

Quick Select Product Guide

Edition 7




Your automation, our passion.

pf PEPPERL+FUCHS



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Preferred-Type Products

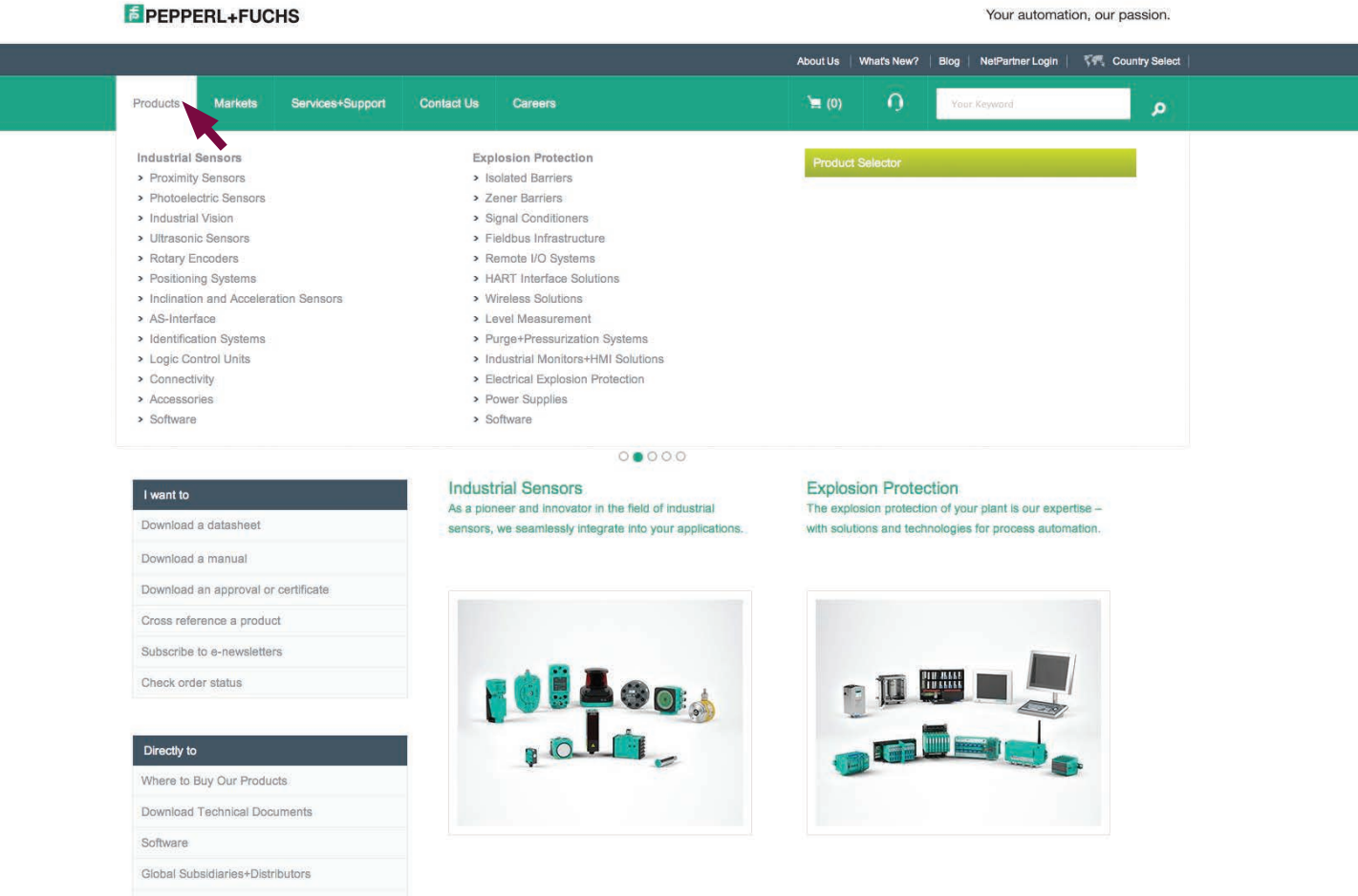
What Are They?

Pepperl+Fuchs offers an extensive selection of sensing technologies and products. That’s why we’ve identified hundreds of core items and flagged these on our website as preferred-type products.

These are the most commonly ordered products and are typically stocked for quick-ship availability. We designate these products on our website with a green star (★) to facilitate your product selection.

Preferred-Type Products - How to Find Them

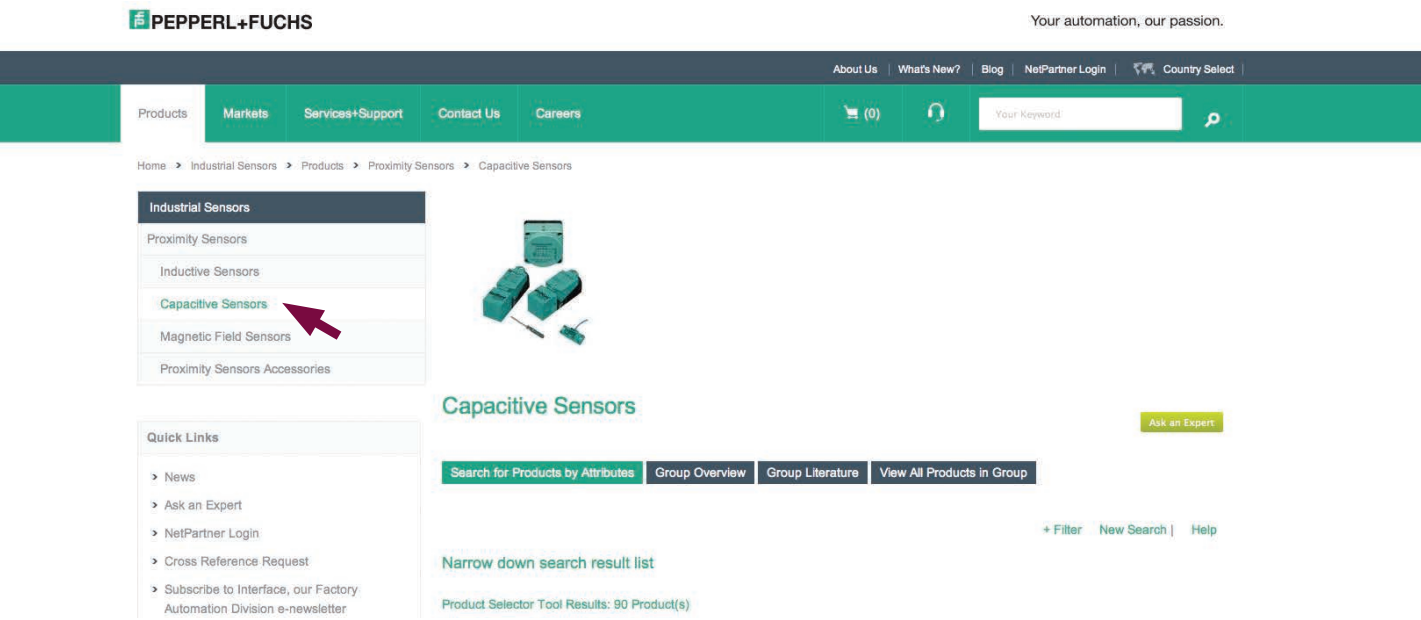
To find a preferred-type product, simply click on **Products** at the top of our webpage...



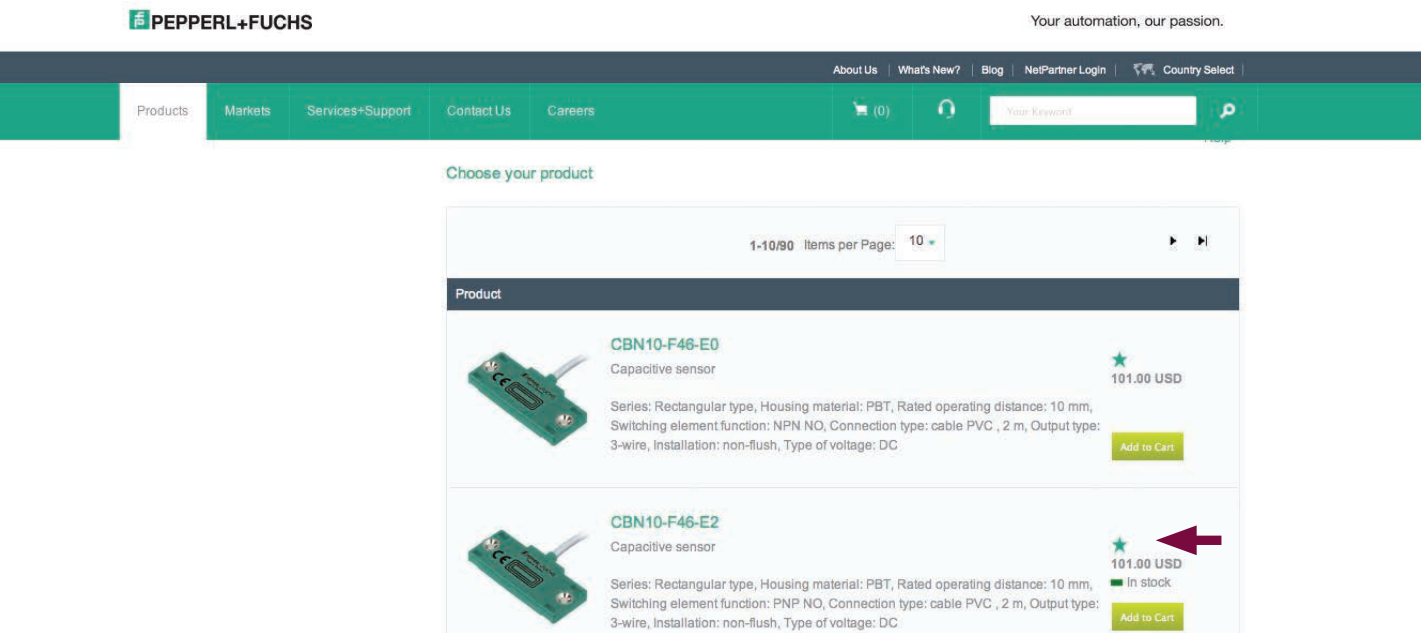
In addition to providing an overview of our extensive range of products for factory automation, the North American Quick Select Product Guide, Edition 7 offers tips to help you find the right product for your application needs on our website.

We’ve added web page addresses at the bottom of each sensing family table—highlighted in yellow— to increase the flexibility and efficiency of searches for sensor products. With just a few clicks, your product choices are quickly narrowed down to products that you can compare for your application needs.

...and scroll down to the sensing technology of interest. Click on that technology, the sensor type, and view our portfolio.



...and look for the green star (★) which indicates a preferred-type product.



Need more help?

Call us at 330-486-0001 for advice from engineers who are experts in sensing technology, who are familiar with a wide range of applications, and who can help solve your most challenging problems.

Visit www.pepperl-fuchs.us or call us at 330-486-0001.

Proximity Sensors



Highlights

- Reliable noncontact detection
- Designed for tough industrial environments
- Sensing ranges to 100 mm
- Over 2000 available models
- Models certified for hazardous location installation



Capacitive Sensors

Capacitive sensors are available in cylindrical and surface mount styles with a choice of AC or DC supply. These sensors provide sensing ranges from 1 mm to 50 mm with some models having potentiometers. A common use is for liquid and granular product detection. NAMUR versions are available for use in hazardous areas.



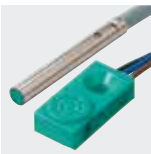
Basic Series

The Basic Series inductive sensors provide the ultimate combination of accuracy, durability, and economy. Offered in a variety of housing styles, these sensors feature different connection and mounting options. The series is available in 2-, 3-, and 4-wire DC as well as 2-wire AC styles.



X-Series

X-Series offers up to 200% more sensing range than traditional inductive sensors. Models are offered in limit switch, flat pack, or cylindrical housings. The 100+ model product line is available in 2-, 3-, and 4-wire DC as well as AC/DC styles.



