



FACTORY AUTOMATION

PHOTOELECTRIC SENSORS – OVERVIEW



SIGNALS FOR THE WORLD OF AUTOMATION.

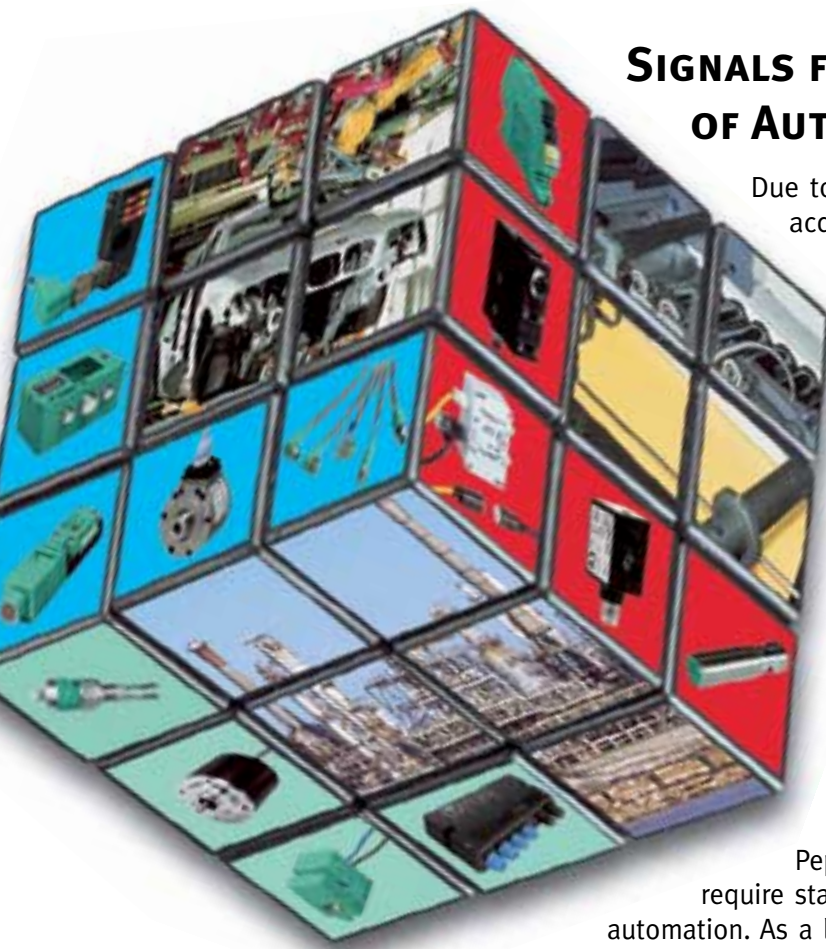
Due to many product innovations and company acquisitions we have been able to considerably increase the growth of the Factory Automation and Process Automation Divisions over the last two years.

The sales, production and service network of an organisation, established over 50 years ago and which spans the world, offers its customers worldwide support in the fulfilment of their automation activities. Why not take advantage of this wealth of experience in the field of automation technology?

IDEAL COMBINATION!

You will easily find the appropriate products for your particular branch of industry!

Pepperl+Fuchs is your partner when you require standard or specialised devices for factory automation. As a leading manufacturer of sensors, identification and bus systems, our brand names enjoy worldwide recognition.

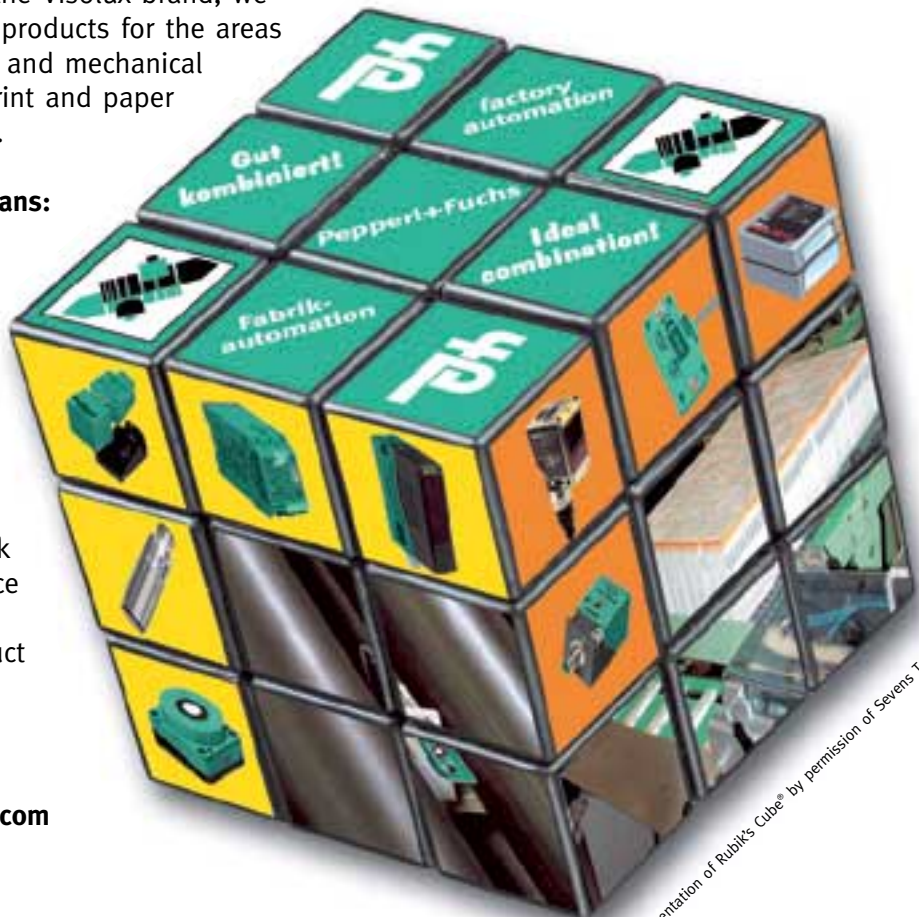


Pepperl+Fuchs – the parent brand – is the key name for inductive, capacitive, magnetic and ultrasonic sensors and encoders. The various identification systems of this brand, the IDENT-I and IDENT-M series, were introduced over 10 years ago. Visolux, the well-known brand name for optical sensors and sensors for safety applications, provides just about the perfect combination in complementing the portfolio of brands in the industrial sensor field. With the 8000 and more products and product variants associated with the Visolux brand, we offer one of the widest ranges of products for the areas of automotive engineering, stores and mechanical handling, packaging machinery, print and paper making and the chemical industry.

For you, as our customer, this means:

The largest selection of industrial sensors in the world! And of course it also means that this combination of expertise will almost certainly be able to find the optimum solution for your particular application! Take a look for yourself. You will find that our attractive combination of resources makes light work of product selection! Ask for advice on our Serviceline and request detailed information on our product ranges.

