 500 3 x S _n / 4 x S _n	∅ 4	2.5 mm		p.69				
	M5	1 ... 2.5 mm		p.70			p.89	
	∅ 6.5	2.5 ... 3 mm	p.31			p.85		
	M8 / P8	1.5 ... 6 mm	p.38-41			see online	p.89	
	8 x 8	2 ... 4 mm	p.42					
	M12 / P12	1.5 ... 10 mm	p.46-50				p.89-91	
	M18	10 ... 20 mm	p.53-55					
	M30	20 ... 40 mm	p.57-59					
	M14 / P20	3 mm					p.91-92	
FULL INOX Series 700 full-metal housing	∅ 4			coming soon				
	M5			coming soon				
	∅ 6.5				coming soon			
	M8	3 ... 6 mm			p.75-76			
	M12 / P12	1.5 ... 15 mm			p.76-78		p.91	
	M18	5 ... 20 mm			p.78-80			
	M30	3 ... 40 mm			p.80-81			

	EXTRA TEMPERATURE -40 to 120°C	HIGH TEMPERATURE up to 230°C	WASHDOWN	ANALOG OUTPUT	WELD-IMMUNE	SPECIAL
						p.125
	p.97					p.125
						p.125
						p.126
	p.97	p.101				
	p.97	p.101	coming soon		see online	p.126-127
	p.97	p.101			see online	p.127
		p.101			see online	
		p.102				
					see online	
				p.113-114		
				p.113		
				p.114-115		
				p.116		
				p.116-117		
			p.107		p.121	
			p.107		p.121	
			p.108			p.127