Subminiature DC Inductive Sensors

We offer an extensive selection of subminiature, self-contained inductive sensors. Cylindrical versions are available in diameters as small as 3 mm; surface-mount profiles are as low as 4 mm.



Reduction Factor 1 Sensors

With operating ranges of 2 mm to 75 mm, Reduction Factor 1 Series sensors reliably detect all metals at the same operating distance. The extremely durable housing is available in cylindrical and cube styles. Weld-immune versions are offered for rugged production environments.



Pile Driver Series

With a solid, stainless steel housing, Pile Driver is designed for jobs where impact and abrasion are common. For welding environments, Pile Drivers have a tough, Black Armor coating that resists weld slag buildup.



Inclination Sensors

Using the latest technology in IC-based electromechanical measurement systems, the F99 inclination sensor is used to measure the tilt angle position. Offered in single-axis and dual-axes versions, the F99 provides CANopen, J1939, analog, and switch point outputs with a selectable angle measurement range between 0 to 360°.



Position Measurement Sensors

Our PMI Series of inductive positioning measurement devices are offered in measurement lengths that range from just a few millimeters to one meter. For angular measurement, devices are available with a measuring range of 0 to 360°. In addition to standard analog outputs, these devices offer configurable switch point outputs for limit detection.



Ring and Slot Inductive Sensors

Ring sensors are available with thru-hole diameters ranging from 10 mm to 100 mm. Typical applications include wire-breakage monitoring and part-ejection verification. Slot sensors are available in slot widths from 2 mm to 30 mm.



Limit Switch and Flat Pack Sensors

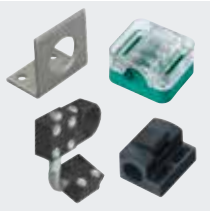
Limit switch inductive sensors mount in the identical footprint as traditional mechanical limit switches. Sensing ranges extend from 15 mm to 40 mm. Flat pack inductive products offer the longest available sensing ranges (50 mm). Both styles are available in multiple output configurations.

Inductive Proximity Sensors

Cylindrical				
	3 mm Diameter	4 mm Diameter	5 mm Diameter	6.5 mm Diameter
Highlights	<ul style="list-style-type: none">Smallest sizeSmooth barrelFast switchingStainless steel	<ul style="list-style-type: none">Smooth and threaded barrelsFast switchingStainless steel	<ul style="list-style-type: none">NPN, PNP, and NAMUR modelsThreaded barrelShort housing	<ul style="list-style-type: none">NPN, PNP, and NAMUR modelsHigh switching frequenciesSmooth barrelAvailable in extended range
Sensing Range (Shielded)	0.6, 1 mm	0.6, 0.8, 1, 1.5 mm	0.8, 1.5 mm	1.5, 2, 3 mm
Sensing Range (Unshielded)				3, 6 mm
NAMUR (Intrinsically Safe)			■	■
2-Wire DC				
3-Wire DC	■	■	■	■
4-Wire DC				
2-Wire AC				
2-Wire AC/DC				
Electrical Connection	Cabled, nano, pigtail	Cabled, nano, pigtail	Cabled, nano	Cabled, nano, micro
Short Housing Models	■	■	■	■
AS-Interface Compatible				
Reduction Factor 1				■
Analog				

To find our preferred parts, go to: www.pepperl-fuchs.us/inductive

Accessories








Mounting Brackets
An extensive selection of mounting brackets is available in a variety of materials and mounting configurations to complement our product line.



Rotational Speed Monitor
The KFU8-DW-1.D is easily programmed to monitor for overspeed. It also provides a startup override feature, allowing the relay output to be controlled by an external input to prevent false triggering at startup.



Frequency to Voltage/Current Converter
The KFU8-FSSP-1.D is a signal conditioner that converts input frequency pulses to an analog voltage or current signal. It provides isolation for the sensor inputs as well as the analog output.

				
8 mm Diameter	11 mm/22mm Diameter	12 mm Diameter	18 mm Diameter	30 mm Diameter
<ul style="list-style-type: none">4-way LED availableHigh switching frequenciesShielded or unshielded modelsAvailable in extended range	<ul style="list-style-type: none">Intrinsically safeSmooth plasticStainless steel threaded barrel available	<ul style="list-style-type: none">Wide range of wiring optionsShielded or unshielded modelsAvailable in extended range	<ul style="list-style-type: none">Wide range of wiring optionsShielded or unshielded modelsAvailable in extended range	<ul style="list-style-type: none">Longer sensing rangeShielded or unshielded modelsRelay output modelsAvailable in extended range
1.5, 2, 3, 4 mm	2 mm/6 mm	2, 3, 4, 6 mm	5, 8, 12 mm	8, 10, 15 mm
2, 3, 4, 6 mm	5 mm/10 mm	4, 6, 7, 8, 10 mm	8, 12, 15, 20 mm	15, 20, 25, 30, 40 mm
■	■	■	■	■
■		■	■	■
■		■	■	■
■		■	■	■
■		■	■	■
		■	■	■
Cabled, nano, micro	Cabled	Cabled, micro	Cabled, micro, mini	Cabled, micro, mini
■		■	■	■
		■	■	■
■		■	■	■
		■	■	■





To find our preferred parts, go to: www.pepperl-fuchs.us/inductive








Typical Applications

- Robotics
- Conveyors
- Machine tools
- Counting
- Elevators

Inductive Proximity Sensors

Surface Mount				
	F79	F41/F141	F29	F76
Highlights	<ul style="list-style-type: none">Smallest housingIP6716 x 8 x 4.7 mm5 – 30 VDC operation	<ul style="list-style-type: none">Nickel-plated brass housingNarrow housing style25 x 5 x 5 mm (F141)40 x 8 x 8 mm (F41)	<ul style="list-style-type: none">Small, compact housingCorner LED5 – 30 VDC operation	<ul style="list-style-type: none">Small housing10 – 30 VDC operationReinforced mounting hole
Sensing Range (Shielded)	1.5 mm	1.5, 3 mm	2 mm	2 mm
Sensing Range (Unshielded)			4 mm	
NAMUR (Intrinsically Safe)				
2-Wire DC				
3-Wire DC	■	■	■	■
4-Wire DC			■	
2-Wire AC/DC				
Electrical Connection	Cabled, nano, pigtail	Cabled, nano	Cabled	Cabled
To find our preferred parts, go to: www.pepperl-fuchs.us/inductive				

				
V3	F1	F33	F104M	M1K
<ul style="list-style-type: none">Miniature rectangular housingLED status	<ul style="list-style-type: none">Fast switchingLED status	<ul style="list-style-type: none">Flat rectangular plastic housingNPN and PNP modelsDie-cast zinc housing available (F33M)	<ul style="list-style-type: none">Flat rectangular metal housingNPN and PNP modelsDual LED indicationWeld-immune models available	<ul style="list-style-type: none">Output status LEDAvailable with analog output30 x 30 x 91 mm
2, 3 mm	2, 4 mm	5, 8 mm	5, 7 mm	
6 mm	8 mm	10 mm		15 mm
■				
■				■
■	■	■	■	
	■	■	■	
■	■			■ (AC)
Cabled, nano, FASTON terminal	Cabled, nano	Cabled	Cabled, pigtail	Terminal connection
To find our preferred parts, go to: www.pepperl-fuchs.us/inductive				

Accessories



Standstill Monitor
The KFD2-SR2-2.W.SM is a zero speed/standstill monitor that accepts input frequency pulses and triggers an output when the frequency drops below a selected level.







Isolated Switch Amplifier
The KFA6-SR-2.3L.FA functions as a sensor power supply for min/max control. It also provides an output conversion to form C relay contacts.



- Typical Applications**
- Actuators
 - Positioning
 - Packaging machinery
 - Jam protection
 - Air or hydraulic cylinder positioning

Inductive Proximity Sensors

Surface Mount				
	F7/F9/F10/F11	RHINO™	Limit Switch	FPS
Highlights	<ul style="list-style-type: none">Mini cube styleShielded or unshielded models	<ul style="list-style-type: none">Metal base and bracketHigh-visibility LEDsQuick-release plastic bracketWeld-immune models	<ul style="list-style-type: none">Limit switch-style housingMetal or plastic baseDC models (4 LEDs)1/2" NPT	<ul style="list-style-type: none">Rectangular flat pack10 – 65 VDC20 – 265 AC/DCNO/NC selectable
Sensing Range (Shielded)	5 mm	20 mm	20 mm	25 mm
Sensing Range (Unshielded)	5, 10, 15 mm	35, 40 mm	40 mm	30 mm
NAMUR (Intrinsically Safe)		■	■	
2-Wire DC		■	■	■
3-Wire DC	■	■	■	
4-Wire DC		■	■	
2-Wire AC			■	
4-Wire AC			■	
2-Wire AC/DC		■	■	■
Electrical Connection	Cabled, micro	Micro, mini	Mini, terminal connection	Terminal connection
AS-Interface Compatible		■		
Reduction Factor 1		■	■	
To find our preferred parts, go to: www.pepperl-fuchs.us/inductive				

Accessories


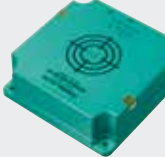
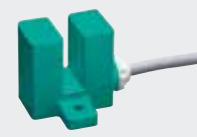
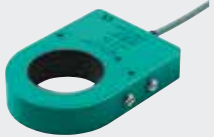


Unistrut® Bracket
The adjustable Unistrut bracket with mounting track is especially designed for limit switch style sensors. It can be adjusted up to 20 mm along the Y axis and rotated 360° in increments of 1.87°.

Unistrut® is a registered trademark of the Unistrut Corporation.







Panel Meter
The DA5-IU-2K-V is a multifunction indicator that allows visual display of the connected analog signal. It has two programmable relay outputs for level detection, a scalable 5-digit display, and a 24 VDC/100 mA output supply to power the sensor.

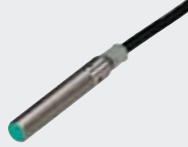





			
Flat Pack	F23	Slot Type	Ring Type
<ul style="list-style-type: none">Flat pack housingMetal base, 1/2" NPTCorner edge LED	<ul style="list-style-type: none">Longest sensing rangeIP67Plastic housing, aluminum base	<ul style="list-style-type: none">2 – 30 mm slot widthsHighly accurate detectionGreater than 1 kHz switching possible with NAMUR	<ul style="list-style-type: none">10 – 100 mm ring diametersGreater than 1 kHz switching possible with NAMUR
40, 50 mm			
50, 60, 75 mm	100 mm		
■		■	■
■			
■	■	■	■
■			
■		■	
■			
■	■		
Micro, mini, terminal connection	Micro, mini	Cabled	Cabled, micro
■			
To find our preferred parts, go to: www.pepperl-fuchs.us/inductive			



- Typical Applications**
- Can crushing machines
 - Doors opening and closing
 - Speed detection
 - Conveyors
 - Part counting

Special Sensors

Cylindrical & Surface Mount				
	Pile Driver™	Cylinder Switch	Inclination and Acceleration Sensors	Position Measurement
Highlights	<ul style="list-style-type: none">▪ "Wear-proof" 100% stainless steel housing▪ 8, 12, 18, and 30 mm diameter models▪ IP69K washdown rating▪ Extended sensing range	<ul style="list-style-type: none">▪ End-of-stroke verification in hydraulic and pneumatic▪ Operational pressure ratings to 3000 psi▪ Weld field immune▪ Many standard probe lengths	<ul style="list-style-type: none">▪ Tilt angle sensing 0 to 360°▪ Analog output 0 – 5 V, 4 – 20 mA▪ Programmable switch point and analog range▪ Single- and dual-axis models▪ CANopen, J1939	<ul style="list-style-type: none">▪ Noncontact detection▪ Analog output 0 – 10 V, 4 – 20 mA▪ Programmable switch points▪ 14 mm to 810 mm linear range▪ 0 to 360° rotation sensing range
NAMUR (Intrinsically Safe)				
2-Wire DC	■			
3-Wire DC	■		■	■
4-Wire DC		■		
2-Wire AC				
2-Wire AC/DC	■	■		
Electrical Connection	Cabled, micro, mini	Micro, mini	Cabled, micro	Cabled, micro
To find our preferred parts, go to: www.pepperl-fuchs.us/inductive				

					
Sensors for Mobile Equipment	Relay Output	Extended Temperature	Explosion Proof	High Pressure	Magnetic Sensors
<ul style="list-style-type: none">▪ -40 °F to +185 °F operational temperature▪ Extended sensing range▪ Heavy cable gauge▪ IP69K rated▪ 100 V/M RF immunity	<ul style="list-style-type: none">▪ Switch load currents up to 6 A▪ Mechanical shock rating of 150 g	<ul style="list-style-type: none">▪ Operational temperature ratings from -40 °F to +486 °F▪ Cylindrical and surface mount housing styles▪ Remote amplifier models	<ul style="list-style-type: none">▪ UL approved for use in hazardous areas▪ Solid-state components▪ All-metal housings	<ul style="list-style-type: none">▪ Pressure ratings to 7000 psi▪ 12 mm diameter models▪ 3-wire DC and NAMUR	<ul style="list-style-type: none">▪ Capable of detection through aluminum▪ Cylindrical and surface mount housings
		■		■	■
■		■		■	■
		■			
		■			
			■		
Cabled, Deutsch 3-pin	Cabled	Cabled, micro, terminal connection	Cabled	Cabled	Cabled, micro
To find our preferred parts, go to: www.pepperl-fuchs.us/inductive					

Accessories



Cylindrical/Rhino Conversion Bracket
Designed with the same mounting dimensions as the Rhino™ style cube sensor.