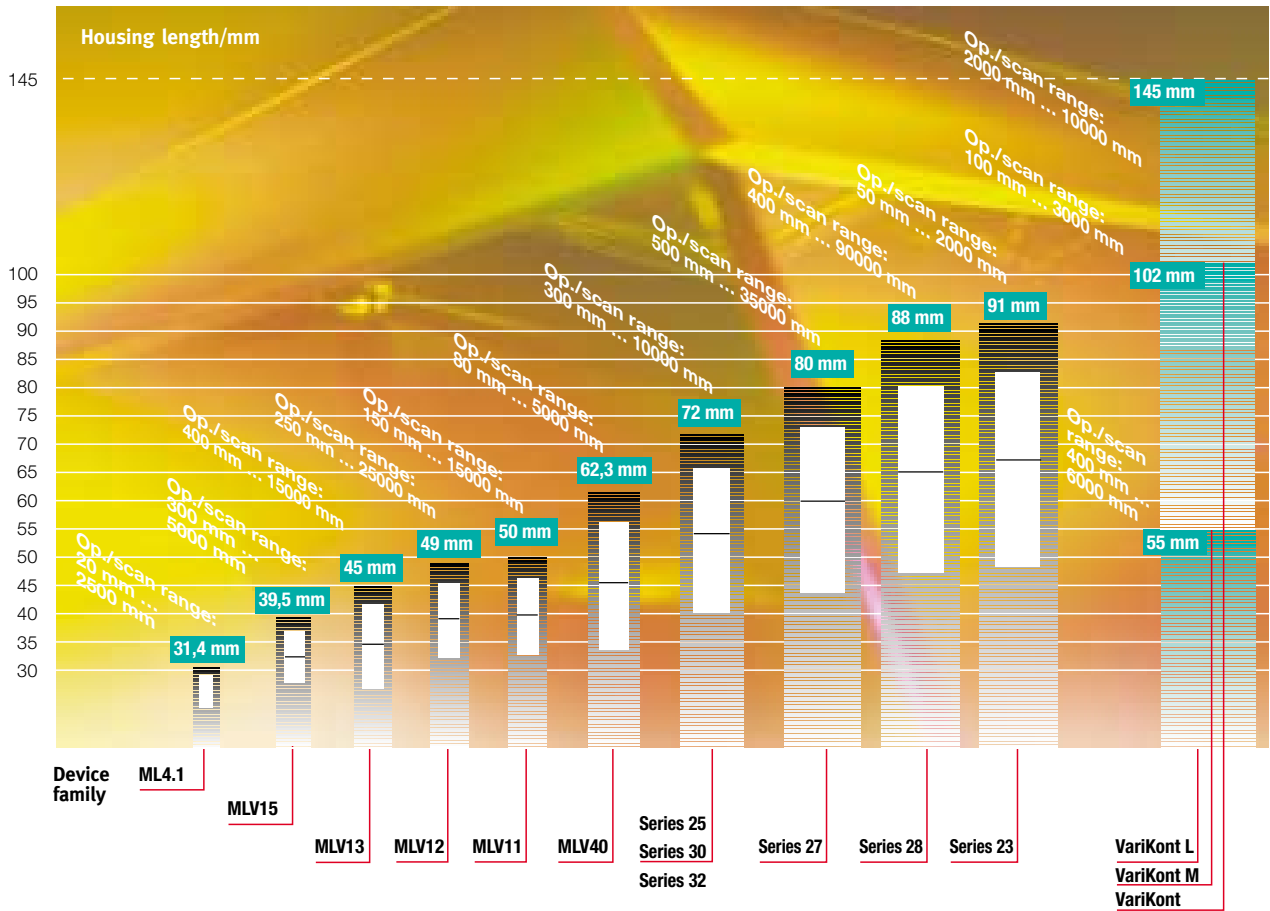
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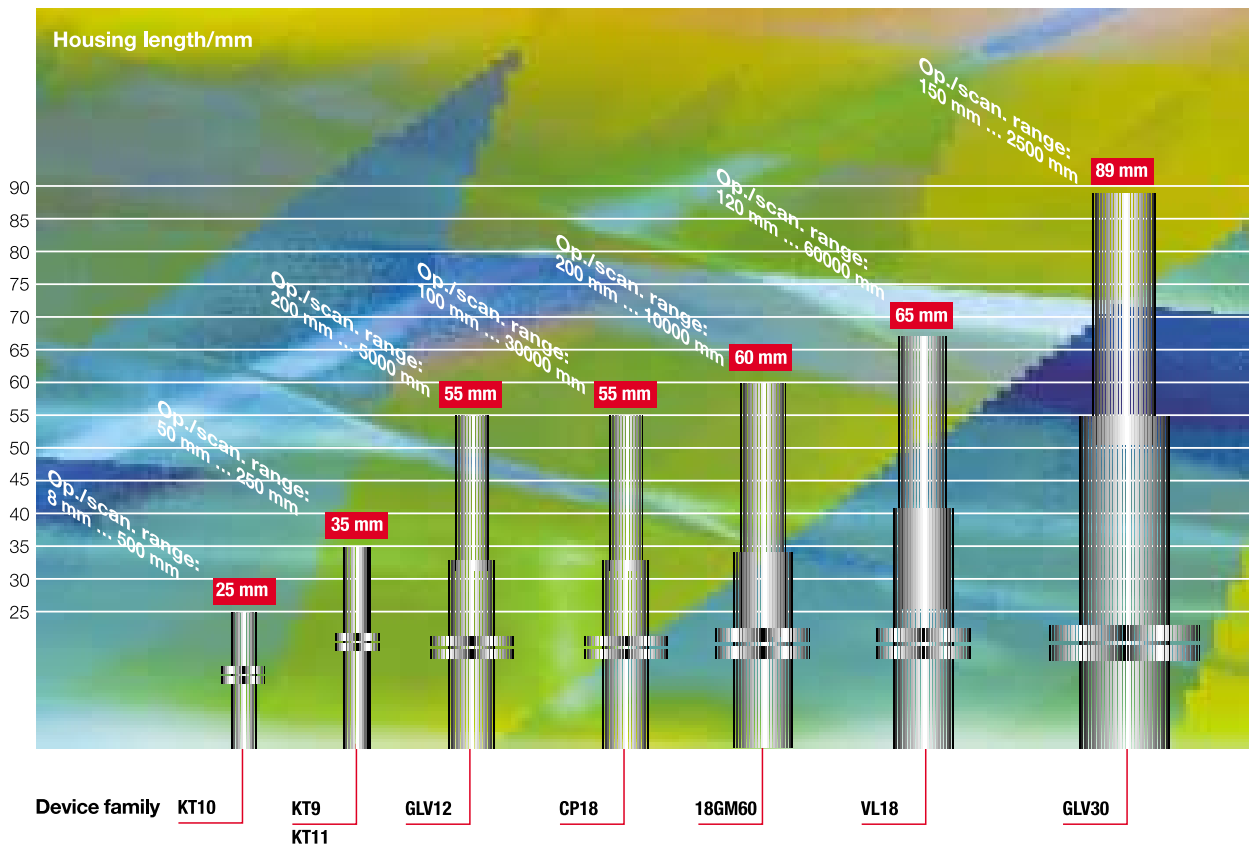
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RECTANGULAR DESIGN

...the right way to choose your sensor!