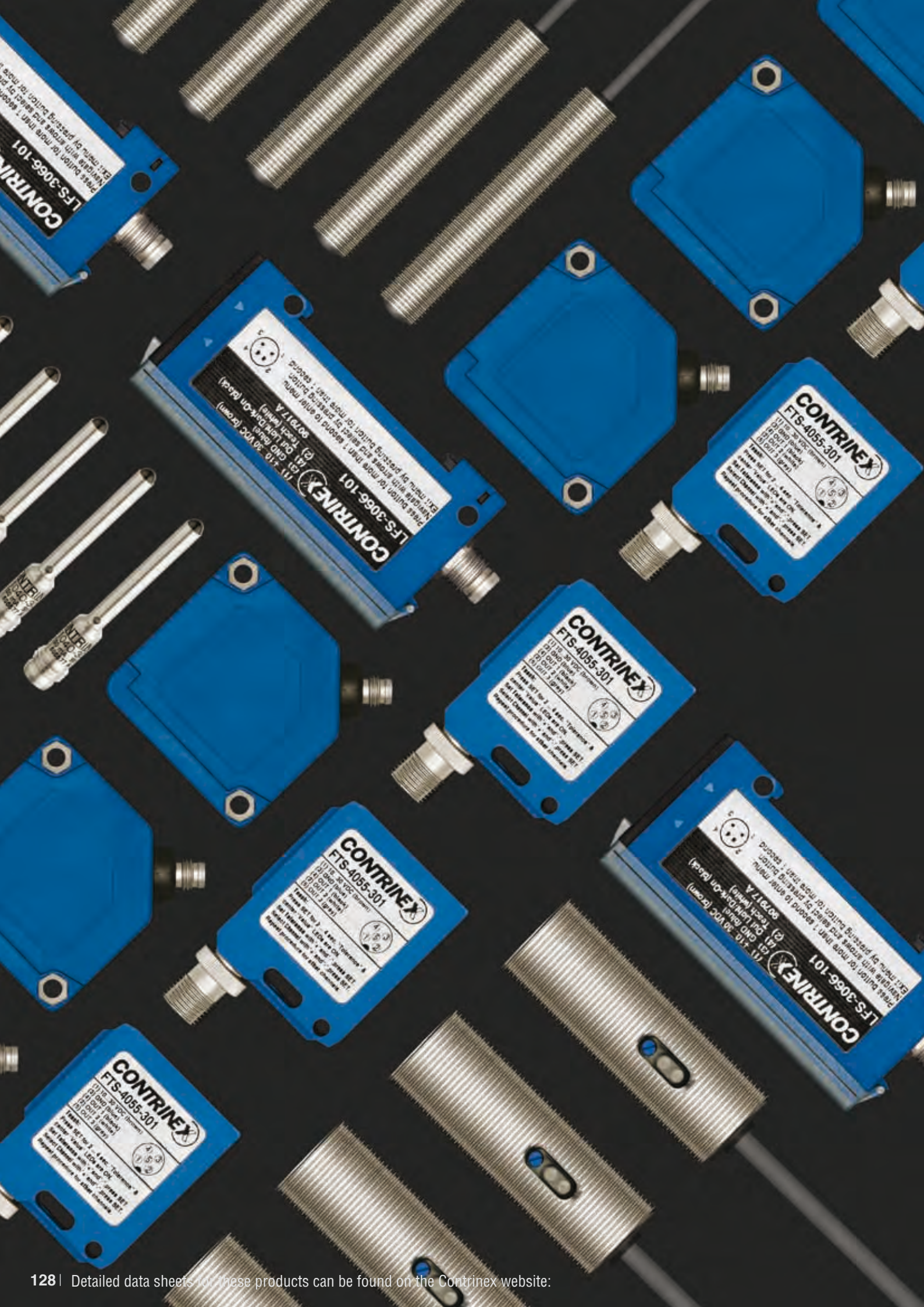
PROGRAM OVERVIEW

MINIATURE + BASIC RANGES

HOUSING SIZE	OPERATING DISTANCE													PAGE
	5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm	45 mm	50 mm	55 mm	60 mm	65 mm	
∅ 3 mm / M4	0.6 mm													65 - 66
	1 mm													65 - 67
∅ 4 mm / M5	0.8 mm													67 - 69
	1.5 mm													68 - 70
	2.5 mm													69 - 70
5 x 5 mm	0.8 mm													71
	1.5 mm													71
∅ 6.5 mm	1.5 mm													27 - 29
	2 mm													29 - 31
	3 mm													31
M8	1.5 mm													31 - 33
	2 mm													34 - 37
	2.5 mm													37
	3 mm													38
	4 mm													39 - 40
8 x 8 mm	6 mm													40 - 41
	1.5 mm													41
8 x 8 mm	2 mm													41 - 42
	3 mm													42
	2 mm													43
M12	4 mm													44 - 46
	6 mm													46 - 47
	8 mm													47 - 49
	10 mm													49 - 50
M18	5 mm													50 - 51
	8 mm													51 - 53
	12 mm													53 - 54
	20 mm													54 - 55
M30	10 mm													55 - 56
	15 mm													56
	22 mm													57
	40 mm													58 - 59
40 x 40 mm	15 mm													59
	20 mm													59
	30 mm													59
	40 mm													60
40 x 120 mm	15 mm													60
	40 mm													61

OTHER RANGES

HOUSING SIZE	OPERATING DISTANCE													PAGE
	5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm	45 mm	50 mm	55 mm	60 mm	65 mm	
EXTREME														
M8	3 mm													75
M8 / M12	6 mm													75 - 77
M18	5 mm													78 - 80
M12 / M18	10 mm													77 - 79
M12	15 mm													78
M18 / M30	20 mm													80 - 81
M30	40 mm													81
EXTRA PRESSURE														
∅ 3 mm	0.6 ... 0.8 mm													85
M5	0.6 mm													85
∅ 6.5 mm	2.5 mm													85
HIGH PRESSURE														
M5	1 mm													89
M8 / P8	1.5 mm													89
M12 / P12	1.5 mm													89 - 91
M14 / P20	3.0 mm													91 - 92
EXTRA TEMPERATURE														
M5	0.8 mm													97
M8	4 mm													97
M12	2 ... 4 mm													97
M18	5 mm													97
HIGH TEMPERATURE														
M8	2 mm													101
M12	3 mm													101
M18	5 mm													101
M30	10 mm													101
M50	25 mm													102
WASHDOWN														
M12	6 mm													107
M18	10 mm													107
M30	20 mm													108
ANALOG OUTPUT														
8 x 8 mm / M8	0 ... 4 mm													113 - 114
M12	0 ... 6 mm													114 - 115
M18	0 ... 10 mm													115 - 116
M18 / M30	0 ... 20 mm													116 - 117
M30	0 ... 40 mm													117
WELD-IMMUNE														
M12	6 mm													121
M18	10 mm													121
SPECIAL														
∅ 4 mm / M5 / C5	0.8 mm													125
∅ 6.5 mm	1.5 mm													126
M12	2 ... 4 mm													126 - 127
M18	5 ... 8 mm													127
M30	3 ... 5 mm													127



The background of the page features several blue Contrinex sensors. One sensor in the upper left is clearly visible, showing its label with the model number 'ETS-4055-301' and the Contrinex logo. Another sensor is partially visible below it. In the lower left, another sensor is shown at an angle, with its label partially visible, showing '101' and '111-110-30 VDC (brown)'. The sensors are set against a dark, almost black background.

PHOTOELECTRIC SENSORS

HIGHLIGHTS:

- ✓ Smallest self-contained subminiature sensors on the market
- ✓ Excellent suppression of light-colored backgrounds
- ✓ Highly accurate laser sensors
- ✓ Analog output sensors for precise distance control
- ✓ Sensors with short housings and 90° sensing
- ✓ Wide range of fiber-optic amplifiers, including IO-Link
- ✓ Fiber-optic solutions for the most demanding environments
- ✓ Through-beam sensors for longest sensing ranges
- ✓ Excellent color recognition sensors

NEW:

- ✓ Ecolab-approved sensors with Plexiglas® window for food industry
- ✓ Color sensors
- ✓ Fiber-optic amplifier with IO-Link

PROGRAM OVERVIEW



CYLINDRICAL

SERIES		1040	1050	1120	1120L	1180 / 1180W	1180L	
HOUSING SIZE IN MM		∅ 4	M5	M12	M12	M18	M18	
SPECIAL					Laser		Laser	
FAMILY	SENSING RANGE							
Diffuse	10 ... 2000 mm	p.141-143	p.143-146	p.151-152		p.158-159	p.163	
Background suppression	10 ... 500 mm					p.157-158		
Reflex	0 ... 6000 mm			p.152		p.160-161		
Through-beam	0 ... 50'000 mm		p.146	p.153	p.153	p.161-162	p.164	
Analog output	10 ... 100 mm			p.151				
Color	30 ... 40 mm							
Fiber-optic amplifiers *	0 ... 200 mm							