Rhino style cube sensor

Industry-standard mounting holes

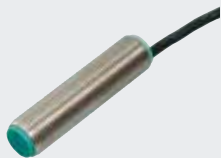
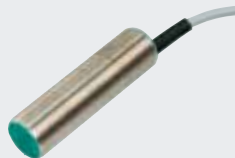



Exchanger Brackets
Change your cylindrical sensor in seconds without losing the original position. Just slide in the replacement sensor, tighten the nut, and you're done.



- Typical Applications
- Indexing
 - Missing parts detection
 - Edge guide control
 - Wire breakage control
 - Broken tool detection
 - Valve detection

Capacitive Proximity Sensors

Cylindrical & Surface Mount			
	12 mm Diameter	18 mm Diameter	30 mm Diameter
Highlights	<ul style="list-style-type: none">Adjustable sensing rangePlastic or metal housingShielded or unshielded models	<ul style="list-style-type: none">Adjustable sensing rangeShielded versionPlastic or metal housing	<ul style="list-style-type: none">Adjustable sensing rangePlastic or metal housingShielded or unshielded models
Sensing Range	1 – 8 mm	1 – 15 mm	1 – 15 mm
Adjustable Sensitivity	■	■	■
NAMUR (Intrinsically Safe)	■	■	■
3-Wire DC (PNP & NPN)	■	■	■
4-Wire DC (PNP & NPN)			■
2-Wire AC			■
Chemically Resistant	■	■	■
Electrical Connection	Cabled, micro	Cabled, micro	Cabled, micro
To find our preferred parts, go to: www.pepperl-fuchs.us/inductive			

Accessories







Sight Glass Mounts
This handy mount enables the use of 30 mm diameter capacitive sensors for level control applications. Just slide the mount over any glass or plastic tube with a 25.4 to 44.5 mm diameter. The mount makes it easier to adjust the sensor without disturbing the fluid inside the tank.



Mounting Flanges/Sensor Wells
These sensor wells keep tanks sealed when the sensor is removed. They are made of a durable PTFE or Delrin® material and have a 1½" NPT diameter and an M30 diameter well for the sensor.

Delrin® are registered trademarks of E.I. du Pont de Nemours & Company.

			
50 mm Diameter	Rectangular Ultra Slim (F46)	Limit Switch	Flat Pack
<ul style="list-style-type: none">Adjustable sensing rangeIntegral switches configure NPN/PNP and N.O./N.C.	<ul style="list-style-type: none">Fixed rangeSurface or tie-wrap mountingPlastic housingNPN, PNP models	<ul style="list-style-type: none">Adjustable sensing rangeLimit switch-style housingShielded model	<ul style="list-style-type: none">Adjustable sensing rangeLongest sensing rangeUnshielded
1 – 30 mm	2, 5, 10 mm	1 – 15 mm	5 – 50 mm
■		■	■
■	■		
		■	■
		■	■
	■		
Cabled	Cabled	Terminal connection	Terminal connection
To find our preferred parts, go to: www.pepperl-fuchs.us/inductive			







Capacitive Sensors







Pepperl+Fuchs’ capacitive sensors can be used to detect nonmetallic objects. These include liquids, such as acids, and water; as well as granular materials, including grain, flour, and sugar. They are available in several housing styles, including cylindrical, limit switch, and flat pack. Most are made of stainless steel or durable PBT, and feature sensing ranges from 1 mm to 50 mm. They are ideally suited for "point" level control in flat-walled vessels and flow/no flow indication in plastic tubing. Versions are available with PVDF housings offering chemical resistance and IP68 rating.










Proximity Sensors Accessories

Counters, Timers, and Control			
	Batch Controller	Batch Controller	Meter Display
Series	KC	KCT	DA5-IU
Functions	Counter/Timer/Rate	Counter/Timer/Rate	Voltage or 4 – 20 mA display
Outputs	Relay or transistor	Transistor	Relay
Size	48 x 48 mm	48 x 96 mm	28 x 48 mm, 48 x 96 mm
Features	Presets, counting, ext. reset, add, subtract	Presets, counting, ext. reset, add, subtract	Linearization
Display	LED, LCD	LED	LED

Amplifiers and Controls						
	Signal Converter	Sensor Interface Terminals	Sensor Interface Terminals	Standstill Monitor	Speed Monitor	Frequency Converter
Series	K23-SSI	KCD2	KCD2	KFD2	KFU8	KFU8
Type	25B/IU	KCD2-E*	KCD2-R	KF2D-SR2-2.W.SM	KFU8-DW-1.D	KFU8-FSSP-1.D
Functions	SSI to RS232 SSI to Analog	NAMUR to 3-wire DC	3-wire to relay	Speed/ pulse detection	Speed limit detection	Frequency to voltage/current
Outputs	Serial or analog	Relay or transistor	Relay	Relay	Relay	Analog
Mounting	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail
Features	SSI conversion	Sensor interface	Sensor interface	Selectable frequency threshold values	Start delay, 40 KHz max. input frequency	Isolated inputs, universal power input

Sensor Accessories							
	Teflon Protective Cover	Die-Cast Mounting Bracket	Universal Mounting Bracket	Adjustable Mounting Bracket	Snap Lever Bracket	Right Angle Brackets	Cushioned Mounting Bracket/Blocks
Highlights	<ul style="list-style-type: none">PTFE capProtects against impact and weld spatterFor all 12, 18 and 30 mm diameter sensors	<ul style="list-style-type: none">Cylindrical sensor mount1/2" rod clamping styleFor all 12, 18 and 30 mm diameter sensors	<ul style="list-style-type: none">Holds all cylindrical sensors360° rotational positioning in both x & y axis	<ul style="list-style-type: none">Holds all cylindrical sensorsHolds fiber optic cablesDiameter size available for 4 mm to 30 mm	<ul style="list-style-type: none">For all 8, 12, 18 and 30 mm diameter sensorsEasy sensor mounting with one leverStop shoulder maintains sensing gap	<ul style="list-style-type: none">For all 12, 18 and 30 mm diameter sensorsStainless steel construction	<ul style="list-style-type: none">For all 12, 18 and 30 mm diameter sensorsSpringloaded bracket absorbs impactsEasy installation

Sensor Accessories							
	Conduit Adapters	Exchanger Brackets	Sensor Testers	Sight Glass Mounts	End Stop Adapter	Unistrut® Brackets	Mounting Flanges
Highlights	<ul style="list-style-type: none">For all 12, 18 and 30 mm diameter sensorsConverts metric-threaded sensors to 1/2" NPT thread	<ul style="list-style-type: none">Easily remove and install sensors without readjustmentsFor all 12, 18 and 30 mm diameter sensorsStop shoulder maintains sensing gap	<ul style="list-style-type: none">Tests inductive, capacitive, ultrasonic & photoelectric sensorsSmall handheld sizeModels available for DC, AC and AC/DC types	<ul style="list-style-type: none">For 30 mm capacitive sensorsAttaches sensor to sight glass for level monitorAccommodates glass or plastic 25.4 to 44.5 mm diameter tubes	<ul style="list-style-type: none">For 8 mm shielded inductive sensorsSpring-loaded piston triggers sensorAvailable in 25 and 50 mm lengths	<ul style="list-style-type: none">For all limit switch style sensorsSecures sensor to standard Unistrut™ RailCan be rotated 360° in 1.87° increments	<ul style="list-style-type: none">Capacitive models keep tanks sealed if sensor is removedMade of durable PTFE or Delrin® materialUltrasonic unit has thru-hole

Unistrut® is a registered trademark of the Unistrut Corporation.
Delrin® are registered trademarks of E.I. du Pont de Nemours & Company.

Photoelectric Sensors



Highlights:

- Photoelectric technologies
 - Diffuse
 - Retroreflective
 - Thru-beam
 - Fiber optic
 - Color
 - Contrast
 - Luminescence
 - Optical data couplers
 - Light grids
 - Retroreflective area sensors
 - Distance measurement
- Industry-leading background suppression sensors, and pulse ranging technology detect position, not just presence
- IO-Link® – enabled sensors provide an unparalleled level of configuration diagnostics and control options
- IP ratings up to IP69K
- Powerful features such as automatic cross-talk protection, "4-in-1™" output, high ambient light resistance, and high visibility indication LEDs are standard



GLV18/GLK18 Cylindrical Sensors

The GLV18/GLK18 Series has all of the great features you would expect in a larger, more expensive sensor, yet it comes in a compact, short housing that provides greater mounting flexibility.



R2 and R3 Series

The ultraminiature R2, with M2 mounting, and R3, with M3 mounting, are the smallest, fully self-contained family of photoelectric sensors that we've ever offered. Both series offer a versatile 45° cable exit for mounting flexibility in tight spaces.



ML100 Series

This family of miniature photoelectric sensors has the highest optical power and longest sensing ranges in its class. Power-Beam™ provides the strongest, densest, and most uniform light spot available in a nonlaser photoelectric sensor.



ML6 Series

Offering remarkably precise background suppression sensing regardless of target color, this subminiature series performs in the most demanding applications.



ML17 Series

Compact, cost-effective, and convenient... the ML17 Series, with its unique 4-in-1 output, sets a new standard in photoelectrics.



LGS Series

Intelligent automation light grid permits simple, PC-free setup using a modern, capacitive touch field. LGS Series is packed with features including object identification, height monitoring, beam blanking, and more.



Series 31 Photoelectric Sensors

Our smallest AC/DC photoelectric sensor with a SPDT relay. It is also available in DC voltages with a powerful 4-in-1 output. Unique color-coded front labels easily identify the sensing mode.



SU18 Series

The SU18 Series fiber optic sensors are designed with cost, performance, and simplicity in mind. It is available in potentiometer and pushbutton adjustable models. The series is packed with features including a 4-in-1 output, highly visible LEDs, simple fiber attachment, and high-power or high-speed modes.



SU19 Series

The SU19 Series is loaded with features including a 4-digit display, up to 16 kHz switching frequencies, gang mounting capabilities with built-in cross-talk protection, and the easy interpretation of values via a percentage display.



PRT Distance Measurement Sensors

Sensors with PRT emit very short, high-intensity light pulses and calculate object distance based on the speed-of-light constant and time-of-flight of the reflected light pulses. PRT devices are available for long-range, 1-D or 2-D distance measurement and detection tasks.