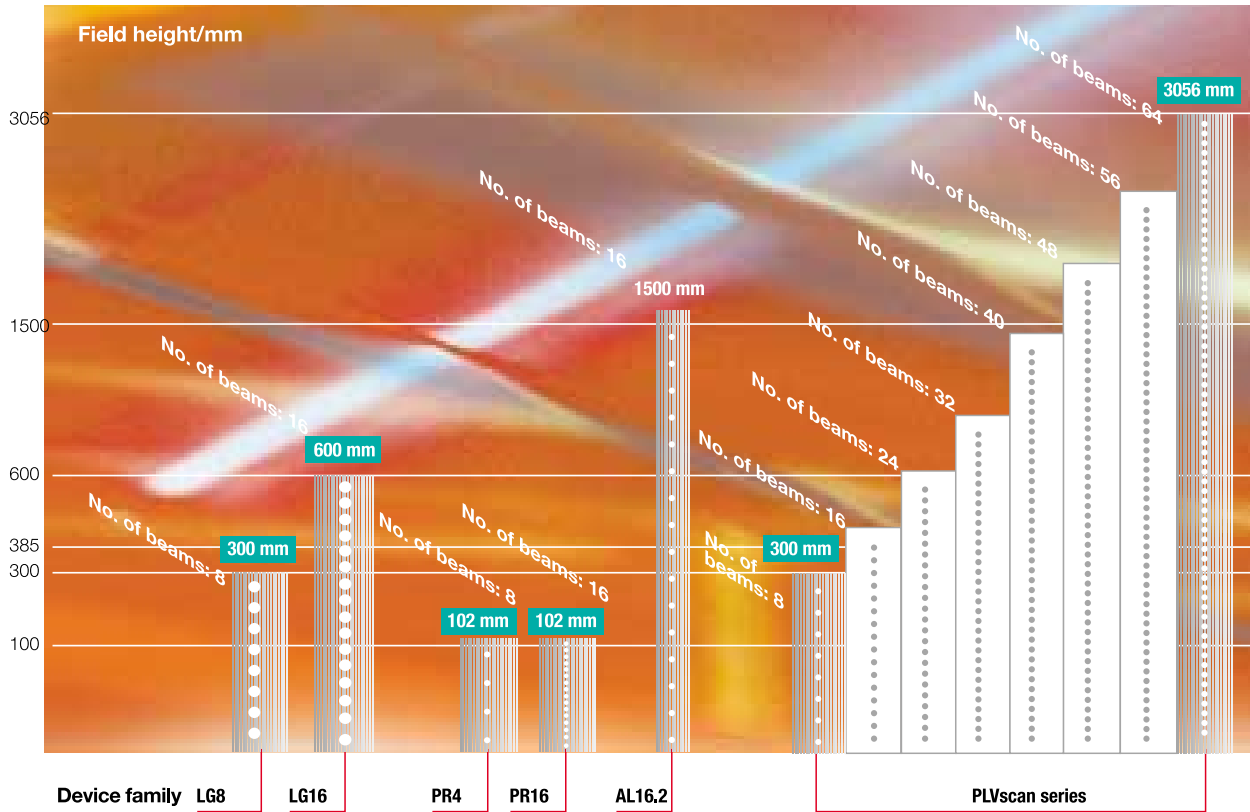


CYLINDRICAL DESIGN



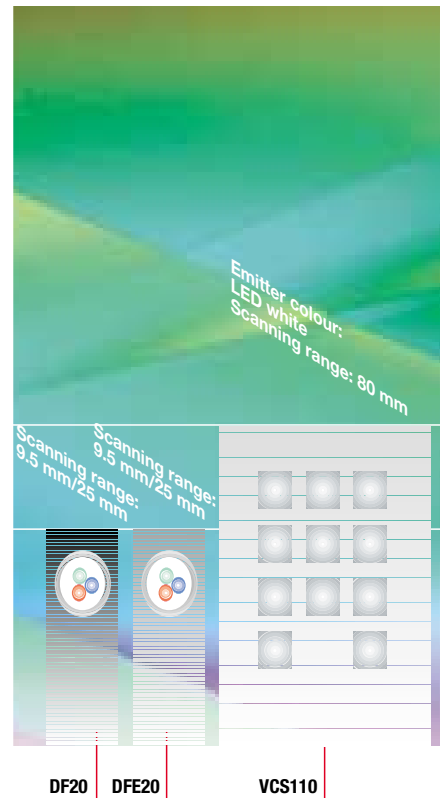
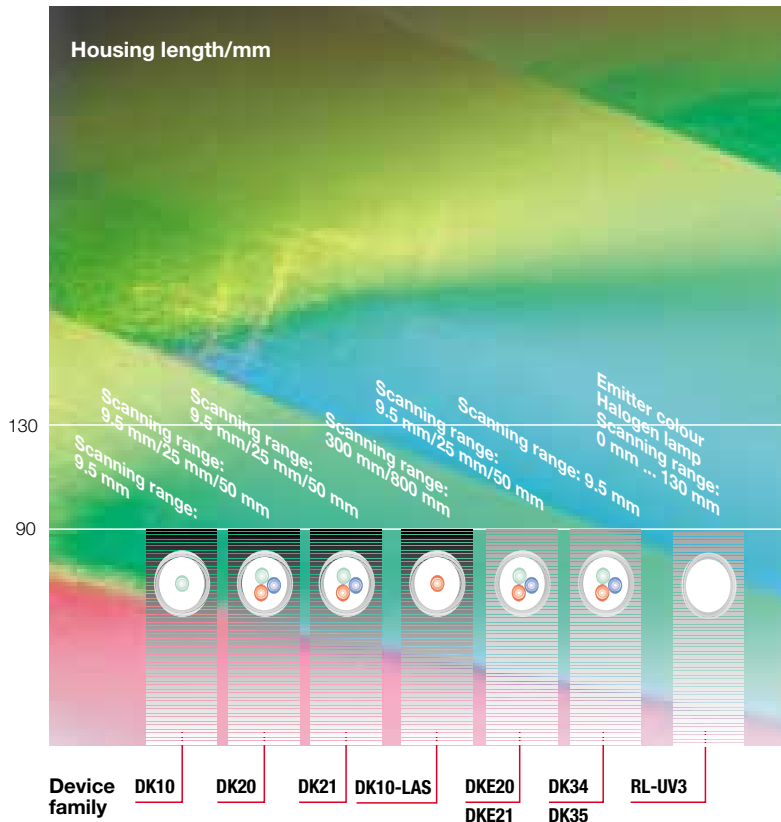
LIGHT GRIDS

...the right way to choose your sensor!

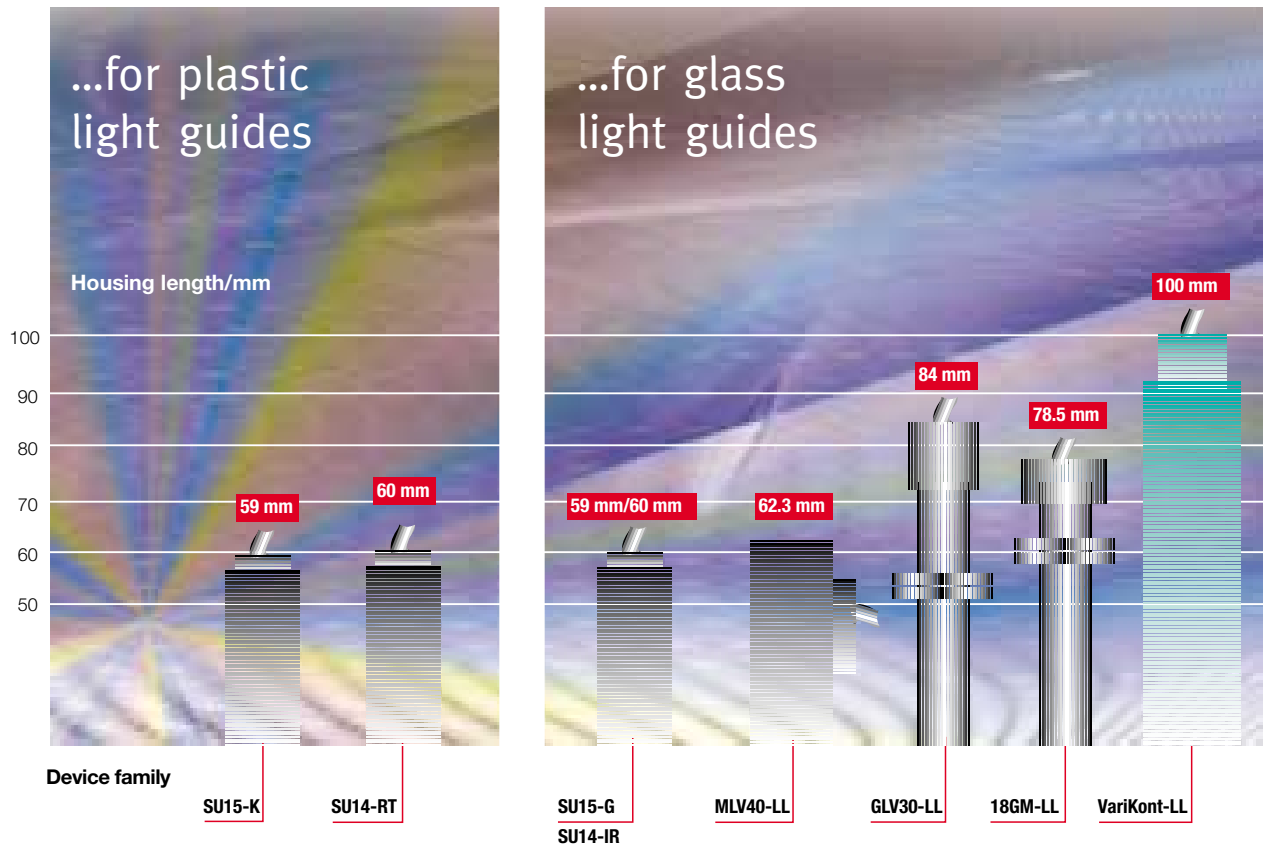


PRINTING MARK SCANNERS

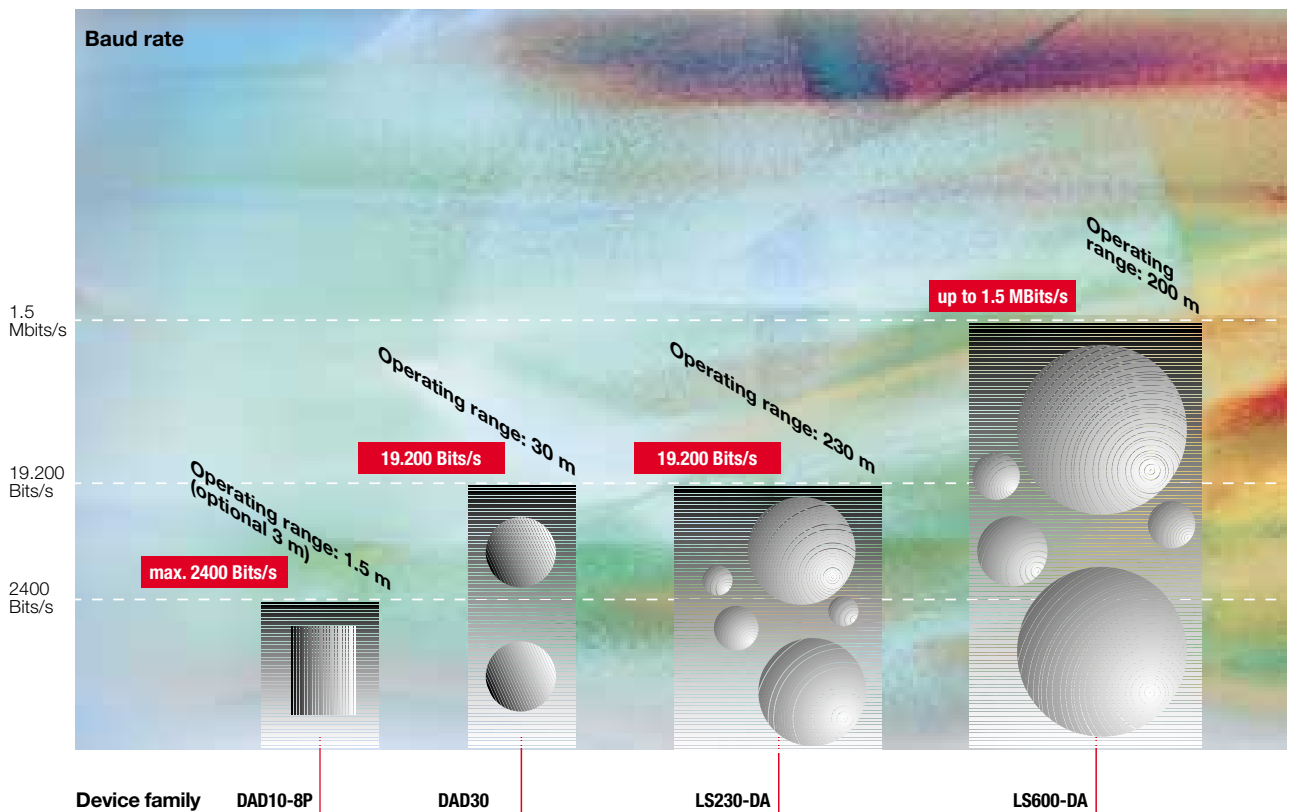
COLOUR SENSORS



FIBRE OPTICS



DATA TRANSMISSION LIGHT BEAM SWITCHES



CYLINDRICAL DESIGN



Series KT9



Series KT10



Series KT11



Series GLV 12

Highlights

- Miniature design in 4 mm plain-conduit housing
- Housing material stainless steel
- Scratch and solvent resistant glass lens cover
- Integrated signal converter
- Fixed cable or plug-in connection