* Optical amplifiers are presented in the optical fiber section



CUBIC

	0507	3030	3060	4040	4050	4150	5050	6080	
	5x7x40	30x30x15	31x60x10	40x40x19	40x50x15	40x50x15	50x50x18	65x83x25	
					Color sensor	Color sensor & Ecolab			
	p.169	p.175-176		p.183		p.188	p.197	p.201	
		p.173-174			p.187	p.187		p.201	
		p.177-178		p.184	p.188	p.189	p.198	p.202	
		p.179		p.184	p.189	p.190	p.199		
		p.173							
					p.193				
		p.211-212	p.215-217	p.219					

PROGRAM OVERVIEW

HOUSING SIZE	SENSING RANGE						PAGE
	1 mm	10 mm	100 mm	1000 mm	10,000 mm	100,000 mm	
DIFFUSE							
∅ 4 mm / M5	10 mm						141, 143 - 144
∅ 4 mm / M5	20 mm						142, 144 - 145
∅ 4 mm / M5	50 mm						142, 143, 145 - 146
5 x 7 mm	20 mm						169
5 x 7 mm	50 mm						169
5 x 7 mm	90 mm						169
M12	300 mm						151 - 152
M18 (M18W)	600 mm						158 - 159
M18 △	40 ... 250 mm (setting range)						163
M18 △	60 ... 600 mm (setting range)						163
30 x 30 mm	600 mm						175
30 x 30 mm	1200 mm						176
40 x 40 mm	2000 mm						183
40 x 50 mm	30 ... 1200 mm (setting range)						188
50 x 50 mm	300 mm						197
50 x 50 mm	800 mm						197
65 x 83 mm	2000 mm						201
BACKGROUND SUPPRESSION							
M18 (M18W)	10 ... 120 mm (setting range)						157 - 158
30 X 30 mm	15 ... 200 mm (setting range)						173 - 174
40 X 50 mm	30 ... 500 mm (setting range)						187
65 x 83 mm	50 ... 1000 mm (setting range)						201
REFLEX							
M12	1500 mm						152
M18 (M18W)	2000 mm						160 - 161
30 X 30 mm	2000 mm						177
30 X 30 mm	4000 mm						178
40 X 40 mm	6000 mm						184
40 X 50 mm	4000 mm						188 - 189
50 X 50 mm	4000 mm						198
65 X 83 mm	6000 mm						202

HOUSING SIZE	SENSING RANGE						PAGE
	1 mm	10 mm	100 mm	1000 mm	10,000 mm	100,000 mm	
ANALOG OUTPUT							
M12	10 ... 100 mm (operating range)						151
30 x 30 mm	10 ... 100 mm (operating range)						173
THROUGH-BEAM							
M5	250 mm						146
M12	10,000 mm						153
M12 \triangle	50,000 mm						153
M18 (M18W)	20,000 mm						161 - 162
M18 \triangle	50,000 mm						164
30 x 30 mm	6000 mm						179
30 x 30 mm	12,000 mm						179
40 x 40 mm	15,000 mm						184
40 x 50 mm	50,000 mm						189 - 190
50 x 50 mm	15,000 mm						199
FIBER-OPTIC AMPLIFIER							
30 x 30 mm	60 mm						211
30 x 30 mm	120 mm						212
31 x 60 mm	100 mm						215
31 x 60 mm	200 mm						215 - 217
40 x 40 mm	150 mm						219
COLOR							
40 x 50 mm	30 ... 40 mm (operating range)						193

PROGRAM OVERVIEW

FAMILY	PRODUCT RANGE		SUBMINIATURE				
OPTICAL FIBERS	CYLINDRICAL						
	HOUSING SIZE		No sensing head	Ø 2.3	M3	Ø 3.2	Ø 4
	SYNTHETIC FIBERS	Diffuse	p.221	p.221	p.221		
		Through-beam	p.224		p.224	p.224	
		Cylindrical light beam					p.227
		Background suppression					
		Liquid level monitoring					
		Low and high temperatures					
		Multi-beam detection					
	GLASS FIBERS	Diffuse					
Through-beam							

FAMILY	PRODUCT RANGE	MINIATURE	SMALL	
AMPLIFIERS	CUBIC			
	SERIES	3030	3060	
	HOUSING SIZE IN MM	30 x 30 x 15 mm	31 x 60 x 10 mm	
	MAX. DISTANCE	120 mm	200 mm	
	SETUP	Potentiometer	Potentiometer	
	FOR USE WITH SYNTHETIC FIBERS	p.211-212	p.217	
	FOR USE WITH GLASS FIBERS	p.211-212		



SUBMINIATURE		MINIATURE				SMALL	
CYLINDRICAL						CUBIC	
M4	M5	Ø 6	M6	Ø 8	M8	□ 27 x 30	□ 18 x 32
			p.222-223				
p.225-226			p.226				
	p.227						
						p.228	
					p.229		
p.230			p.230				
							p.229
		p.233-234	p.238	p.233-234			
p.238		p.235, 237		p.236-237			

SMALL			
CUBIC			
3065	3066	3360	4040
31 x 60 x 10 mm	31 x 60 x 10 mm	31 x 60 x 10 mm	40 x 40 x 19 mm
200 mm	200 mm	100 mm	150 mm
Teach-in	Teach / IO-Link	Potentiometer	Potentiometer
p.215-216	p.216-217	p.215	
			p.219



PROGRAM OVERVIEW

HOUSING SIZE	SENSING RANGE														PAGE
	12 mm	20 mm	45 mm	60 mm	70 mm	80 mm	140 mm	150 mm	200 mm	260 mm	550 mm	700 mm	900 mm	1800 mm	