Series 61

This high-performance sensor offers easy setup, strong optical performance, integral timers, an industry-standard footprint, and a 4-in-1 or relay output. It is available in four sensing modes that are easily identified with color-coded front labels.

4-in-1 Output

The 4-in-1 output automatically detects the connected load, so the output either sources or sinks current depending on the load. A single sensor can operate as NPN light ON, NPN dark ON, PNP light ON, or PNP dark ON, reducing inventory costs and minimizing wiring time.

Photoelectric Sensors

			
	KT9 Series	KT11 Series	12GM40 Series
Highlights	Alternative to fiber optics; wide beam angle	Alternative to fiber optics; wide beam angle	12 mm dia metal housing with sensitivity adjustment
Background Suppression			
Background Evaluation			
Diffuse Mode	50 mm	50 mm	300 mm
Retroreflective Mode			2.5 m
Retroreflective Mode Clear Object Detection			
Thru-Beam Mode	250 mm	250 mm	6 m
Fiber Optic Mode			
Housing H x W x L (mm)	4 mm dia (35, 45 mm lengths)	M5 dia (35, 45 mm lengths)	M12 dia (45, 55 mm lengths)
Light Source	Infrared	Infrared	Visible red
Power Supply	DC	DC	DC
Output Type	NPN, PNP	NPN, PNP	NPN, PNP
Automatic Cross-Talk Protection (Non thru beam)			
Electrical Connection	Nano, cabled	Nano, cabled	Micro, cabled
To find our preferred parts, go to: www.pepperl-fuchs.us/photoelectric			

Accessories



OMH-VL18
Metal bracket with precision sensor alignment for 18 mm cylindrical sensors.



OMH-ML17-R
Rod mount, multi-axes, adjustable bracket for 18 mm cylindrical and snouted sensors.



OMH-ML17-EZ
Tool-free rapid mounting accessory for ML17 Series on conveyor sidewalls.

			
GLV18/GLK18 Series	V18 Series	ML17 Series	R2, R3 Series
Most economical 18 mm dia photoelectric; straight and right-angled housings	Rugged metal 18 mm dia family with straight and right-angled housings	Compact, cost-effective, industry-standard housing	Ultraminiature housing; powerful performance
120 mm	120 mm	50, 100 mm	15, 20, 30, 40, 50, 80 mm
			15, 30, 50 mm
200, 400, 450 mm	400 mm	450 mm	
3.5, 4, 5.5, 6.5 m	3.5, 15 m	3.5, 4 m	1 m
2.5 m			
12, 20 m	60 m	20 m	2 m
	■	■	
M18 dia various lengths	M18 dia various lengths	35 x 15 x 29	24 x 8 x 11 (R2) 26 x 8 x 14 (R3)
Visible red	Visible red, laser	Infrared, visible red	Visible red
DC, AC/DC	DC	DC	DC
NPN, PNP, thyristor	4-in-1*	4-in-1*	NPN, PNP
	■		
Micro, cabled	Micro	Micro, nano, cabled	Nano, cabled
To find our preferred parts, go to: www.pepperl-fuchs.us/photoelectric			

* See page 21 for information on 4-in-1 electrical output.



Typical Applications

- Packaging: form/fill/seal
- Metal forming: broken bit detection
- Material handling: conveyor speed control
- Packaging: label orientation
- Automotive: error-proofing camshaft/transmission parts
- Material handling: product orientation

Photoelectric Sensors

			
	ML6 Series	ML100 Series	MLV12 Series
Highlights	Superior background suppression for general-purpose use	Long-range miniature housing; powerful light source	Rugged die-cast metal housing frame
Background Suppression	20, 40, 60, 80, 120, 150 mm	100, 350 mm	250 mm
Background Evaluation		350 mm	150 mm
Diffuse Mode		200 mm, 1 m	
Diffuse Mode with Background Suppression			
Retroreflective Mode	5 m	5 m	450 mm, 5 m, 15 m
Retroreflective Mode Clear Object Detection	3.5 m		3 m
Thru-Beam Mode	8 m	10, 20 m	16 m
Fiber Optic Mode			
Housing H x W x L (mm)	33 x 14 x 18	34 x 11 x 20	65 x 15 x 42
Light Source	Visible red	Visible red	Infrared, visible red, laser
Power Supply	DC	DC	DC
Output/Interface Type	4-in-1*	NPN, PNP	4-in-1*
Automatic Cross-Talk Protection (Non-thru beam)	■	■ (two units)	■
Electrical Connection	Micro, nano, cabled	Nano, cabled	Micro, cabled
To find our preferred parts, go to: www.pepperl-fuchs.us/photoelectric			

Accessories



OMH-RL31-03
Protective shroud bracket with flexible mounting pattern for Series 31 models.



OMH-RL2-S
Protective shroud bracket with 360° rotation for VDM28 and Series 28 models.



OMH-MLV12-C, OMH-RL28-C
Weld slag covers for the MLV12 Series, Series 28, and VDM28 Series models featuring Black Armor™ coating and replaceable glass lens.

			
MLV41 Series	Series 31	Series 28	Series 61
Rugged metal housing; front and rear LEDs; powerful performance	Color-coded front label to identify sensing mode	Low operating temperature; highly visible LEDs; timer versions	■ Multipurpose ■ Rugged IP67 housing ■ Integral timers
120, 350, 1500 mm	800 mm	400, 700 mm, 1.5 m, 2 m	
	1.2, 2.5 m		
			500 mm, 2 m
8 m	9, 12 m	17, 30 m	18 m
4 m		5.6 m	
	30 m	30, 65, 300 m	60 m
■			■
60 x 14 x 31	62 x 18 x 35	Varies	92 x 45 x 49
Infrared, visible red	Infrared, visible red	Infrared, visible red, laser	Infrared, visible red
DC	AC/DC, DC	AC/DC, DC	AC/DC, DC
4-in-1*, IO-Link	4-in-1*, relay, IO-Link	4-in-1*, relay	4-in-1*, relay
■		■	■
Micro, nano, cabled	Micro, cabled	Micro, cabled, terminal connection	Micro, mini, cabled
To find our preferred parts, go to: www.pepperl-fuchs.us/photoelectric			




* See page 21 for information on 4-in-1 electrical output.






Typical Applications

- Packaging: case packing
- Material handling: gate position indication
- Elevators: speed monitoring
- Car washes: long-range capability to blast through steam, soap suds, and spray
- Packaging: detect color variations in product package
- Automotive: detect engine components during assembly

Photoelectric Sensors

			
	GL2, GL3, GL5 Series	GL Series	RAL Series
Highlights	<ul style="list-style-type: none">Miniature design with high switching frequencies3- and 4-wire connections; easy mountingHighly visible LED indicationOptimized for small part detection	<ul style="list-style-type: none">Full range of slot widths availableDie cast zinc housingHigh switching frequency	<ul style="list-style-type: none">One-piece slot light gridAnodized aluminum housingOptimized for small parts detection
Thru-Beam Mode	1.8, 3.15, 5 mm	10 – 220 mm	50 – 150 mm
Fiber Optic Mode			
Housing H x W x L (mm)	Varies	Varies	Varies
Light Source	Infrared	Infrared, Visible red	Infrared
Power Supply	DC	DC	DC
Output Type	NPN, PNP	NPN, PNP	PNP
Automatic Cross-Talk Protection (Non-thru beam)			
Electrical Connection	Cabled, 4-pin flat connector	Nano	Nano
To find our preferred parts, go to: www.pepperl-fuchs.us/photoelectric			

			
	Retroreflective Area Sensors	Automation Light Grids	Contrast & Color Sensors
Highlights	<ul style="list-style-type: none">More sensing coverage than single beamCost-effective alternative to light grids	<ul style="list-style-type: none">Unique touch field permits easy configurationIP67-rated aluminum enclosureWide variety of field heights and beam spacing options	<ul style="list-style-type: none">Mark detection; print verification; product positioningIdentify minute color variation
Classification	RLG28	LGS 100 – 3200 mm field height	DK12 (contrast) DF12 (color)
Sensing Distance (max)	4 m	6, 8 m	11 mm
Housing H x W x L (mm)	88 x 26 x 54	Varies x 20 x 31	65 x 15 x 42
Light Source	Visible red (6)	Infrared	Red, green, blue LEDs
Power Supply	DC	DC	DC
Output/Interface Type	4-in-1*	4-in-1*, IO-Link	4-in-1*, IO-Link
Electrical Connection	Micro	Micro	Micro
To find our preferred parts, go to: www.pepperl-fuchs.us/photoelectric			

* See page 21 for information on 4-in-1 electrical output.

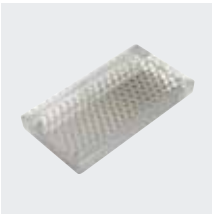
Accessories



MPZB06
Swivel mounting bracket for Series 61 models. Allows 360° swivel and 19° tilt motion.



Reflector Heater 120
Heated corner-cube reflector for use in temperatures down to -54 °F/-48 °C.



Reflector H85HT
Corner-cube reflector rated for maximum continuous temperature of 932 °F/500 °C.



Typical Applications

- Packaging: cartoning
- Material handling: counting product for palletizing
- Elevators: door and cab position
- Food and beverage: missing label detection
- Material handling: stacker cranes and guided trolleys
- Automotive: detect part presence before final body assembly

Photoelectric Sensors

			
	Luminescence Sensors	VDM18	VDM28
Highlights	<ul style="list-style-type: none">■ Senses invisible and nearly invisible marks■ Detects targets regular photoelectric and contrast sensors cannot	<ul style="list-style-type: none">■ Short-range laser distance measurement sensor■ Diffuse mode	<ul style="list-style-type: none">■ Pulse Ranging Technology (PRT) for measurement accuracy■ Medium-range laser distance measurement sensor■ Diffuse and retroreflective mode
Classification	DK50-UV	VDM18-100 VDM18-300	VDM28-8 VDM28-15 VDM28-50-R
Sensing Distance (max)	190, 254, 330, 609 mm	100, 300 mm	8,15, 50 m
Housing H x W x L (mm)	65 x 23 x 56	50 x 17 x 50	93 x 26 x 54
Light Source	Ultraviolet	Laser	Laser
Power Supply	DC	DC	DC
Output/Interface Type	NPN, PNP, analog	4 – 20 mA, PNP, RS485	4 – 20 mA, 4-in-1*, IO-Link
Electrical Connection	Micro	Micro	Micro
To find our preferred parts, go to: www.pepperl-fuchs.us/photoelectric			

Accessories



OMH-LS610-01
Mounting bracket for fine adjustment of LS610 Series optical data couplers.



IO-Link® USB Master
Connect IO-Link sensors to a PC USB port for setup and configuration.



PACTWare™
A powerful FDT-based software package that is used as a configuration tool.