- Miniature design in M4 housing
- Housing material stainless steel
- Overtum-protected fixing nuts
- Also available with background version, unlike fibre optics
- Signal converters SU10 or SU11 needed for operation

- Miniature design in M4 housing
- Housing material stainless steel
- Scratch and solvent resistant glass lens cover
- Integrated signal converter
- Fixed cable or plug-in connection

- M12 threaded housing
- Red light for better alignment
- Programmable hard-wired light/dark switching
- Fixed cable or plug-in connection

General technical data

Operating voltage	10 V DC ... 30 V DC	10 V DC ... 30 V DC*	10 V DC ... 30 V DC	10 V DC ... 30 V DC
No-load supply current	15 mA	40 mA*	15 mA	20 mA
Dimensions ø x L	4 mm x 35 mm/ 4 mm x 45 mm	M4 x 25 mm	M5 x 35 mm M5 x 45 mm	M12 x 55 mm/ M12 x 65 mm
Connection type	fixed cable/connector M8, 3-pole	fixed cable	fixed cable/connector M8, 3-pole	fixed cable/connector M12, 4-pole
Function display	switching state/ function indicator LED	switching state/ function indicator LED*	switching state/ function indicator LED	switching state
Controls	–	–	–	–
Switching output	NPN or PNP transistor	1 NPN and 1PNP transistor common-mode*	NPN or PNP transistor	1 NPN or 1 PNP transistor
Switching type	light or dark switching	light/dark switch*	light or dark switching	electr. light/dark switch
Protection category	IP67	IP65	IP67	IP67

Through-beam sensors

Operating range	0 mm ... 250 mm	0 mm ... 500 mm	0 mm ... 250 mm	0 m ... 5 m
Light spot diameter	–	3 mm	–	–
Light type	infrared, 880 nm	infrared, 880 nm	infrared, 880 nm	red, 660 nm

Reflex photoelectric sensors

Operating range	–	–	–	0 mm ... 1000 mm 0 mm ... 2000 mm
Light spot diameter	–	–	–	–
Light type	–	–	–	red, 660 nm
Special version	–	–	–	with or without pole filter

Direct detection photoelectric sensors

Scanning range	0 mm ... 50 mm	0 mm ... 80 mm	0 mm ... 50 mm	0 mm ... 200 mm
Light spot diameter	–	–	–	–
Light type	infrared, 880 nm	infrared, 880 nm	infrared, 880 nm	red, 660 nm

Direct detection photoelectric sensors with background suppression

Scanning range	–	0.5 mm ... 8 mm	–	–
Light spot diameter	–	–	–	–
Light type	–	infrared, 880 nm	–	–

* only in conjunction with the signal converters SU10 and SU11

RECTANGULAR DESIGN



Series ML4.1



Series MLV11



Series MLV12

Highlights

- Precise background suppression
- Very small black/white difference
- Integrated signal converter
- Miniature design

- Comprehensive range of sensors
- Sensitivity adjustment via TEACH-IN
- Parameterisation via optical interface
- Function indicator LED and output
- Protection category IP68
- Housing material approved by food safety authorities

- Yellow flashing function indicators to front and back
- Flashing Power-On indication in the event of a short circuit
- Bright, high-visibility LED indicators through optical interface
- Mechanical light on/dark on changeover switch for manual operation
- Robust housing, high quality surface – watertight
- 3 connection vers. – M8 or M12 connector, rotatable
- Push-pull output
- Minimal black-white difference
- Additional alignment aid behind the optical system
- Light beam switch
- Switch position N on the G version

General technical data

Operating voltage	10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC
No-load current	25 mA	25 mA	40 mA/50 mA
Dimensions W x H x D	13.9 mm x 31.4 mm x 18 mm	18 mm x 50 mm x 45 mm	41.5 mm x 49 mm x 15 mm
Connection type	connector M8, 4-pole	connector M12, 5-pole, adjustable by 90°	fixed cable or connector M8, 4-pole/M12, 5-pole adjustable by 90°
Function display	switching state/ function indicator LED	Power-On/switching state/ function indicator LED	2 yellow LEDs, LED red (as alignment aid within the housing)
Timer functions	–	GAN, GAB, IAB programmable	–
Switching output	push-pull	2 NPN or 2 PNP transistors, antivalent	NPN and/or PNP transistor/push-pull output
Switching type	electr. light/dark switch		light/dark on, changeover
Protection category	IP65	IP68	IP67

Through-beam sensors

Operating range	0 m ... 2.5 m	0 m ... 15 m	25 m
Light spot diameter	300 mm	500 mm	ca. 400 mm at range 16 m
Light type	red, 635 nm	red, 660 nm	red, pulsed light, 660 nm

Reflex photoelectric sensors

Operating range	0 mm ... 400 mm	0 m ... 2 m/0 m ... 6 m 0 m ... 15 m	7 m
Light spot diameter	20 mm	75 mm/200 mm	130 mm at range 5 m
Light type	red, 635 nm	red, 660 nm/laser	red, pulsed light, 660 nm
Special version	pole filter	pole filter, clear-glass detection	pole filter, also clear-glass detection

Direct detection photoelectric sensors

Scanning range	4 mm ... 400 mm	0 mm ... 150 mm/0 mm ... 300 mm 0 mm ... 500 mm	–
Light spot diameter	80 mm	0.1 mm/25 mm	–
Light type	red, 635 nm	red, 660 nm/laser	–

Direct detection photoelectric sensors with background suppression

Scanning range	7 mm ... 20 mm 10 mm ... 40 mm 10 mm ... 60 mm	0 mm ... 150 mm	20 mm ... 250 mm, adjustable
Light spot diameter	3 mm/4 mm/6 mm	4 mm	8 mm at range 250 mm
Light type	red, 635 nm	red, 660 nm	red, 660 nm or infrared, 880 nm

Busable sensors

AS-Interface





Series MLV13



Series MLV15



Series MLV40



Series 23

rear of the device
short-circuit
optical termination
for 3-pin connection leads
light and shock-proof
rotatable 90°, or fixed cable

- Light beam switches series in plastic housing
- Programmable hard-wired light/dark switching
- Function indicator LED
- M12 plug connection
- Protection category IP67

- Compact dimensions
- Adjustable timer functions
- Integrated signal converter
- Protection category IP67

- Comprehensive range of sensors
- Very good optical ratings
- Function indicator LED and output
- Robust aluminium housing
- Scratch and solvent resistant glass lens cover

- All devices with background suppression
- Various scanning ranges
- Infrared or red-light versions
- Very good black/white difference
- Scratch and solvent resistant glass lens cover

mm in the single path

	10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC/ 12 V AC/DC ... 240 V AC/DC
	25 mA	40 mA	40 mA	100 mA/2.7 W
	18 mm x 45 mm x 38 mm	13 mm x 39.5 mm x 18 mm	13.6 mm x 62.3 mm x 31 mm	26.8 mm x 91 mm x 67.6 mm
	connector M12, 4-pole	connector M8, 4-pole	fixed cable or connector M12, 4-pole	terminal compartment or connector M12, 4-pole
(optical system)	switching state/ function indicator LED	switching state/ function indicator LED	switching state/ function indicator LED	switching state
	1 NPN or 1 PNP transistor	2 NPN or 2 PNP transistors, antivalent	2 NPN or 2 PNP transistors, antivalent	GAN, GAB, IAB with series 23-2000 2 PNP antivalent, 1 NPN, relay
	electr. light/dark switch	mech. light/dark switch		light/dark switch
	IP67	IP67	IP65	IP65
	0 m ... 15 m	0 m ... 5 m	0 m ... 5 m	–
		300 mm	150 mm	–
	red, 660 nm	infrared, 880 nm	infrared, 880 nm	–
	600 mm ... 6000 mm	60 mm ... 3000 mm 100 mm ... 2000 mm	0 mm ... 400 mm/100 mm ... 2000 mm 100 mm ... 1000 mm	–
	–	180 mm/120 mm	100 mm	–
	red, 660 nm	red, 660 nm	infrared, 880 nm/red 660 nm	–
	pole filter	with or without pole filter	with or without pole filter, also clear-glass detection	–
	0 mm ... 400 mm	3 mm ... 300 mm	10 mm ... 500 mm	–
		90 mm	100 mm	–
	red, 660 nm	infrared, 880 nm	infrared, 880 nm	–
	–	–	10 mm ... 80 mm 10 mm ... 150 mm	50 mm ... 1000 mm 50 mm ... 2000 mm
	–	–	10 mm/5 mm	25 mm/50 mm
	–	–	infrared, 880 nm	infrared, 880 nm