SYNTHETIC OPTICAL FIBERS

DIFFUSE SENSING		
Double fiber (10 m)	60 ... 200 mm	221
∅ 2.3 miniature	20 ... 70 mm	221
M3 miniature	20 ... 70 mm	221
M6 standard	60 ... 200 mm	222-223
M6 flexible	45 ... 150 mm	222-223
M6 luminous	80 ... 260 mm	222
M6 coaxial	60 ... 200 mm	223
THROUGH-BEAM SENSING		
Indiv. fiber (10 m)	200 ... 700 mm	224
M3 miniature	60 ... 200 mm	224
∅ 3.2 standard 90°	60 ... 200 mm	224
M4 standard	200 ... 700 mm	225
M4 flexible	150 ... 550 mm	225-226
M4 luminous	250 ... 900 mm	225
M6 standard 90°	550 ... 1800 mm	226
CYLINDRICAL LIGHT BEAM		
∅ 4 miniature	60 ... 140 mm	227
M5 miniature	60 ... 140 mm	227
BACKGROUND SUPPRESSION		
27 x 30 mm flexible 90°	12 mm	228
27 x 30 mm flexible	12 mm	228
LIQUID LEVEL MONITORING		
M8		229
LOW & HIGH TEMPERATURES		
M4	150 ... 550 mm	230
M6	45 ... 150 mm	230
MULTI-BEAM		
18 x 32 mm	45 ... 150 mm	229



HOUSING SIZE	SENSING RANGE													PAGE
	5 mm	15 mm	30 mm	50 mm	60 mm	120 mm	150 mm	200 mm	250 mm	500 mm	800 mm	1500 mm		

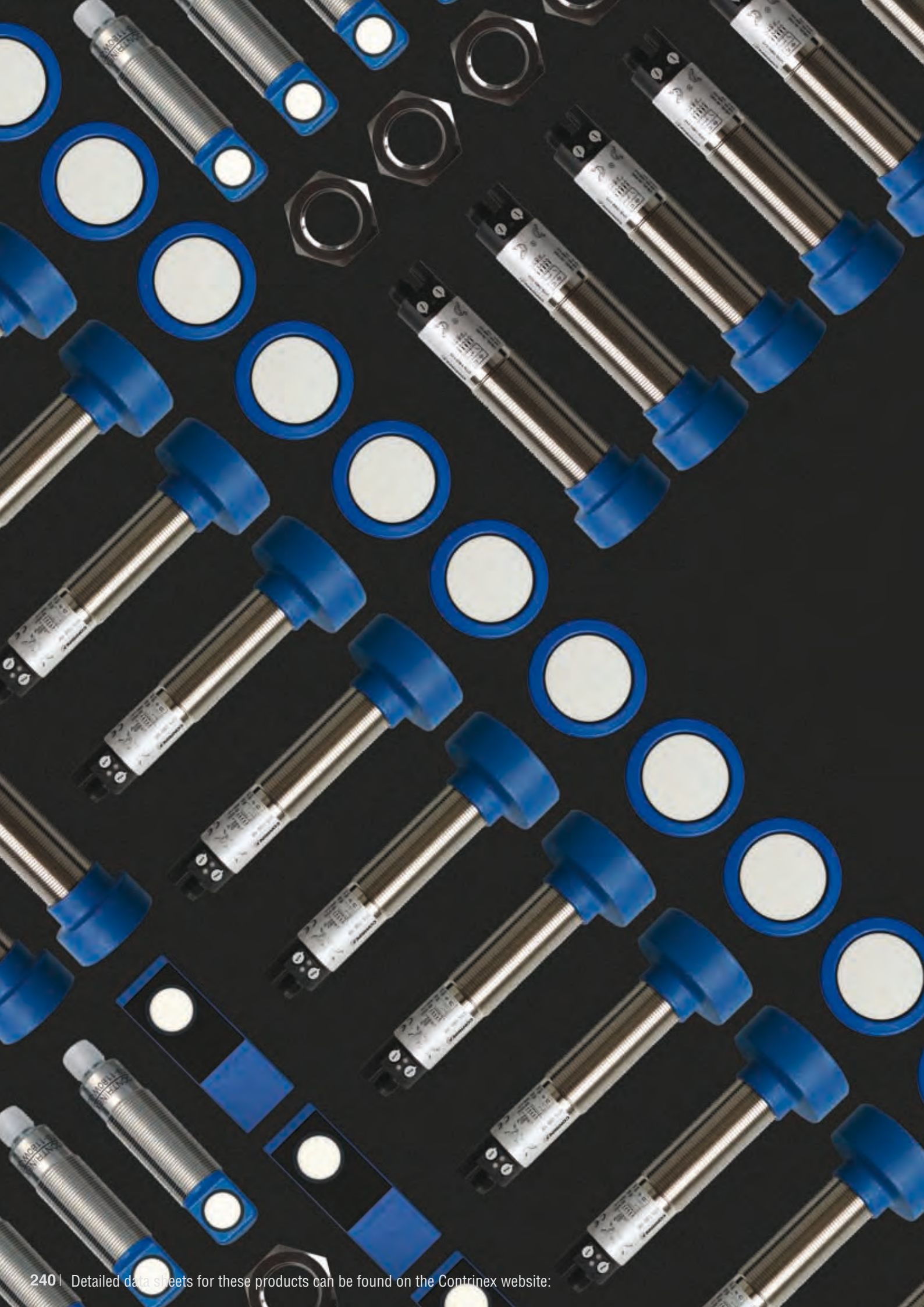
GLASS OPTICAL FIBERS (FOR SERIES 4040 SENSORS)