			
	VDM100	Optical Data Couplers	R2000
Highlights	<ul style="list-style-type: none">■ Pulse Ranging Technology (PRT) for measurement accuracy■ Long-range laser distance measurement sensor■ Retroreflective mode	<ul style="list-style-type: none">■ Wireless data transfer over long distances■ Parallel and serial data transfer■ Replaces slip rings and drag cables	<ul style="list-style-type: none">■ Pulse Ranging Technology (PRT) for measurement accuracy■ User-defined detection fields■ High angular resolution to detect extremely small objects■ General purpose 2-D laser scanner
Classification	VDM100-50 VDM100-150 VDM100-300	DAD15-parallel DAD30-serial (RS232, RS422, CL 20 mA) LS230-DA-serial (RS232, RS422, CL 20 mA) LS610-DA-P-serial (PROFIBUS) LS682-DA-(Ethernet)	OBD10M - R2000 OBD30M - R2000
Sensing Distance (max)	50, 150, 300 m	1.5 – 300 m	0.1 – 30 m
Housing H x W x L (mm)	Varies	Varies	117 x 106 x 118
Light Source	Laser	Infrared, visible red, laser	Laser
Power Supply	DC	DC	DC
Output/Interface Type	PROFIBUS, INTERBUS, EtherNet/IP, SSI	Varies	4-in-1*
Electrical Connection	Varies	Connectors, terminal connection	Micro
To find our preferred parts, go to: www.pepperl-fuchs.us/photoelectric			

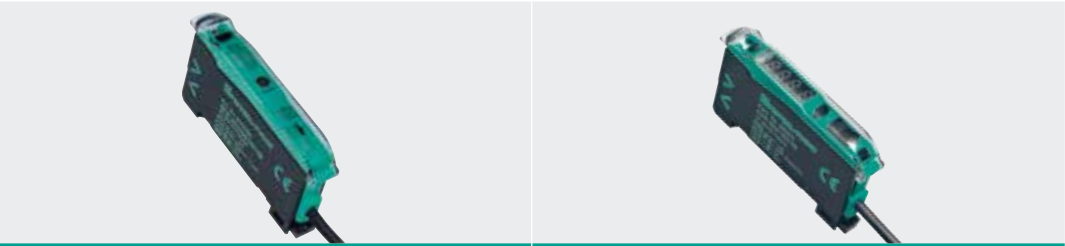
* See page 21 for information on 4-in-1 electrical output.



Typical Applications

- Packaging: palletization and shrink wrapping
- Material handling: conveyor jam detection
- Elevators: door open/closed monitoring
- Packaging: registration mark detection
- Food and beverage: fill level monitoring

Photoelectric Sensors

Fiber Optic Sensors		
	SU18 Series	SU19 Series
Highlights	<ul style="list-style-type: none">General-purpose fiber optic sensingHigh speed or high power potentiometerPushbutton controls	<ul style="list-style-type: none">Advanced fiber optic sensing4-digit, user-friendly displayPushbutton controls
Indication	LEDs (2)	LEDs (2), 4-digit display
Sensitivity Adjustment/Teach	Potentiometer (1), Pushbutton (1)	Potentiometer (4)
Timer Function	On delay, off delay	On delay, off delay, 1-shot
Switching Frequency	6 kHz	16 kHz
Fiber Adaptable	■	■
Housing H x W x L (mm)	35 x 9 x 55	35 x 9 x 62
Light Source	Visible red	Visible red
Power Supply	DC	DC
Output Type	4-in-1*	4-in-1*
Electrical Connection	Nano, cabled	Cabled
To find our preferred parts, go to: www.pepperl-fuchs.us/photoelectric		

* See page 21 for information on 4-in-1 electrical output.

Accessories



HPF-T022-H
Specialty fiber with metal casing designed for label detection.



K-LA03
Fiber optic lens adapter converges light spot diameter to 0.5 mm.



FEF-PLT1
Long-range, high-power plastic thru-beam fiber optic cable.

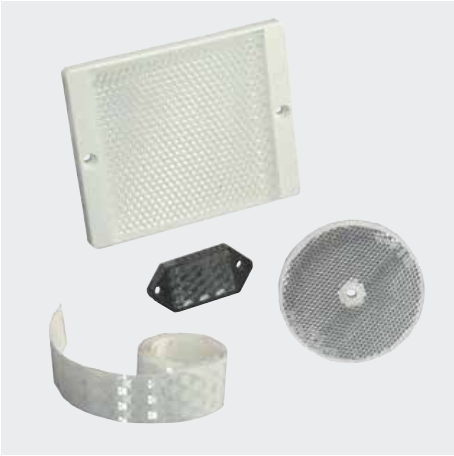


FE-IHSRA3S-...
Stainless steel sheathed glass fiber optic cable with right-angle optics.

Additional Photoelectric Products



- Fiber Optic Cables
- Plastic and glass styles
 - Wide variety of sizes and shapes
 - High-flex and high-temperature models
 - Lens accessories available



- Reflectors
- Wide variety of materials, shapes, sizes, and reflectivity
 - High/low temperature, microstructure, and a large selection of mounting options
 - Self-adhesive reflective tape and foils also available



- Typical Applications
- Packaging: check weighing
 - Material handling: automated guided vehicle location
 - Printing: web control
 - Automotive: detect presence of Loctite® on weld studs
 - Elevators: people detection
 - Automotive: luminescence sensor detects presence of engine lubricants

Loctite® is a registered trademark of the Henkel Loctite Corporation.

Ultrasonic Sensors



Highlights:

- Long-range detection of all solid, liquid, and granular targets
- Sensing ranges to 10 meters
- 12 mm, 18 mm, 30 mm diameter, as well as rectangular housings
- Multiplex and synchronize ability prevents cross-talk
- Discrete or analog outputs
- Special models for double sheet, splice, and label detection
- PTFE and stainless steel models for chemical resistance



UGB Splice Detector

Pepperl+Fuchs ultrasonic splice detectors are designed to sense splices in high-speed applications while ignoring differences in color. Featuring two 18 mm diameter sensing heads, this sensor is compact and easy to mount. Dual outputs indicate both splice and no sheet (air) conditions.



Series 65

Designed specifically to monitor tank levels, the Series 65 offers many application benefits. The low-profile, 30 mm high housing features high-visibility LEDs and a rubber gasket to seal the container opening. Switch point and analog versions are fully configurable via SONPROG software, with sensing distances to 2.5 meters.



Double Sheet Detection

Ultrasonic double sheet detection identifies the difference between no sheet (air), single sheet, and double sheets. The standard 18 mm diameter unit detects paper, thin plastics, and foils with weights from 10 g/m² to 2000 g/m². The 30 mm model offers the same features as the standard version while providing a larger (50 mm – 150 mm) emitter/receiver separation and the ability to detect denser materials, such as cardboard or sheet metal.



Series 77

The miniature Series 77 offers high-end features in a cost-effective design. Available in diffuse, retroreflective, and thru-beam models, the F77 excels in solving applications where optic-based sensors struggle. All units are 100% color insensitive, detect clear objects with ease, and thrive in dusty/dirty environments.



Series L2

The Series L2 features a 5-way quick pivot sensing face and high-visibility LEDs. Switch point and analog outputs monitor distances up to 4 meters and are fully configurable with an integral pushbutton or PACTware software.



Series 42

These rectangular sensors are available with sensing ranges from 400 mm to 5 m. This versatile series can be powered by AC or DC supplies and has a relay contact output. Unwanted targets can be suppressed using the built-in beam angle adjustment. Push buttons allow easy setup. Top or side-sensing models are offered for different mounting configurations.



M18 Short Barrel

Short-housing model ultrasonics are available with straight or right-angle heads. They are perfect for tight spaces and restricted mounting conditions. Sensor status is easy to see from any angle with 360° viewable LEDs.



Series 70

The Series 70 offers maximum versatility. Sensing ranges from 500 mm to 6 m, PC configuration via RS232 and multiple modes of operation solve a wide variety of applications. Sensitivity, evaluation method, burst time, and more can be adjusted via software. Dual switch point or analog outputs are available for all sensing ranges.



Washdown Series

The Washdown Series features a seamless housing made entirely from 316L stainless steel. Available in analog and switch point versions, it is immune to 1200 psi washdowns and is ECOLAB certified. Sensing distances up to 3 meters are fully adjustable via PACTware.



Series 260

The F260 Series features a 10-meter, fully adjustable sensing range. Available in SONPROG-configurable analog and switch point versions, this powerful design also offers high-precision, 12-bit resolution.

Ultrasonic Sensors

Cylindrical			
	12 mm Diameter	18 mm Diameter	30 mm Diameter
Highlights	<ul style="list-style-type: none">Smallest cylindrical housing availableAnalog and switch point modelsTemperature compensation	<ul style="list-style-type: none">Selectable beam widthsStraight and right-angle sensing headsHigh-visibility LEDs	<ul style="list-style-type: none">Up to 6 m sensing rangePotentiometer and pushbutton configurable modelsExpanded control via software interface
Sensing Range	20 – 120 mm 20 – 200 mm 50 – 400 mm	50 – 300 mm 50 – 500 mm 70 – 800 mm 50 mm – 1 m 90 mm – 1 m	50 – 500 mm 120 mm – 2 m 240 mm – 4 m 400 mm – 6 m
AC Switch Point Output			
DC Single Switch Point Output	■	■	■
DC Dual Switch Point Output		■	■
Analog Voltage Output	■	■	■
Analog Current Output	■	■	■
Analog Current & Voltage Output			■
DC Thru-Beam		■	■
Chemically Resistant			■
Hazardous Area Versions			■
Electrical Connection	Micro	Micro	Micro
To find our preferred parts, go to: www.pepperl-fuchs.us/ultrasonic			

Accessories

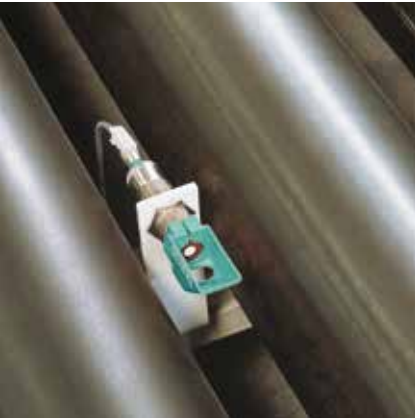


Right-Angle Deflector
By deflecting the ultrasonic beam 90° from the sensing plane, right-angle deflectors allow low-profile mounting of 18 mm or 30 mm diameter sensors on tanks, conveyors, etc.



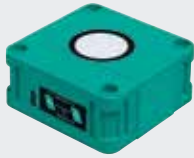


Hazardous Location Ultrasonic Sensors
For hazardous locations, Pepperl+Fuchs provides a ½" NPT conduit adapter for 30 mm diameter ultrasonic sensors in Class I Div. 2. The fitting is used in conjunction with the stainless steel mounting flange with 1¼" NPT threads in Class I Div. 2, Class II Div. 1 & 2, and Class III Div. 1 & 2 areas.


			
30 mm Diameter AC	Remote Transducer	Washdown-proof	Double Sheet/Label/Splice Detection
<ul style="list-style-type: none">AC power360° LED visibilityFingertip range adjustment	<ul style="list-style-type: none">Allows mounting in tight locationsDual independent transistor and analog outputs3 modes of operation	<ul style="list-style-type: none">1200 psi washdown ratingFood-grade 316L stainless steel housingAnalog and switchpoint models	<ul style="list-style-type: none">Outputs for single sheet, double sheet, and no sheet18 mm and 30 mm diameter models
70 – 500 mm 200 mm – 2 m	50 – 300 mm 120 mm – 1 m	70 – 800 mm (18 mm ø) 200 mm – 3 m (30 mm ø)	Separation: 20 – 60 mm (18 mm) 50 – 150 mm (30 mm)
■			
		■	
	■		
	■	■	
	■	■	
	■		
			■
		■	
Mini	Micro	Cabled	Cabled, micro
To find our preferred parts, go to: www.pepperl-fuchs.us/ultrasonic			



- Typical Applications**
- Fill level detection
 - Web loop control
 - Positioning
 - Collision avoidance
 - Conveyor transfer
 - Print processes

Ultrasonic Sensors

Surface Mount			
	Series 42	Series 12	Series 77
Highlights	<ul style="list-style-type: none">■ AC/DC, top or side sensing with relay output■ Pushbutton programming	<ul style="list-style-type: none">■ Push/pull output■ 90° connector rotation■ High-visibility LEDs■ Teachable	<ul style="list-style-type: none">■ Miniature housing■ 100% color insensitive, reliable with clear targets■ Fast switching frequency – up to 50 Hz■ Simple, intuitive range adjustment
Sensing Range	50 – 500 mm 90 mm – 2 m 240 mm – 4 m 400 mm – 6 m	50 – 800 mm	20 – 250 mm 25 – 400 mm 0 – 800 mm
AC/DC Switch Point Output	■		
DC Single Switch Point Output		■	■
DC Dual Switch Point Output	■		
Analog Voltage Output	■	■	■ (Frequency)
Analog Current Output	■	■	
DC Thru-Beam			■
Electrical Connection	Micro, Mini	Micro	Nano
To find our preferred parts, go to: www.pepperl-fuchs.us/ultrasonic			

		
Series 260	Series 65	Series L2
<ul style="list-style-type: none">■ 10 meter sensing range■ Analog current or voltage, w/dual switchpoint (PNP)■ Potentiometer or software configurable	<ul style="list-style-type: none">■ Up to 2.5 meter sensing range■ Low profile – ideal for tank level control■ Analog and switchpoint outputs	<ul style="list-style-type: none">■ Pushbutton or PC configurable■ 5-way adjustable sensing orientation
800 mm – 10 m	60 – 500 mm 200 mm – 1.5 m 250 mm – 2.5 m	35 – 500 mm 60 mm – 2 m 200 mm – 4 m
		■
■	■	■
■	■	■
■	■	■
Terminal	Micro	Micro
To find our preferred parts, go to: www.pepperl-fuchs.us/ultrasonic		

Accessories



Mounting Wells
Mounting wells are available in a 30 mm diameter durable PTFE material that has a thru-hole for ultrasonic sensing.