AS-Interface



Series 25

- Comprehensive range of sensors
- All optical variants available
- Sensitivity adjustment and light/dark switch as standard
- Function indicator LED and output



Series 27

- Comprehensive range of sensors
- TEACH-IN sensitivity adjustment
- Parameterisation via optical interface
- Function indicator LED and output
- Connector socket rotatable by 90°



Serie RL28

- Comprehensive range of sensors
- High-visibility LED indicators for Power-On and stability control display
- 5 different types of connection
- Dovetail mounting and through-holes
- Sensitivity adjustment and light/dark switch as standard
- Insensitive to ambient light also with energy saving lamps



Series RLK28

- Terminal compartment with 8 spring-loaded terminals
- Relay output, 1 potential free alternator
- High-visibility LED indicators for Power-On and stability control display
- Dovetail mounting and through-holes
- Sensitivity adjustment and light/ dark switch as standard
- Insensitive to ambient light even with energy saving lamps

10 V DC ... 30 V DC/
15 V AC/DC ... 240 V AC/DC

80 mA/2.7 W

25 mm x 72 mm x 63.5 mm

terminal compartment or
connector M12, 4-pole

switching state/
function indicator LED

–

2 PNP antivalent, 1 NPN 1 PNP
common mode, relay

light/dark switch

IP65

0 m ... 10 m

350 mm

infrared, 880 nm

0 m ... 4 m
0.4 m ... 8 m

100 mm/200 mm

red, 660 nm

pole filter

10 mm ... 800 mm

25 mm

infrared, 880 nm

20 mm ... 300 mm

10 mm

infrared, 880 nm

AS-Interface

10 V DC ... 30 V DC

25 mA

25 mm x 80 mm x 50 mm

connector M12, 5-pole,
adjustable by 90°

Power-On/switching state/
function indicator LED

GAN, GAB, IAB programmable

2 NPN or 2 PNP transistors,
antivalent

IP67

0 m ... 35 m

red, 660 nm

700 mm ... 4000 mm
700 mm ... 12000 mm

red, 660 nm

pole filter, also clear-glass
detection

0 mm ... 1500 mm

red, 660 nm

–

–

–

10 V DC ... 30 V DC

40 mA

25.8 mm x 88 mm x 54.3 mm

conn. M12, 5-pole, adjustable by 90°, or
M18, 4-pole, terminal compartment

Power-On/switching state/
function indicator LED

GAN, GAB, IAB programmable

1 NPN/PNP or 2 PNP transistors,
antivalent, push-pull

light/dark switch

IP67

0 m ... 400 m/0 m ... 40 m/0 m ... 90 m

0.6 m at 30 m/1.3 m at 65 m

red, 660 nm

0.5 m ... 15 m
0.1 m ... 12 m

200 mm/255 mm

red, 660 nm

pole filter, also with foreground suppression,
and clear-glass detection

–

–

–

400 mm, 700 mm, 2000 mm

14 mm/24 mm/70 mm

red, 660 nm/infrared, 880 nm

AS-Interface

12 V DC ... 240 V DC

40 mA

25.8 mm x 88 mm x 65.5 mm

terminal compartment

Power-On/switching state/
function indicator LED

GAN, GAB, IAB, GAN-IAB/GAN-GAB, programmable

relay, 1 alternator

light/dark on, changeover

IP67

90 m/400 m

ca. 1.3 m at 65 m

red, pulsed light, 660 nm

16 m

170 mm at 10 m

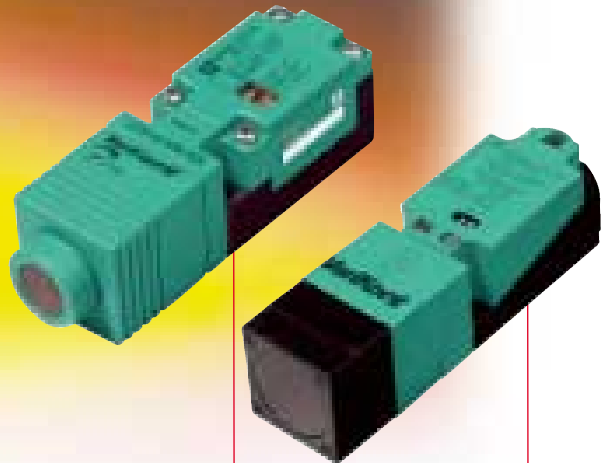
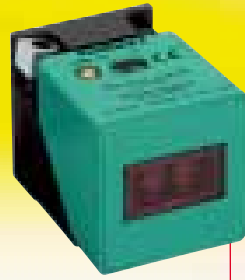
red, pulsed light, 660 nm

pole filter, also with foreground suppression,
and clear-glass detection

400 mm, 700 mm, 2000 mm

14 mm/24 mm/70 mm

red, 660 nm/infrared, 880 nm



Series 30

Series 32

VariKont L series

VariKont M series

VariKont series

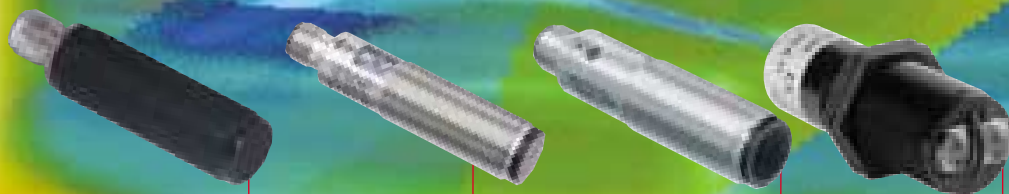
- Good design, ideal for material handling and warehousing systems
 - Good optical ratings
 - Scratch and solvent resistant glass lens cover
- Compact design, ideal for material handling and warehousing systems
 - High optical ratings
 - Scratch and solvent resistant glass lens cover
- 2 optical variants, pole filter reflex and energy probe
 - Sensor head functions in 2 planes
 - Scratch resistant plastic panel
 - M12 plug connection
 - Protection category IP67
- Comprehensive range of light beam switches
 - Standard rectangular plastic housing
 - Active range adjustable in 15° increments without re-mounting
 - Scratch resistant mineral glass panel
 - Detachable terminal compartment
- Comprehensive range of light beam switches
 - Standard rectangular plastic housing
 - Active range adjustable to 5 directions without re-mounting
 - Scratch resistant mineral glass panel
 - Terminal compartment

10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC
40 mA	40 mA	20 mA	35 mA	45 mA
17.4 mm x 72 mm x 46 mm	22 mm x 72.2 mm x 45.6 mm	40 mm x 40 mm x 55.5 mm	30 mm x 30 mm x 102 mm	40 mm x 40 mm x 145 mm
connector M12, 4-pole	connector M12, 4-pole	connector M12, 4-pole	terminal compartment	terminal compartment
switching state/ function indicator LED	switching state/ function indicator LED	switching state/ function indicator LED	Power-On/switching state/ function indicator LED	Power-On/switching state/ function indicator LED
–	–	–	–	–
1 PNP transistor	1 PNP transistor	1 NPN or 1 PNP	1 NPN or 1 PNP	1 push-pull
dark switching	dark switching	electr. light/dark switch	light/dark switch	light/dark switch
IP65	IP65	IP67	IP67	IP67
–	0 m ... 10 m	–	–	–
–	–	–	–	–
–	red, 660 nm	–	–	–
0 m ... 4 m	0 m ... 4 m 0.3 m ... 10 m	600 mm ... 6000 mm	100 mm ... 2000 mm 200 mm ... 3000 mm	200 mm ... 10000 mm
200 mm	–	–	–	–
red, 660 nm	red, 660 nm	red, 660 nm	red, 660 nm	red, 660 nm
pole filter	pole filter	pole filter	pole filter	pole filter
	10 mm ... 800 mm	50 mm ... 400 mm	0 mm ... 300 mm 0 mm ... 500 mm	0 mm ... 2000 mm
	infrared, 880 nm	red, 660 nm	infrared, 950 nm	infrared, 880 nm
800 mm	30 mm ... 400 mm 30 mm ... 800 mm	–	0 mm ... 150 mm	–
25 mm	–	–	–	–
infrared, 880 nm	infrared, 880 nm	–	infrared, 880 nm	–

AS-Interface

AS-Interface

CYLINDRICAL DESIGN



Series CP18

Series VL 18

Series 18 GM60

Series GLV 30

Highlights

- M18 threaded housing
- Patented plastic housing
- Complete series
- Red LED for switching state
- AC and DC versions available
- Connector M12 or fixed cable
- Through beam sensors with ranges up to 30 m
- M18 threaded housing, nickel-plated brass
- Frontal and lateral light exit
- Mech. light/dark switch
- VarioQuick connector
- LED green, flashing on short circuit
- Laser versions
- No mutual interference
- Electr. adjustable HGA
- Through-beam sens. w. adjustable focus
- Short design: 60 mm
- M18 threaded housing in metal
- Plug-in or fixed cable connection
- Programmable hard-wired light/dark switching
- High switching frequency 500 Hz
- M30 threaded housing in plastic
- Short design
- Available as direct detection scanner or scanner with background suppression
- Large scanning ranges up to 2500 mm