AXIAL DIFFUSE SENSING		
∅ 6 mm	5 mm	233
	15 mm	233
	15 mm	233
∅ 8 mm	50 mm	233
	150 mm	233
RADIAL DIFFUSE SENSING		
∅ 6 mm	15 mm	234
∅ 8 mm	30 mm	234
	150 mm	234
AXIAL THROUGH-BEAM SENSING		
∅ 6 mm	50 mm	235
	200 mm	235
	200 mm	235
∅ 8 mm	800 mm	236
	1500 mm	236
RADIAL THROUGH-BEAM SENSING		
∅ 6 mm	200 mm	237
∅ 8 mm	800 mm	237
	1500 mm	237

GLASS OPTICAL FIBERS (FOR SERIES 3030/3031 SENSORS - connection as with synthetic fibers)

DIFFUSE AND THROUGH-BEAM SENSING		
M6 diffuse sensing	60 ... 120 mm	238
M4 thru-beam sensing	250 ... 500 mm	238







ULTRASONIC SENSORS

HIGHLIGHTS:

- ✓ Detection independent of target material, color, shape or surface
- ✓ Ready-to-use cylindrical sensors with integral connector
- ✓ Easy adjustment by either potentiometer or teach-in
- ✓ Dual output sensors, including analog and digital
- ✓ High resolution analog output, current or voltage
- ✓ Normal length or short housings and 90° sensing
- ✓ Reduced blind zone
- ✓ High excess gain – insensitive to dirt and ambient noise

NEW:

- ✓ Ø12 sensors for applications with limited space
- ✓ Ø12 sensors with external teach
- ✓ Ø12 sensors with analog output

PROGRAM OVERVIEW

PRODUCT RANGE		MINIATURE	SMALL	COMPACT
				

HOUSING SIZE	OPERATING DISTANCE			
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DIFFUSE (WITH BACKGROUND SUPPRESSION)

M12	30 ... 400 mm	p. 249		
M18C (short)	30 ... 700 mm		p.254-255	
M18W (90°C)	30 ... 700 mm		p.254-255	
M18	50 ... 300 mm		p.255	