Ultrasonic Landing Page

For a complete product overview, including data sheets and informative videos, please visit:
<http://www.sensing.net/ultrasonics/>



Typical Applications

- Fill level detection
- Web loop control
- Positioning
- Collision avoidance
- Conveyor transfer
- Print processes
- Crop sprayers

Rotary Encoders



Highlights:

- Magnetic and optical encoder technology for harsh industrial environments
- Incremental encoders up to 50,000 pulses per revolution
- Absolute encoders up to 32 bit resolution
- Industry standard sizes – 50 mm, 58 mm, 2.5", and 78 mm
- Solid shaft, hollow shaft, and recessed hollow shaft models
- Wide variety of configurations available
- Encoders for hazardous areas
- Safety-rated encoders
- Encoder for high shaft loads



MNI20/MNI40

These magnetic encoders achieve high-accuracy feedback for incremental encoder feedback. This two-piece design enables the magnetic code wheel to mount directly to a machine shaft.



TVI40/THI40/TSI40

These solid, hollow, and recessed hollow shaft models are our smallest, most economical incremental encoders. With a diameter of only 40 mm (1.57"), they can fit in the tightest spaces. The tangential cable exit allows the cable to be positioned either axially or radially.



RVI25

The RVI25 is a rugged, industry-standard, 2.5" incremental encoder with a wide variety of options and resolutions up to 5,000 ppr. Multiple flange types and connection options, including mil-spec connectors, make it simple to integrate. Available with 1/4" and 3/8" shaft sizes.



RVI58/RHI58

RVI58/RHI58 encoders are available with resolution up to 50,000 ppr for precise positioning applications. Shaft bore sizes on the RHI58 include 10 mm, 12 mm, and 1/2". Solid shaft models are available with 6 mm, 10 mm, or 12 mm shaft diameters.



RHI90

This large, hollow-shaft incremental encoder can be used for shaft sizes ranging from 16 mm to 45 mm, including 5/8", 3/4", 7/8", and 1". It provides resolutions up to 50,000 ppr.



ENI11HD

For demanding applications in steel mills, shipbuilding, cranes, and offshore environments. The ENI11HD heavy-duty incremental encoder provides reliable feedback for large asynchronous motors and is capable of handling the higher shaft loads, vibration, shock, temperature, and IP protection that is needed in these demanding environments.



36M Series

The 36M Series is a CANopen, J1939 SSI, and analog magnetic absolute encoder. It has a small, 36 mm diameter housing with different mounting options available. This encoder is ideal for applications that have space-restricted areas such as renewable energy and packaging machines.



42H Series

The 42H Series has different protocols available. They include analog, CANopen, SSI, and J1939. This single-turn or multiturn magnetic absolute encoder has an all stainless steel housing. The 42H Series has high shaft load capacity, high vibration, and high shock resistance with excellent environmental protection. For these reasons, the 42H Series is best suited for harsh environments, which include mobile equipment applications.



ENA36 and ENA58 Series

The ENA36 and ENA58 Series magnetic absolute encoders has <0.1° of accuracy. Pepperl+Fuchs magnetic rotary encoders can be used in a wide variety of applications because the technology advantages brings precision, robustness, reliability, and a compact housing. The protocols available are SSI, EtherCAT, ProfiNet, and PROFIBUS.



E**58, A**58, B**58, C**58, D**58, P**58

Optical absolute encoders with <0.01° accuracy are available for machines and applications that require this higher accuracy. Many protocols are available, such as EtherNet/IP, PROFINET, TCP/IP, PowerLink, SSI, AS-Interface, CANopen, DeviceNet, and PROFIBUS. There are many options to choose from, including solid shaft, recessed hollow shaft, single-turn, and multiturn absolute encoders.



Hazardous Area Encoders

The 78E Series is an absolute encoder with an Ex d flameproof housing and a choice of PROFIBUS, SSI, CANopen, and DeviceNet type protocols. It has a removable housing for easy configuration and flexibility for your installation. In addition to the 78E Series, there is the RVI84 incremental encoder series that has intrinsic safety; the RVI58X and RSI58X have nonincendive installation approvals.

Incremental Rotary Encoders

							
	MNI20 Magnetic	MNI40 Magnetic	TVI40	TSI40	THI40	TVI50	RVI50
Diameter	20.44 mm, 31.70 mm	31.7 mm, 40.6 mm, 45.7 mm	40 mm	40 mm	40 mm	50 mm	50 mm
Max PPR	5,000	3,600	1,024	1,024	1,024	1,024	2,500
Shaft Type	Mag wheel	Mag wheel	Solid	Recessed Hollow	Hollow	Solid	Solid

						
	TVI58	THI58	RVI58	RSI58	RHI58	RVI58L Stainless Steel
Diameter	58 mm	58 mm	58 mm	58 mm	58 mm	58 mm
Max PPR	1,500	1,500	50,000	50,000	50,000	5,000
Shaft Type	Solid	Hollow	Solid	Recessed Hollow	Hollow	Solid

						
	RVI25 Square Flange	RHI90	RVS58 Sine-Cosine	RHS58 Sine-Cosine	RHS90 Sine-Cosine	ENI11HD
Diameter	2.5 "	90 mm	50 mm	58 mm	90 mm	108.5 mm
Max PPR	5,000	50,000	2,048	2,048	2,048	2500
Shaft Type	Solid	Hollow	Solid	Hollow	Hollow	Hollow/ Recessed Hollow

To find our preferred parts, go to: www.pepperl-fuchs.us/encoder

Accessories



Couplings




- Spring steel coupling – 9401
- Spring disk coupling – 9404
- Bellows coupling – 9409
- Precision coupling – 9410
- Helix coupling – KW




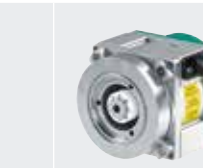
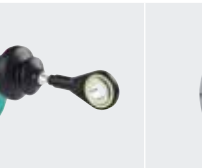

Connectors

Encoder mating connectors
and cordsets available

Magnetic Absolute Rotary Encoders,
Cable Pulls

Magnetic Absolute Rotary Encoders					
SSI	ASS36M/ASM36M	AVS36M/AVM36M	ENA36	AVS42H/AVM42H	ENA58
CANopen	CSS36M/CSM36M	CVS36M/CVM36M		CVS42H/CVM42H	
Analog Current		IVS36M/IUVM36M			
Analog Voltage		UVS36M/UVM36M			
J1939				JVM42H	
EtherCAT PROFINET PROFIBUS					ENA58
Encoder Type	Absolute	Absolute	Absolute	Absolute	Absolute
Diameter	36 mm	36 mm	36 mm	42 mm	58 mm

To find our preferred parts, go to: www.pepperl-fuchs.us/encoder

Cable Pulls				
	ECN10TL	ECN20IL	ECN30PL	ECN40HD
Highlights	<ul style="list-style-type: none">■ Extremely compact design■ Direct coupling■ 10 m maximum cable length	<ul style="list-style-type: none">■ Compact solution for industrial applications■ Flexible cable entry/exit point■ 5 m maximum cable length	<ul style="list-style-type: none">■ High flexibility for demanding requirements■ Various accessories■ 60 m maximum cable length	<ul style="list-style-type: none">■ Extremely robust for harsh environments■ Open cable system■ 20 m maximum cable length

To find our preferred parts, go to: www.pepperl-fuchs.us/encoder

Accessories



Measuring Wheels

- Circumference 200 mm / 500 mm
- Smooth Hytrel®– MW9108 / MW9101
- Dimpled rubber – MW9109 / MW9102
- Knurled aluminum – MW9110 / MW9103
- Knurled Hytrel – MW9113 / MW9112

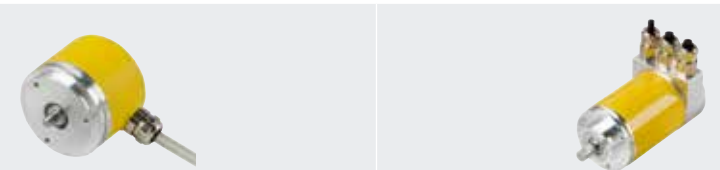
Hytrel® is a registered trademark of E.I. du Pont de Nemours & Company.

Optical Absolute Rotary Encoders and Safety Encoders

Single Turn Bits 16 (Max.)				
Positional Bits 30 (Max.)				
EtherNet/IP, TCP/IP, PROFINET, Power Link	EVS58/EVM58			ESS58/ESM58
CANopen		CSS58/CSM58	CVS58/CVM58	
DeviceNet		DSS58/DSM58	DVS58/DVM58	
PROFIBUS		PSS58/PSM58	PVS58/PVM58	

					
SSI	ASS58/ASM58	AVS58/AVM58	AHS58/AHM58		
AS-Interface				BSS58/BSM58	BVS58/BVM58
Single Turn Bits (Max.)	16	16	16	13	13
Positional Bits (Max.)	30	30	30	16	16

To find our preferred parts, go to: www.pepperl-fuchs.us/encoder

Safety Encoders		
CANopen		CVS58S/CVM58S
Sin/Cos	RVS58S	
Encoder Type	Incremental	Absolute
Diameter	58 mm	58 mm

To find our preferred parts, go to: www.pepperl-fuchs.us/encoder

Hazardous Area Rotary Encoders

Incremental Rotary Encoders			
Series	RVI58X/RSI58X	RVI 70	RVI84
Diameter	58 mm	70 mm	78 mm
Max PPR	5,000	5,000	25
Ignition protection class	Zone 2/22	Ex d	Ex ia

To find our preferred parts, go to: www.pepperl-fuchs.us/encoder

Absolute Rotary Encoders			
Diameter	58 mm	58 mm	78 mm
PROFIBUS	PSS58X/PSM58X	PVS58X/PVM58X	PVM78E
SSI			AVM78E
CANopen			CVM78E
DeviceNet			DVM78E
Ignition protection class	Zone 2/22	Zone 2/22	Ex d

To find our preferred parts, go to: www.pepperl-fuchs.us/encoder

AS-Interface

Get Your Network Up and Running Quickly and Efficiently with AS-Interface



Highlights:

- Successful, well established low-level I/O network, modules can be connected from numerous manufacturers with extremely efficient installation methods.
- Easy to install, minimal cable reduces installation costs and time by more than 40%.
- Flexible and efficient, uses network topology, enabling users to install the system in a layout that best fits their application.
- Reliable piercing technology which is easy and inexpensive to install and lower connection costs.
- More room in the enclosure through the omission of traditional cable trees.



I/O Modules

I/O modules form the link between devices (i.e., sensors) and an AS-Interface. Modules with different numbers of inputs and outputs are available for enclosures or field applications.



Safety

AS-Interface Safety at Work is the safety solution that enables networking of safety devices (safety door switches, emergency stop pushbuttons, and safety light curtains) on a standard AS-Interface network.