General technical data

Operating voltage	10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC	24 V DC
No-load supply current	35 mA	35 mA	30 mA	30 mA
Dimensions $\varnothing \times L$	M18 x 55 mm	M18 x 65 mm/ M18 x 78 mm	M18 x 60 mm	M30 x 89 mm
Connection type	fixed cable/connector M12, 4-pole	M12 connector VarioQuick, 4-pole	fixed cable/connector M12, 4-pole	connector M12, 4-pole
Function display	Power-On, switching state	function indicator LED; Power-On/short circuit	Power-On, switching state	switching state
Controls	–	L/D switch/sensitivity adj.	sensitivity adj.	–
Switching output	1 NPN- or 1 PNP-transistor or push-pull	1x PNP or NPN 200 mA; 1x push-pull 200 mA	1 NPN or 1 PNP transistor	2 PNP transistors, antivalent
Switching type	–	mech. light/dark switch	electr. light/dark switch	–
Protection category	IP67	IP67	IP67	IP67

Through-beam sensors

Operating range	0 m ... 30 m	0 m ... 60 m	0 m ... 10 m	–
Light spot diameter	–	–	600 mm at 10 m	–
Light type	infrared, 880 nm	Laser	infrared, 880 nm	–

Reflex photoelectric sensors

Operating range	RT: 1.5 m IR: 4 m	3.5 m 12 m	0 m ... 4 m	–
Light spot diameter	–	200 mm at 3.5 m	200 mm at 4 m	–
Light type	red, 660 nm or infrared, 880 nm	LED red, 660 nm Laser	red, 660 nm	–
Special version	with or without pole filter	pole filter	with or without pole filter	–

Direct detection photoelectric sensor

Scanning range	100 mm/200 mm/400 mm	–	0 mm ... 200 mm 0 mm ... 500 mm	20 mm ... 2500 mm
Light spot diameter	–	–	40 mm at 200 mm 80 mm at 500 mm	450 mm
Light type	infrared, 880 nm	–	infrared, 880 nm	infrared, 880 nm

Direct detection photoelectric sensors with background suppression

Scanning range	–	20 mm ... 120 mm 20 mm ... 150 mm	–	20 mm ... 150 mm
Light spot diameter	–	~6 mm at 120 mm 0.5 mm at 150 mm	–	3.5 mm
Light type	–	LED red, ~660 nm Laser	–	infrared, 880 nm

LIGHT GRIDS



PR

LG

Highlights

- Light grid with 4 or 16 beams in crosswise or parallel arrangement
- Suitable for the detection of transparent objects
- High resolution, minimum obstacle size 15 mm or 2 mm
- Automatic switching threshold adjustment for compensation of any impurities
- Fixed cable or plug-in connection

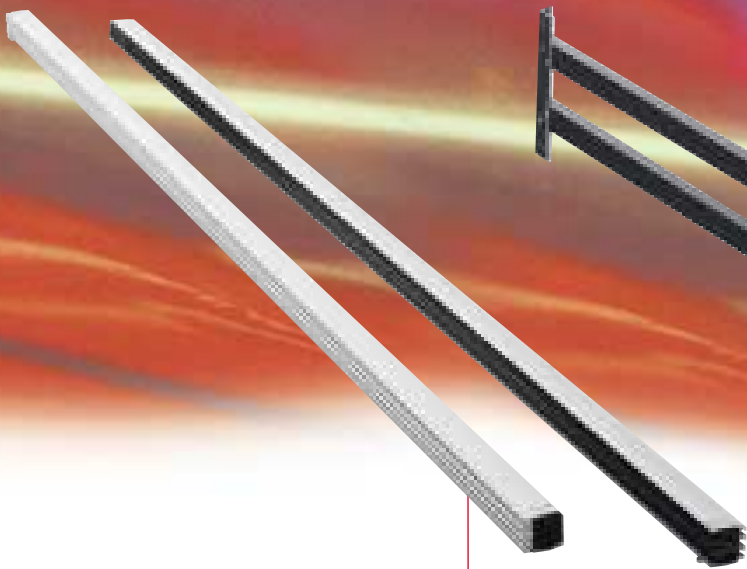
- Light grid with 8 or 16 beams in crosswise or parallel arrangement
- Suitable for the detection of transparent objects
- Minimum obstacle size 30 mm or 14 mm
- Automatic switching threshold adjustment for compensation of any impurities
- Terminal compartment

General technical data

Operating voltage	24 V DC ... 28 V DC	24 V DC ... 28 V DC
No-load supply current	100 mA	200 mA
Dimensions W x H x D	41.7 mm x 115.7 mm x 50 mm	37 mm x 415 mm/650 mm x 45 mm
Connection type	fixed cable or plug	terminal compartment
Function display	Power-On, output status	Power-On, output status
Protection category	IP65	IP54

Operating range	300 mm ... 1500 mm	300 mm ... 2000 mm
Field height	101 mm	235 mm/470 mm
Resolution	2 mm	14 mm
No. of beams	4/16	8/16
Signal output	1 PNP transistor	1 PNP transistor





PLVscan



PRS

- Light grid for profile monitoring
- Available in different lengths according to application
- Robust housing
- Separate outputs for height monitoring
- Can be parameterised via Windows software
- Also suitable for measuring purposes due to RS 232 interface

- High-resolution light grid
- Modular construction
- 4 different scanning field sizes
- Detection of web width through TEACH-IN

15 V DC ... 30 V DC

350 mA

37 mm x X mm x 45 mm

terminal compartment

Power-On, output status

IP50, opt. IP65

1.5 m ... 4 m

300 mm ... 3056 mm

10 mm

8 ... 64

6 PNP transistors

24 V DC

500 mA

X

special connector

IP67

100 mm

X

5 mm

X

2 PNP transistors

X = depending on model



PRINTING MARK SCANNERS AND COLOUR SENSORS



DK10

DK20/DKE20

DK21/DKE21

DK34/DK35

Highlights

- Printing mark contrast scanner for detecting all kinds of printing marks
- Multiple potentiometer for switching threshold adjustment
- 90° interchangeable optic
- Green emitter diode
- 30 µs response time, suitable for extremely fast scanning operations
- Robust, watertight plastic housing with M12 plug-in connection

- Printing mark contrast scanner for detecting all kinds of printing marks
- Static TEACH-IN procedure for automatic switching threshold adjustment and emitter colour selection
- 3 emitter colours: green, red and blue
- 90° interchangeable optic
- 30 µs response time, suitable for extremely fast scanning operations
- Robust, watertight plastic housing with M12 plug-in connection or watertight stainless steel housing

- Printing mark contrast scanner for detecting all kinds of printing marks
- Dynamic TEACH-IN procedure for automatic switching threshold adjustment and emitter colour selection
- 3 emitter colours: green, red and blue
- 90° interchangeable optic
- 30 µs response time, suitable for extremely fast scanning operations
- Robust, watertight plastic housing with M12 plug-in connection or watertight stainless steel housing

- Printing mark scanner for detecting all kinds of printing marks with higher resolution (contrast grades)
- Dynamic or static TEACH-IN procedure for automatic switching threshold adjustment and emitter colour selection
- 3 emitter colours: green, red and blue
- 30 µs response time, suitable for extremely fast scanning operations
- Robust watertight plastic housing with M12 plug-in connection

General technical data

Operating voltage	10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC
No-load current	55 mA	70 mA	70 mA	70 mA
Dimensions WxHxD	33 mm x 85.6 mm x 60.8 mm	33 mm x 85.6 mm x 60.8 mm	33 mm x 85.6 mm x 60.8 mm	33 mm x 85.6 mm x 60.8 mm
Connection type	connector M12, 5-pole	connector M12, 5-pole	connector M12, 5-pole	connector M12, 5-pole
Protection category	IP67	IP67	IP67	IP67
Function display	output status	output status	output status	output status

Printing mark scanners and colour sensors

Scanning range	9.5 mm ± 3 mm	9.5 mm/25 mm/50mm ± 3 mm	9.5 mm/25 mm/50mm ± 3 mm	9.5 mm ± 3 mm
Light spot display	1 mm x 4 mm	1 mm x 4 mm at scan. range 9.5	1 mm x 4 mm at scan. range 9.5	1 mm x 4 mm at scan. range 9.5
Light type	LED, green	LED, green, red, blue	LED, green, red, blue	LED, green, red, blue
Switching output	push-pull	push-pull	push-pull	push-pull
Switching type	light/dark switch	with TEACH-IN function	with TEACH-IN function	with TEACH-IN function
Sensitivity adjustment	potentiometer	static TEACH-IN	dynamic TEACH-IN	DK34: static TEACH-IN DK35: dynamic TEACH-IN





DK10-LAS

- Laser printing mark contrast scanner for detection of very small printing marks
- Large focus depth range from 3 to 300 mm
- Multiple potentiometer for switching threshold adjustment
- Laser protection class 2
- 30 µs response time, suitable for extremely fast scanning operations
- Robust, watertight plastic housing with M12 plug-in connection