REFLEX

M18C (short)	0 ... 700 mm		p.253	
M18W (90°C)	0 ... 700 mm		p.253	

DIFFUSE & REFLEX

M18	150 ... 1000 mm		p.255	
M30	60 ... 6000 mm			p.261

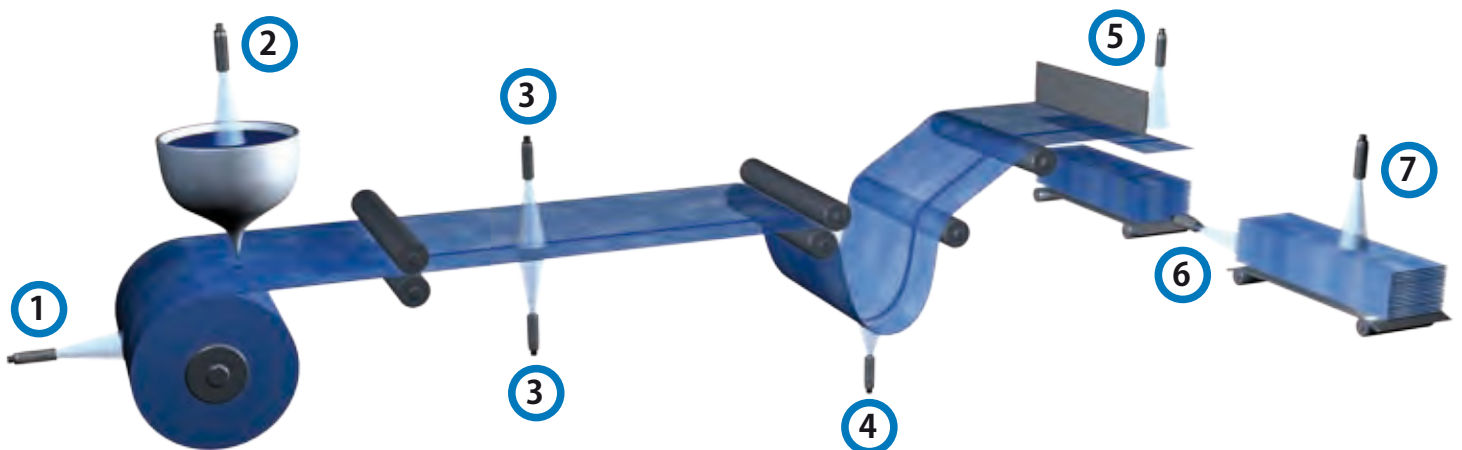
ANALOG

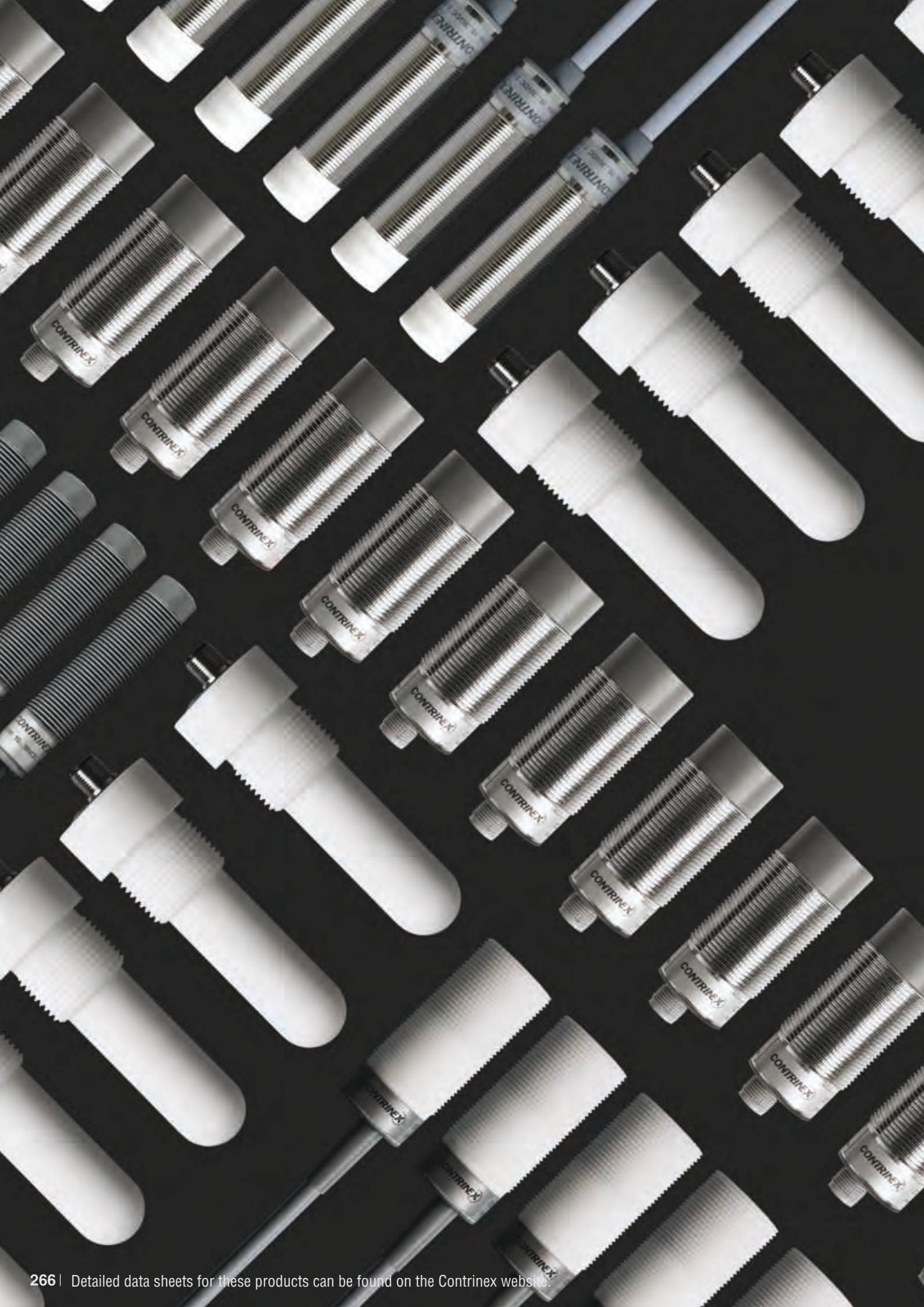
M12	30 ... 400 mm	p.249		
M18	50 ... 1000 mm		p.255-256	
M30	60 ... 6000 mm			p.262-263

PROGRAM OVERVIEW

HOUSING SIZE	SENSING RANGE														PAGE	
	30 mm	50 / 60 mm	100 mm	150 mm	200 mm	300 mm	400 mm	600 mm	700 mm	1000 mm	1300 mm	1500 mm	3000 mm	6000 mm		
DIFFUSE (WITH BACKGROUND SUPPRESSION)																
M12															30 ... 400 mm	249
M18C (short)															30 ... 700 mm	254
M18W (90°C)															30 ... 700 mm	254-255
REFLEX																
M18C (short)															0 ... 700 mm	253
M18W (90°C)															0 ... 700 mm	253
DIFFUSE & REFLEX																
M18															50 ... 1000 mm	255
M30															60 ... 6000 mm	261
ANALOG																
M12															30 ... 400 mm	249
M18															50 ... 1000 mm	255-256
M30															60 ... 6000 mm	262-263

1. Wind and unwind monitoring
2. Liquid level monitoring
3. Thickness control
4. Loop tension control
5. Detect or count (completeness check)
6. Position feedback
7. Distance / height control







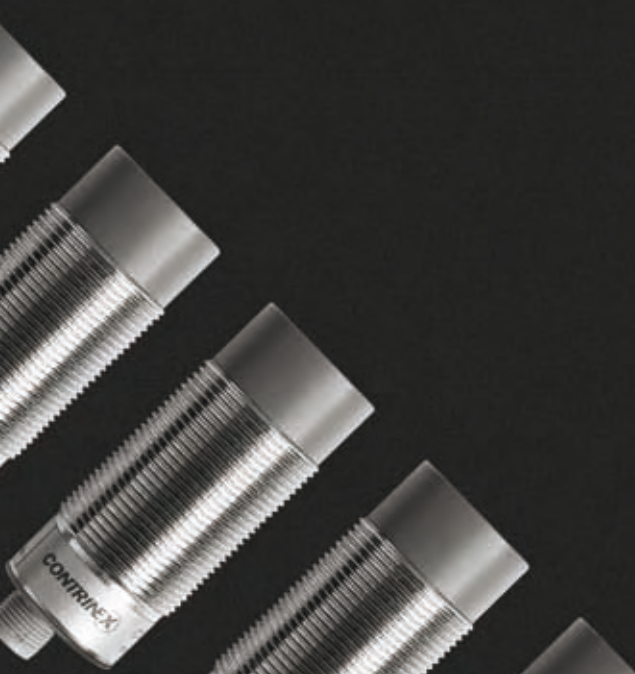
CAPACITIVE SENSORS

HIGHLIGHTS:



- ✓ Detection of virtually all target materials
- ✓ Easy adjustment with potentiometer and LED
- ✓ Detection through non-metallic pipes and containers
- ✓ Sensors for use in harsh chemical environments

NEW:

- ✓ Reliable level control of sticky and viscous materials
- ✓ Sensors with hygienic, FDA-compliant, PTFE housings



PROGRAM OVERVIEW

PRODUCT RANGE		BASIC	HIGH PERFORMANCE
			
HOUSING SIZE	OPERATING DISTANCE		

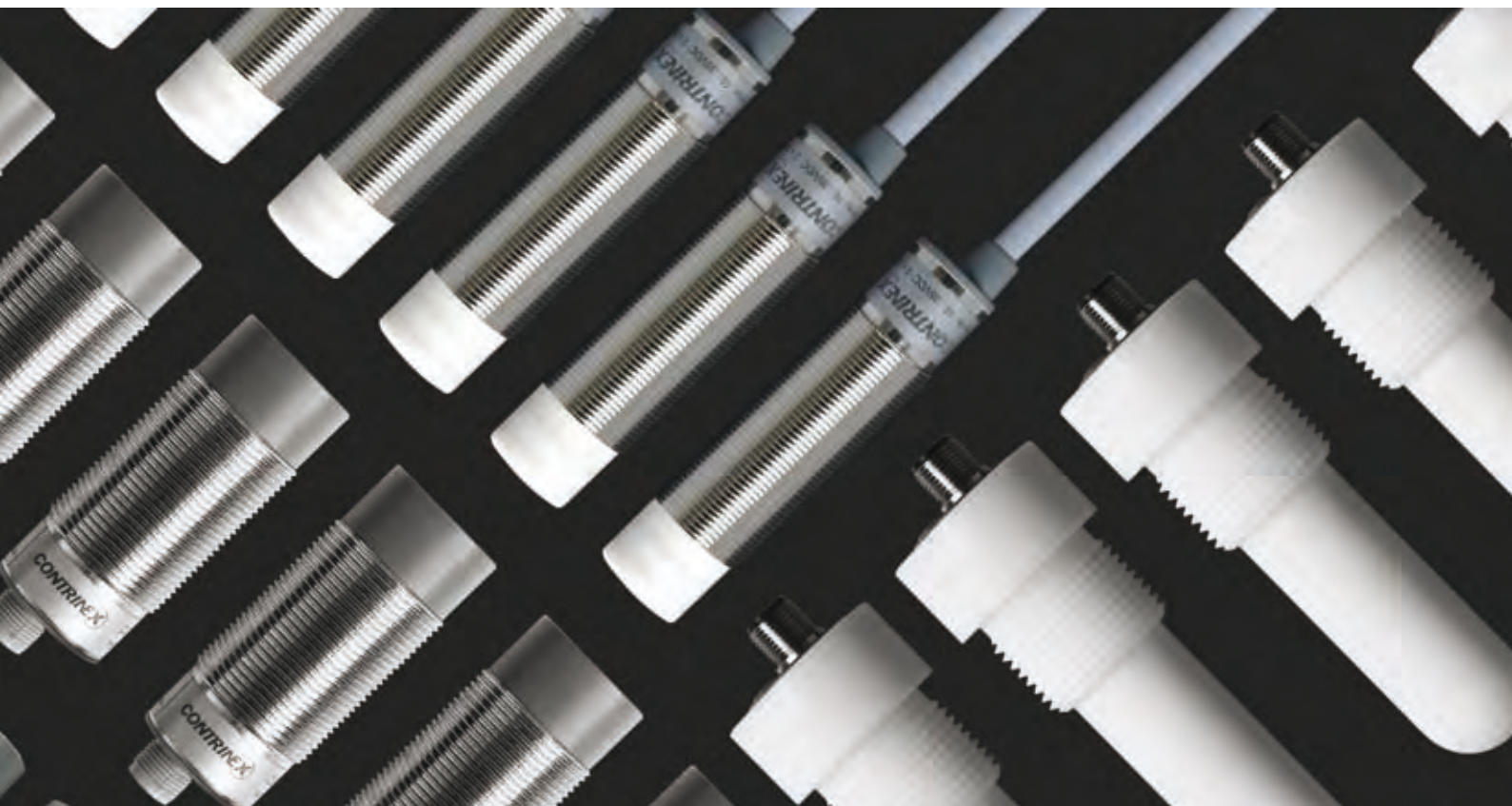
CYLINDRICAL

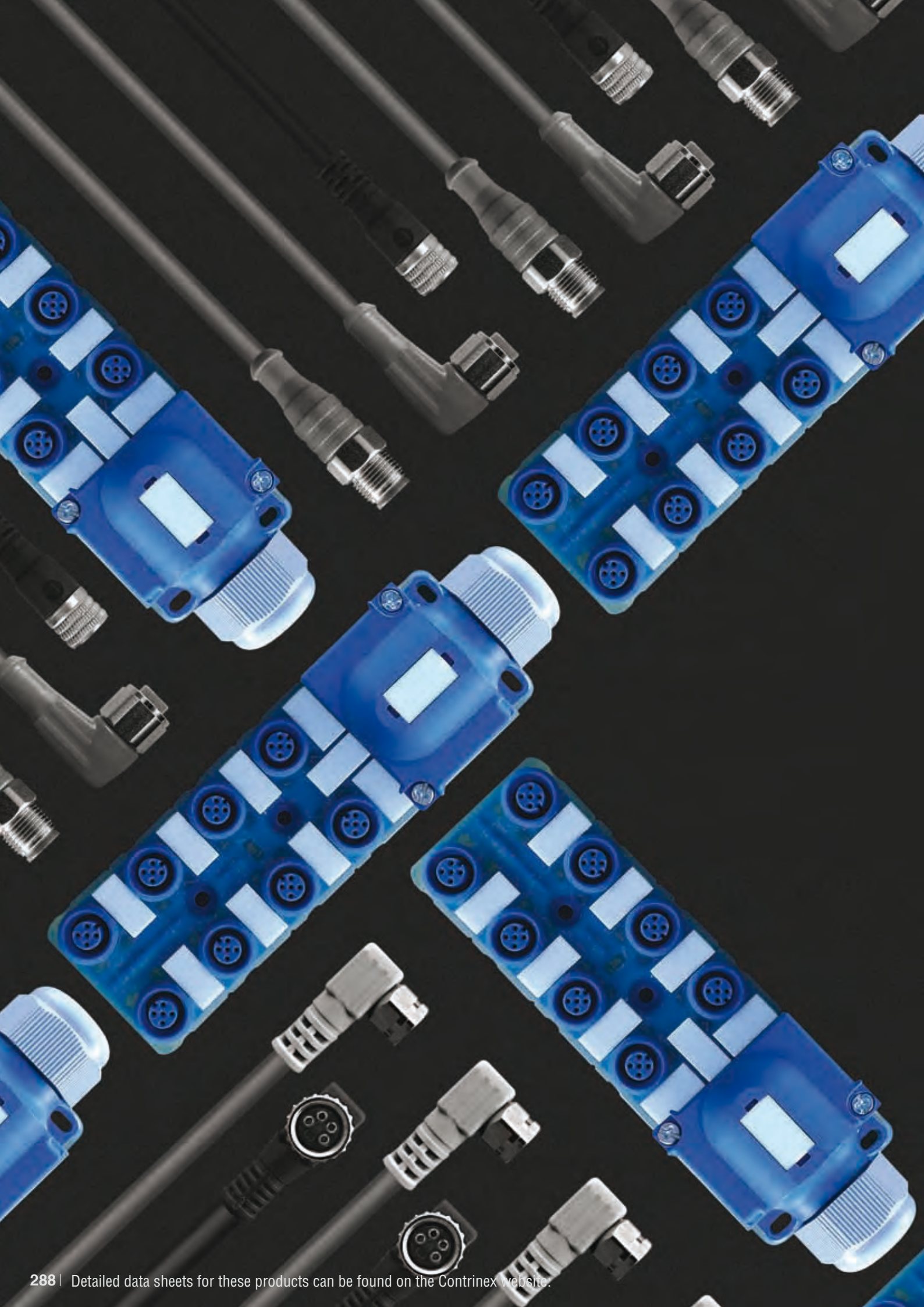
M12	2 mm	p.275	p.283
	4 mm		p.283
M18	5 mm	p.276	p.284
	8 mm	p.276-277	p.284
M30	10 mm	p.277	p.284
	15 mm	p.278	p.285
∅ 26 / G1	5 mm		p.285

CUBIC

48.5 x 32 x 17 mm	15 mm	p.279	
120 x 80 x 17 mm	40 mm	p.279	

HOUSING SIZE	SENSING RANGE											PAGE
	2 mm	4 mm	6 mm	8 mm	10 mm	12 mm	14 mm	16 mm	40 mm			
M12	2 mm											275, 283
		4 mm										283
M18			5 mm									276, 284
				8 mm								276 - 277, 284
M30					10 mm							277, 284
								15 mm				278, 285
∅ 26 / G1			5 mm									285
48.5 x 32 x 17 mm								15 mm				279
120 x 80 x 17 mm									40 mm			279






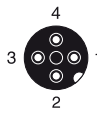





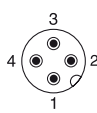






CONNECTIVITY

HIGHLIGHTS:

- ✓ Comprehensive cable and connector program
- ✓ IP 69K and Ecolab-tested cables for the food and beverage industry
- ✓ UL-approved cables and connectors
- ✓ Cables with straight or right-angle sockets
- ✓ Distribution boxes
- ✓ Field-attachable connectors
- ✓ T-connectors
- ✓ User-friendly standard portfolio

CABLES / CONNECTORS DESCRIPTION

SOCKE	TYPE	PIN ASSIGNMENT	TYPE
	M8 straight socket		M12 4-pole socket
	M12 straight socket		M8 3-pole socket
	M8 right angle socket		M8 4-pole socket
	M12 right angle socket		M12 4-pole plug
			M8 3-pole plug
PLUG	TYPE		M12 3-pole dual key plug (S13)
	M8 straight plug		
	M12 straight plug		



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