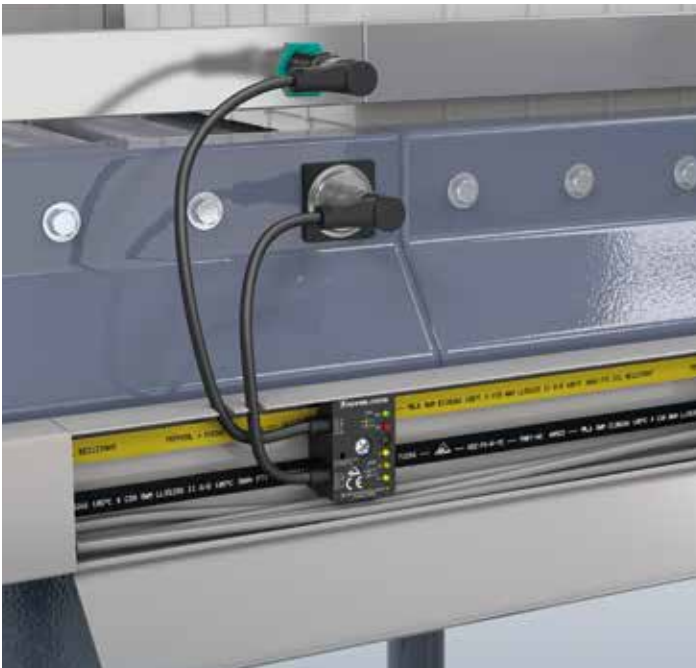
Scanner & Gateways

Gateways and scanners are the information translators between AS-Interface and the higher level network of PLC, respectively.



System Components / Accessories

Pepperl+Fuchs offers all the necessary accessories needed to put your AS-Interface system together. These include, flat cable splitters, adapters, AS-Interface cable and handheld programmer, etc.










The G10 ultra compact design fits into every cable duct for easy mounting installations.



AS-Interface mechanical safety switches share a common mounting footprint allowing simple replacement of conventional switches.

AS-Interface

Standard I/O Modules				
	Flat (G12)	Round (G11)	Flat (G10)	Field (G4)
Highlights	<ul style="list-style-type: none">■ One-piece housing with stainless steel base■ Installation without tools■ Metal threaded inserts	<ul style="list-style-type: none">■ Circular design enables arbitrary mounting and can be used with any flat cable orientation.■ Housing with central screw enables fast mounting	<ul style="list-style-type: none">■ Ultra compact module perfect for space-limited applications.■ Sensors connected using integrated pigtail which exits the tiny housing parallel to the flat cable	<ul style="list-style-type: none">■ User-friendly installation allows custom cable lengths to terminal base■ Flat or round cable connectivity
Mounting Location	Field	Field	Field	Field
Digital I/O	4-in, 4-in/4-out, 4-in/3-out, 2-in/2-out, 4-out	4-in, 4-in/4-out	2-in, 1-in/1-out, 2-in/1-out, 2-out	4-in, 4-in/4-out, 4-in/3-out, 2-in/2-out, 4-out
Analog I/O	N/A	2-in, 4-in, 2-out, 4-out	N/A	2-in, 4-in, 2-out
Input Type	2-, 3-,4- wire sensors (PNP), DC	2-, 3-,4- wire sensors (PNP), DC	2-, 3-,4- wire sensors (PNP), DC	2- or 3-wire sensors (PNP), DC
Output Type	Electronic outputs, PNP	Electronic outputs, PNP	Electronic outputs, PNP	Electronic outputs, PNP
I/O Connection	M12	M12	M12	Cord grip
Protection Class	IP67	IP68, IP69K	IP68, IP69K	IP65, IP67
Approvals	<div></div>			
To find our preferred parts, go to: www.sensing.net/asi-modules				

Accessories




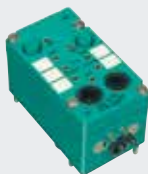


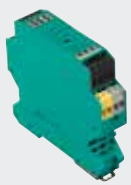



Flat Cable Splitters
Connects or splits two pieces of flat cable, 8 A capacity.



Flat to M12 Adapters
Connects one or two flat cables to an M12 connector or pigtail. Many lengths and connector styles available.



Handheld Programmers
Handheld programmers are a must for every AS-Interface network. Provides ability to easily program addresses; read inputs and set outputs on most AS-Interface nodes.

				
Compact (G16)	Pneumatic	Enclosure (KE, KE5)	Junction Box (KE1, CB1)	Enclosure (KE2)
<ul style="list-style-type: none">Slim, compact design ideally suited for space-limited applicationsMetal threaded inserts	<ul style="list-style-type: none">Flat or round cable connectivityPneumatic outputs with a high air throughput rate for direct control of pneumatic drives in the field	<ul style="list-style-type: none">Thinnest housing offeredHousing with removable, mechanical and color coded terminals	<ul style="list-style-type: none">Lowest profile housingIdeal for junction boxes and easy connection for pushbuttons and pilot devices	<ul style="list-style-type: none">Equipped with analog inputs and outputs that can be scaled automatically.Modules can also be connected as combined current/voltage module
Field	Field	Enclosure	Enclosure	Enclosure
4-in, 4-in/4-out	4-in/2-out	4-in, 4-in/4-out, 4-in/3-out	4-in, 4-in/4-out 4-in/2-out	4-in, 4-in/4-out, 4-in/3-out, 2-in/2-out, 4-out
N/A	N/A	N/A	N/A	2-in, 2-out
2- or 3-wire sensors (PNP), DC	2- or 3-wire sensors (PNP), DC	3-wire sensors (PNP), DC	2-wire sensors (PNP), DC	4 - 20 mA, 0 - 10 V
Electronic outputs, PNP	Pneumatic	Electronic outputs, PNP	Electronic outputs, PNP	4 - 20 mA, 0 - 10 V
M8	M12	Relay or electronic oututs, PNP	Removable spring double terminals	Removable terminal
IP68, IP69K	IP65	IP20	IP20	IP20, IP68, IP69K
<div></div>				
To find our preferred parts, go to: www.sensing.net/asi-modules				









Flat AS-Interface Cable
Comes in black or yellow in 100 m box, 500 m spool, or 1000 m spool.



Pushbuttons and Stack Lights
Pepperl+Fuchs offers a variety of commanding and signaling devices for AS-Interface applications. Pushbutton modules, stack lights, and audible alarms, along with other indication and operation products, support your AS-Interface projects.



AS-Interface

Gateways				
		Gateway with Safety Monitor and power supply	Gateway with power supply	Gateway
Highlights		<ul style="list-style-type: none">Easy safety diagnosticsGateway and safety monitor in one housingSingle or dual AS-Interface networksIntegrated decoupling availableSafe-Link	<ul style="list-style-type: none">Ethernet diagnostic portSingle or dual AS-Interface networksUpper-level networks supportedIntegrated decoupling available	<ul style="list-style-type: none">Networks separated on different power supplyRedundant power connections8 possible per network
Network Connectivity	Ethernet	VBG-ENX-K30-*-EV	VBG-ENX-K20-*-EV	VBG-ENX-K20-DMD
	PROFINET	VBG-PN-K30-*-EV	VBG-PN-K20-*-EV	VBG-PN-K20-DMD
	PROFIBUS	VBG-PB-K30-*-EV	VBG-PB-K20-*-EV	VBG-PB-K20-DMD
	DeviceNET			VBG-DN-K20-*
	Modbus ASCII/RTU			VBG-MOD-K20-D
	CC-Link			VBG-CCL-K20-D-BV
Integrated Webserver		■	■	■
Diagnostics (i.e., ControlTools)		Ground fault detection, Error counters, Duplicate address Detection, Overvoltage detection	Ground fault detection, Error counters, Duplicate address Detection, Overvoltage detection	Ground fault detection, Error counters, Duplicate address Detection, Overvoltage detection
Memory Card		■	■	■
Graphical Display		■	■	■
Standard Inputs		4 EDM or 4 Start Inputs		
Safe Inputs		6 (optional)		
Safety Outputs		2 relay, 2 PNP transistor, 6 (optional)		
Approvals				
CAT 4/SIL 3 PLe Approved		■		
To find our preferred parts, go to: www.sensing.net/asi-gateways				




Scanners		
		Scanner
Highlights		<ul style="list-style-type: none">Single or dual AS-Interface networks solutionsAvailable for those who prefer a direct connection via the PLC backplane
PLC Connectivity	MicroLogix 1500	VBM-MLX/CPLX
	CompactLogix	
	SLC5/03/04/05	SST-ASI-SLC
	ControlLogix	VBM-CLX-DM
Diagnostics (i.e., ControlTools)		Error counters, Overvoltage detection
Approvals		
To find our preferred parts, go to: www.sensing.net/asi-scanners		





Power Supplies
Pepperl+Fuchs offers a variety of power supplies: 30 V with data decoupling and 30 V, 24 V without data decoupling. Power supplies are integral to any AS-Interface network. Every AS-Interface network segment requires a power supply. Power supplies are needed on an AS-Interface network to decouple the power and data transferred on the same cable.




Network Extension		
	Repeaters	Terminator
Highlights	<ul style="list-style-type: none">Field mount or enclosure mount housingsBuilt-in terminator extends the first segment up to 200 m, 300 m total	<ul style="list-style-type: none">Extends linear network up to 200 m without repeaterLow-voltage diagnostic LEDsTwo impedance options for different network topologies
Length of First Segment	100 m, up to 200 m	200 m
Length of Second Segment	100 m	
Protection Rating	IP20, IP67	IP68/IP69K
Communication Monitoring	■	
AS-Interface Connection	Flat cable piercing or terminals	Flat cable piercing
To find our preferred parts, go to: www.sensing.net/asi-repeaters		

AS-Interface – Safety at Work

Safety Monitors	
	8-Channel
Highlights	<ul style="list-style-type: none">Stand-alone solution, can be part of safety networkIdeal with third-party gateways
Input Type	"4 safe inputs or 8 standard inputs "
Output Type	8 standard outputs
Interface type	Micro USB
Safe-Link	
Protection Class	IP20
Approvals	 , CAT4, SIL3, Ple
To find our preferred parts, go to: www.sensing.net/asi-monitors	

Safety I/O Modules			
	Flat (G12)	Flat (G10)	Field (G4)
Highlights	<ul style="list-style-type: none">■ One-piece housing with stainless steel base■ Installation without tools■ Metal threaded inserts	<ul style="list-style-type: none">■ Ultra compact size allows it to fit in tight places■ Easy direct connection with built-in cable	<ul style="list-style-type: none">■ User-friendly installation allows custom cable lengths to terminal base■ Flat or round cable connectivity
Mounting Location	Field	Field	Field
Digital I/O	2-safe inputs, 2 standard outputs	2-safe inputs, 2 standard outputs	2-safe inputs
Input Type	2-wire safety dry contacts	2-wire safety dry contacts	3-wire, PNP
Output Type	Electronic outputs, PNP	Electronic outputs, PNP	N/A
I/O Connection	M12	M12	Cord grip
Protection Class	IP67	IP68, IP69K	IP65, IP67
Approvals	<div> , CAT4, SIL3, Ple</div>		
To find our preferred parts, go to: www.sensing.net/asi-safetyio			

Safety Switch	
	E-stop
Highlights	<ul style="list-style-type: none">Illuminated or nonilluminated
Input Type	2 safety-related inputs Reset by pulling
Output Type	N/A
Connection Type	M12
Protection Class	IP65
Approvals	 , CAT4, SIL3, Ple
To find our preferred parts, go to: www.sensing.net/asi-estops	