DF20/DFE20

- Printing mark colour sensor for detection of colour marks on multiple coloured backgrounds
- TEACH-IN procedure for automatic switching threshold adjustment
- 3 emitter colours: green, red and blue
- 90° interchangeable optic
- Robust, watertight plastic housing with M12 plug-in connection or watertight stainless steel housing



VCS110

- Simple TEACH-IN procedure via button
- Up to 10 channels programmable
- TEACH-IN facility for colour tolerances
- Light source white-light LED for large scanning ranges
- Signal outputs coded directly or in binary form



RL-UV3

- Reflective light scanner for the detection of fluorescent marks or material
- Multiple potentiometer for switching threshold adjustment
- Scanning range 0 mm ... 130 mm
- Switch output and analogue output
- Transmitter switching-off
- Robust, watertight metal housing

10 V DC ... 30 V DC

55 mA

33 mm x 85.6 mm x 60.8 mm

connector M12, 5-pole

IP67

output status

3 mm ... 300 mm
3 mm ... 800 mm

0.8 mm at scan. range 300

red, laser

push-pull

light/dark switch

potentiometer

10 V DC ... 30 V DC

55 mA

33 mm x 85.6 mm x 60.8 mm

connector M12, 5-pole

IP67

output status

9.5 mm ± 3 mm
25 mm ± 3 mm

9.5 mm ± 3 mm

LED, green, red, blue

1 NPN, 1 PNP common-mode

TEACH-IN

18 V DC ... 30 V DC

200 mA

116 mm x 132 mm x 54 mm

connector M12, 7-pole

IP65

output status

max. 80 mm

white-light LED

5 PNP transistors

TEACH-IN

24 V DC

200 mA

35.7 mm x 85.7 mm x 63 mm

connector M12, 4-pole

IP67

output status

max. 130 mm

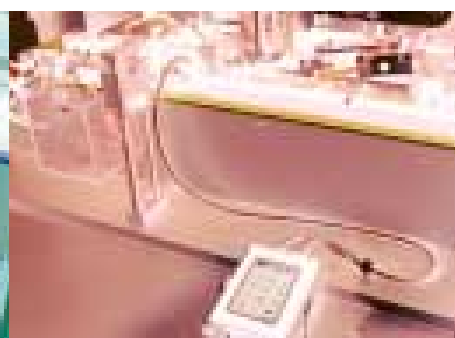
approx. 17 mm at scan. range 20 mm

fluorescent lamp

1 PNP

light/dark switch

multiple potentiometer



FIBRE OPTICS



SU14

SU15

Highlights

- Red-light version for plastic fibre optics
- Infrared version for glass fibre optics
- Protection category IP67
- Precision adjustment via two potentiometers
- Top-hat rail mounting
- Reflective light beam switch with pole filter based on fibre optics
- Screw-on auxiliary lenses available

- Adjustment via membrane keypad
- TEACH-IN sensitivity adjustment
- Parameterisation via optical interface (e.g. timer functions GAN, GAB, IAB)
- Protection against mutual interference
- Devices available for connecting glass fibre or plastic fibre optics
- Top-hat rail mounting

General technical data

Operating voltage	10 V DC ... 30 V DC	10 V DC ... 30 V DC
No-load supply current	< 40 mA	< 26 mA
Dimensions WxHxD	12 mm x 31 mm x 60 mm	12 mm x 35.5 mm x 59 mm
Connection type	connector M8	connector M8
Function display	LED green, yellow	LED green, yellow, red
Timer functions	none	programmable via optical interface
Switching output	1 PNP or 1 NPN	1 PNP or 1 NPN
Switching frequency	1000 Hz	1500 Hz
Switching type	light/dark switching	light/dark switching
Protection category	IP67	IP65
Special features/equip.	top-hat rail mounting, reflective light barrier with pole filter based on fibre optics	top-hat rail mounting, TEACH-IN, parameterisation via optical interface

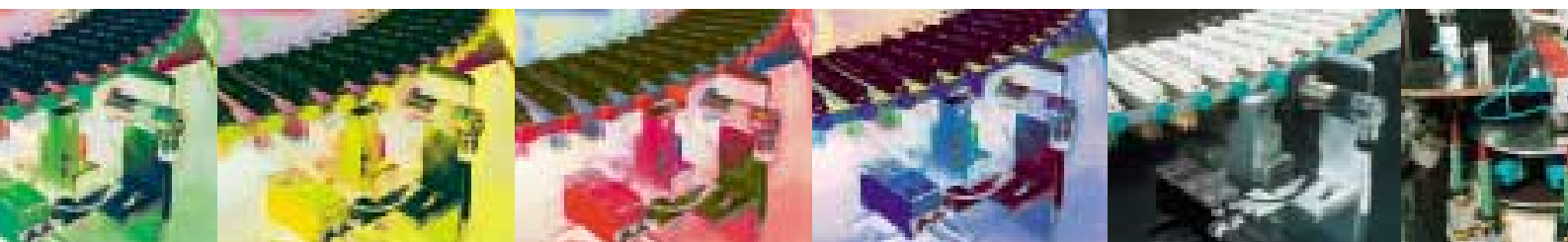
Glass fibre optics

Model	SU14-IR	SU15-G
Opto-emitter	infrared 950 nm	red light 660 nm
Adapter type	04	06

Plastic fibre optics

Model	SU14-RT	SU15-K
Opto-emitter	red light 665 nm	red light 660 nm

For further options please see the product information "Fibre optics fireworks", Order No.: 054817





MLV40-LL

- Infrared and red-light version
- Robust die-cast aluminium housing
- Plug-in and fixed cable devices
- Easy handling



18GM70

- For the connection of glass fibre optics
- light/dark switching hard-wirable
- Protection category IP67
- Housing: nickel-plated brass



GLV30-LL

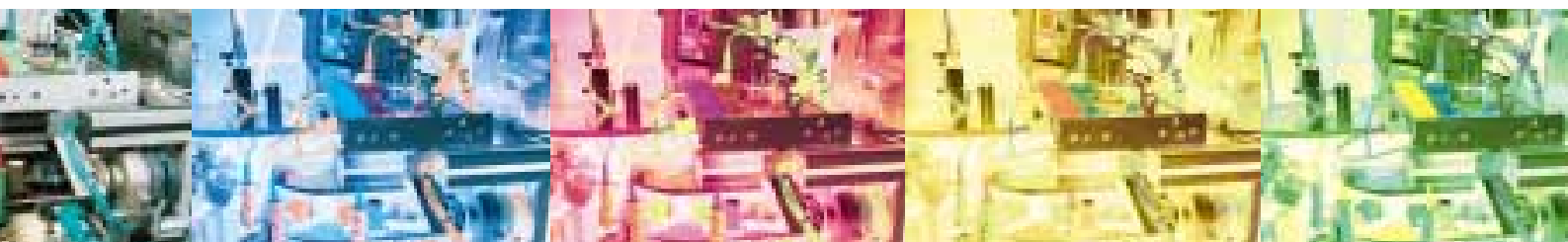
- For the connection of glass fibre optics
- Light/dark switch
- Measuring output 2 V ... 6 V
- Housing: nickel-plated brass



VariKont-LL

- For the connection of glass fibre optics
- Adjustable sensor head
- Terminal compartment
- Protection category IP67
- Scratch resistant mineral glass panel
- AS-Interface certificate
- Version for the Ex-area
- Protection against mutual interference

10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC	10 V DC ... 30 V DC
< 40 mA	< 20 mA	< 50 mA	< 35 mA
13.6 mm x 56.5 mm x 31 mm	M18 x 79 mm	M30 x 84 mm	30 mm x 30 mm x 91 mm
fixed cable 2 m or connector M12	fixed cable or connector M12	connector M12	terminal compartment PG9
LED yellow	LED yellow	LED yellow	LED green, yellow, red
none	none	none	none
2 PNP or 2 NPN antivalent	1 PNP or 1 NPN	1 PNP	1 PNP or 1 NPN
100 Hz	300 Hz	80 Hz	200/1500 Hz
light/dark switching	light/dark switching hard-wirable	light/dark switching	light/dark switching
IP65	IP67	IP65	IP67
robust die-cast aluminium housing, IR and red-light version	housing nickel-plated brass	measuring output 2 V ... 6 V, housing nickel-plated brass	AS-Interface certificate, explosion-proof design
MLV40-LL-RT/IR	OBT200L-18GM70	GLV30-1227	VariKont M
red light 665 nm/infrared 880nm	infrared 940 nm	infrared 880 nm	infrared 950 nm
04	18	18/30	18



DATA TRANSMISSION

LIGHT BEAM SWITCHES



DAD10-8P



DAD30

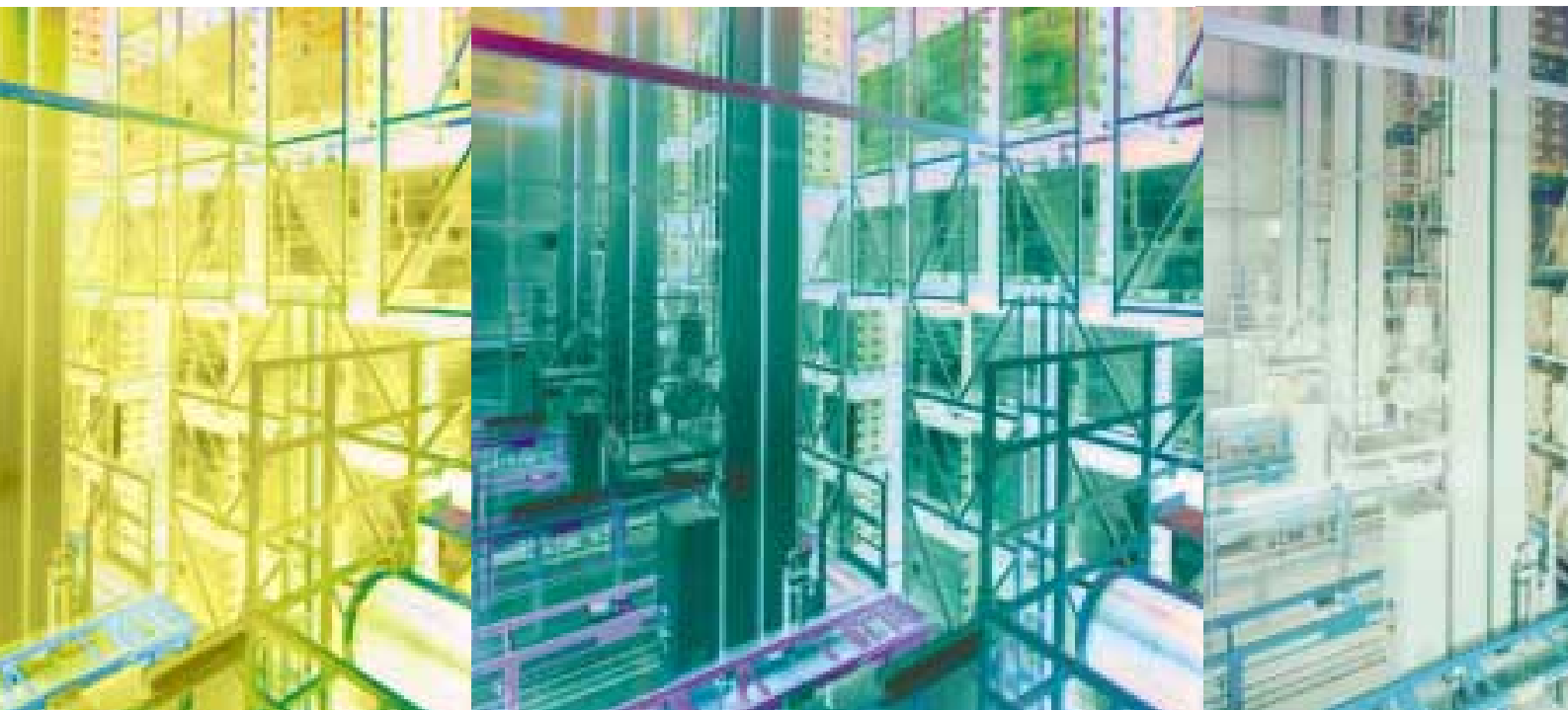
Highlights

- 8-bit parallel data transmission
- Very large opening angle
- Operating voltage range 10 V DC ... 60 V DC
- Connection with spring terminals

- Compact, flat housing
- 3 interfaces in one unit, selectable via DIP switches
- Wide-angle version available
- Infrared and red-light devices for parallel paths

General technical data

Operating range	1.5 m	30 m
Transmission rate	2400 Bit/s	19.2 kBaud
Opening angle	40°	emitter 1°; receiver 2°
Opto-emitter	infrared 880 nm	infrared 880 nm
Operating voltage	10 V DC ... 60 V DC	24 V DC ±25 %
No-load current	160 mA	200 mA
Connection type	spring terminals	25-poles sub-D, encaps.
Function display	2-colour LED	LED
Protection category	IP67	IP65
Dimensions	76 mm x 56 mm x 53 mm	150 mm x 64 mm x 50 mm
Interfaces	8-bit parallel, bidirectional	RS 232, RS 422, CL 20 mA





LS230-DA

- 3 interfaces in one unit, selectable via DIP switches
- Long range version (300 m) available
- Easy alignment thanks to integrated alignment LED and telescopic sight
- Bargraph display for signal strength
- Connection with spring terminals



LS600-DA-P

- Data transmission rates up to 1.5 Mbaud
- Devices for PROFIBUS
- Easy alignment due to integrated alignment LED and telescopic sight
- Connection with spring terminals



LS600-DA-IBS

- Data transmission rates up to 500 kBaud
- Devices for INTERBUS
- Easy alignment due to integrated alignment LED and telescopic sight
- Connection with spring terminals

230 m

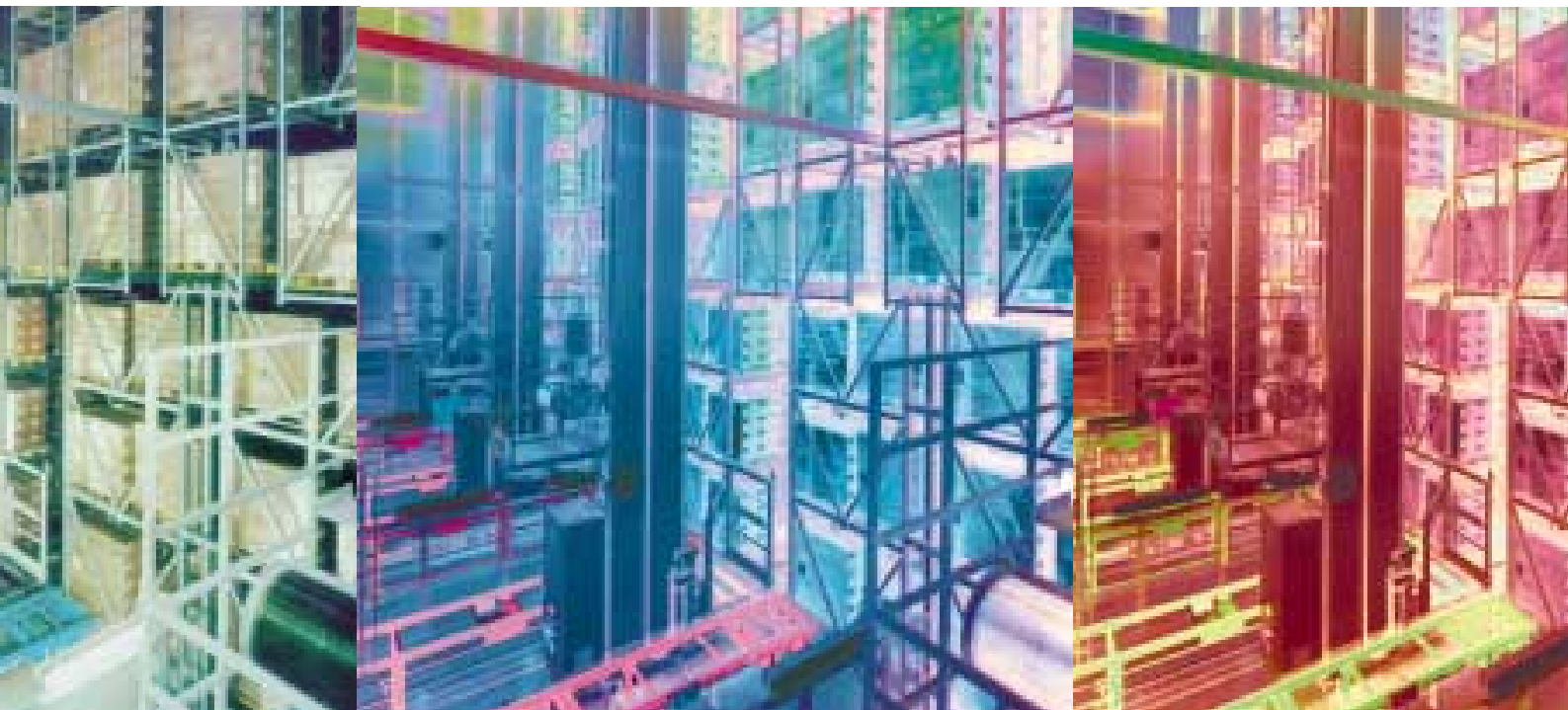
19.2 kBaud
 emitter 2°; receiver 5°
 infrared 880 nm
 24 V DC ±25 %
 250 mA
 spring terminals
 LED
 IP65
 162 mm x 116 mm x 133 mm
 RS 232, RS 422, CL 20 mA

200 m

up to 1.5 Mbaud
 1.4°
 infrared 880 nm
 24 V DC ±25 %
 450 mA
 spring terminals
 2-colour LED
 IP65
 162 mm x 116 mm x 133 mm
 PROFIBUS DP, PROFIBUS FMS

200 m

500 kBaud
 1.4°
 infrared 880 nm
 24 V DC ±25 %
 450 mA
 spring terminals
 2-colour LED
 IP65
 162 mm x 116 mm x 133 mm
 INTERBUS-S



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