Safety Switch			
	Mechanical	Coded Magnetic	Enabling Switch
Highlights	<ul style="list-style-type: none">■ Steel actuator head■ Highly visible LEDs■ Power to lock/unlock options	<ul style="list-style-type: none">■ Common form factors allow drop-in replacement	<ul style="list-style-type: none">■ 3-position switch with panic button■ Rugged rubberized housing■ Lightweight
Input Type	2 safety-related inputs, 1 door-monitoring contact, 1 magnet-monitoring contact	N/A	2 safety-related inputs
Output Type	N/A	LED	N/A
Connection Type	M12	With fixed cable and M12 connector, 4-pin Read head: M8	M12
Protection Class	IP67	IP67	IP67
Approvals	<div>CEULUS</div> <div> , CAT4, SIL3, Ple</div>		
To find our preferred parts, go to: www.sensing.net/asi-switches			

Safety I/O Modules			
	Junction Box (KE1)	Enclosure (KE3)	Speed Monitor (KE4)
Highlights	<ul style="list-style-type: none">■ Lowest profile housing■ Ideal for junction boxes and easy connection for pushbuttons and pilot devices	<ul style="list-style-type: none">■ Equipped with analog inputs and outputs that can be scaled automatically■ Modules can also be connected as combined current/voltage module	<ul style="list-style-type: none">■ Slim, complete module for all safety categories■ Ideal for applications requiring one safety rotary encoder or 2 standard encoders per axis
Mounting Location	Enclosure	Enclosure	Enclosure
Digital I/O	2-safe inputs, 2 standard outputs	1 safe, redundant output and 4 standard inputs	2-safe inputs
Input Type	2-wire safety dry contacts	2- or 3-wire sensors (PNP), DC	2 sine/cosine inputs for incremental rotary encoders
Output Type	Electronic outputs, PNP	Relay output	N/A
I/O Connection	Removable spring double terminals	Removable terminals	Removable terminals
Protection Class	IP20	IP20	IP20
Approvals	<div> , CAT4, SIL3, Ple</div>		
To find our preferred parts, go to: www.sensing.net/asi-safetyio			

RFID, Imagers, and Scanners



RFID

At the heart of our RFID technology is our IDENTControl System, a full product family that includes:

- Ethernet, DeviceNet, PROFIBUS, CC-Link, EtherCAT or serial interface
- A large selection of read/write heads
- Tags for just about any application & environment

RFID tags can be read or written at short or long distances, while in motion, in any orientation, through intervening objects, and without the need for line of sight.



Barcode Imagers

High-resolution, high-density barcode imagers are lightning fast with built-in error correction. The recorded image is evaluated by a powerful DSP or other microprocessor and the resulting information is sent to a number of communication interfaces, e.g., RS232, USB, Ethernet, etc. Codes can be read from any orientation, even if distorted or damaged.

- Handheld & fixed mount versions
- Decode speeds up to 100 symbols/s
- Reads stationary or moving barcode

Highlights:

- Handheld and stationary barcode imagers and scanners for detection of linear bar codes or 2-D codes
- High-temperature identification system for a wide range of manufacturing environments and processes with temperatures up to 932 °F (500 °C)
- Radio Frequency Identification (RFID) for sensing, reporting presence and identity, and controlling material flows on conveyor systems



Laser Barcode Scanners

Unlike an imager, laser barcode scanners read and decode the reflected signal simultaneously. The codes are not stored as a static image. Laser scanners read only linear 1-D barcodes. Unlike RFID technology, in order to scan and evaluate barcodes with a laser scanner, line of sight is necessary.



High-Temperature Identification System

Our high-temperature ID system provides a method to track items exposed to temperatures up to 500 °C. Dirt or paint does not affect readability; the contrast is optimized with integrated infrared lighting.

- Simple installation and commissioning
- No complicated adjustment
- Rugged, industrial housing
- Easy commands via Ethernet interface

	Laser Scanner	2-D Imager	High-Temp ID	RFID (HF)	RFID (UHF)
Implementation Cost	Lowest	Low	High	Low	Low
Temperature	500 °F	500 °F	932 °F	428 °F	482 °F
Working Range	24" (600 mm)	12" (300 mm)	18" (450 mm)	6" (150 mm)	200" (5000 mm)
Data Capacity	20 bytes	1.5 kbytes	6 bytes	8 kbytes	8 kbytes
Encryption	No	Yes	No	Yes	Yes
Media Cost	1¢	1¢	\$50	\$1 – \$100	10 ¢ – \$13
Read/Write Media	No	No	No	Yes	Yes
Reads/s	10/s	60/s	1/s	50/s	50/s
Passing Speed	6 ft/s	65 ft/s	1 ft/s	20 ft/s	100 ft/s

To find our preferred parts, go to: www.pepperl-fuchs.us/rfid

Developments in RFID technology continue to yield larger memory capacities, wider reading range, and faster processing; and certainly RFID is gaining popularity with other traditional ID technologies (e.g., barcode). Each technology

has advantages that are best suited to the application at hand. We can look at the relative importance and costs of several factors in choosing among the technologies.

RFID



Highlights:

- High-performance RFID components – from small tags to intelligent control interfaces
- Compatible with all control platforms – worldwide
- Safe and transparent processes – customizable at any time
- Global service – for your satisfaction

IDENTControl

Read Heads and Tags

Pepperl+Fuchs read heads and tags are divided into three series. Each series has specific advantages. Series Q should be considered first because of the speed and low tag price.

Series P should be considered next because of the embeddable tags and large read head selection. Series U should be considered anytime long range or RFID labels are required.



Series Q, 13.56 MHz High Frequency (HF)

- Standard support for ISO 15693, ISO 14443A tags
- High read/write speeds allow fast 20 ft/s conveyors
- Two read heads operating simultaneously can be as close as 80 mm without interference
- Low read/write tag prices, peel-and-stick RFID tag options
- 2000 byte FRAM tags allow unlimited read and write access
- High temperature read/write tag option to 240 °C



Series P, 125 kHz Low Frequency (LF)

- The widest selection of heads available with 9 models to choose from
- Tags embeddable in metal up to 30 mm diameter
- Smaller spacers allow good read range even when tags are mounted on metal
- 500-mm-long read head, great for use in material handling systems



Series U, 900 MHz Ultra High Frequency (UHF)



- Read range up to 6 m
- Reads up to 200 tags at the same time
- Low-cost, high-temperature tags for industrial environments

IDENTControl

IDENTControl is a full product family that includes (1) IDENTControl interfaces, (2) a large selection of read/write heads, and (3) tags for just about any application and environment.

Interfaces









Every read head available from Pepperl+Fuchs connects to these controllers. One-, two-, and four-head interface options are available along with many network connectivity options. See the list of features below to help choose the right interface model. All interfaces are programmed the same, regardless of the number of heads or interface housing style.

		
	1- and 2-Head	4-Head
Read Heads Supported	1 or 2	4
Configuration Options	Rotary switches	Graphical display and keypad
Ethernet	IC-KP2-*HB17-2V1D	IC-KP-B17-A1DA1
EtherNet/IP	■	■
PROFINET	■	■
Modbus/TCP	■	■
TCP/IP, SMTP, HTTP	■	■
EtherCAT	■	
PROFIBUS	IC-KP2-*HB6*	IC-KP-B6-SUBD
DPV0	■	■
DeviceNet		IC-KP-B7-V95
Polled		■
Serial	IC-KP2-*HRX-2V1	IC-KP-R2-V1
ASCII	■	■
CC-Link	IC-KP2-2HB18-2V1	
V1.1, V2.0	■	
Housing Material	Zinc	Zinc
Mounting Options	Screw mount, DIN rail with accessory	Screw or DIN rail mount
Protection Class	IP67	IP67
To find our preferred parts, go to: www.pepperl-fuchs.us/rfid		

Read Heads

For best performance, the read head choice should be similar in size to the tag chosen. Very little extra range is gained by using a very large head and a small tag. An 18 mm head and

20 mm tag is an excellent choice but an 80 mm square flat pack reader and a 12 mm diameter tag is a bad choice.

								
	18 mm	30 mm	Conveyor Reader	Cube Style	Flat Pack	Large Plate Reader	F190	F192
Housing Material	PBT, SS	PBT, SS	ABS	PA-GF35, zinc	PBT, AL	PBT, SS	PBT/AL	PBT, AL
IDENTControl	■	■	■	■	■	■	■	■
13.56 MHz (HF)	IQH1-18GM-V1		IQHI-F61-V1		IQH1-FP-V1	IQH1-F15-V1		
125 KHz (LF)	IPH-18GM-V1	IPH-30GM-V1	IPH-F61-V1	IPH-L2-V1	IPH-FP-V1	IPH-F15-V1		
900 MHz (UHF)							IUH-F190*	IUH-F192*
To find our preferred parts, go to: www.pepperl-fuchs.us/rfid								

Tags




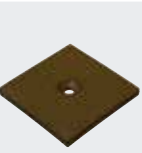



Surface Mount

These tags are designed to mount on any nonmetallic material. They can also be mounted on metal if a spacer with an appropriate thickness is used. All tags have a read-only fixed code that can be used for unique identification.

Most also have read/write memory and those sizes are listed in the tables below. All read ranges below are maximum values achieved with the largest read head possible.

						
Tag Style	12 mm	16 mm	20 mm	22 mm	26 mm	27 mm
Read Range	18 mm	40 mm	60 mm	75 mm	60 mm	95 mm
Temperature	266 °F (130 °C)	302 °F (150 °C)	185 °F (85 °C)	248 °F (120 °C)	320 °F (160 °C)	302 °F (150 °C)
R/W Memory (Bits)		1 k, 16 k	1 k	0.25 k, 2 k		8 k
13.56 MHz (HF)		IQC21-16*	IQC33-20*	IQC*-22*-T9*		IQC24-27*
125 kHz (LF)	IPC02-12*	IPC02-16*	IPC02-20*		IPC02-26*	
To find our preferred parts, go to: www.pepperl-fuchs.us/rfid						








IDENTControl

							
Tag Style	30 mm	50 mm	50 mm (2 Holes)	50 mm Square	Access Card	Label	Hanger
Read Range	105 mm	150 mm	F190: 2 m F192: 5 m	150 mm	160 mm	F190: 2080 mm F192: 5200 mm	F190: 2080 mm F192: 5200 mm
Temperature	212 °F (100 °C)	194 °F (90 °C)	212 °F (100 °C)	464 °F (240 °C)	158 °F (70 °C)	203 °F (95 °C)	428 °F(220 °C) for 30 min
R/W Memory (Bits)	1 k, 16 k, 64k	1 k, 16 k	0.5 k	1 k, 8 k	0.25 k, 1 k, 2 k, 8 k	0.5 k	0.5 k
13.56 MHz (HF)	IQC*-30*	IQC*-50		IQC*-50F	IQC*-C1		
125 kHz (LF)	IPC*-30	IPC*-50*			IPC*-C1		
900 MHz (UHF)			IUC76-50*			IUC77-25L*	IUC76-C8*
To find our preferred parts, go to: www.pepperl-fuchs.us/rfid							

Surface Mount on Metal

These tags for mounting on metal surfaces including steel, and aluminum. All tags have a read-only fixed code that can be used for unique identification. Most also have read/write



memory and those sizes are listed in the tables below.

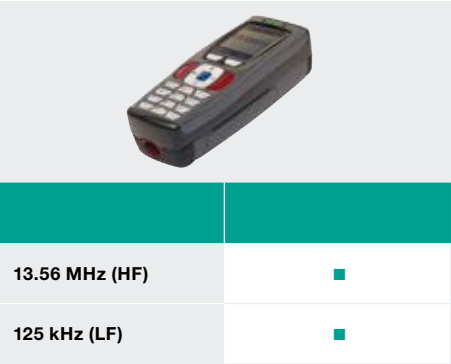
							
Tag Style	Conveyor	58 mm	F125	F203	F151	F152	F157
Read Range	56 mm	95 mm	48 mm	F190: 720 mm F192: 1800 mm	F190: 720 mm F192: 1800 mm	F190: 720 mm F192: 1800 mm	F190: 2080 mm F192: 5200 mm
Temperature	185 °F (85 °C)	248 °F (120 °C)	122 °F (50 °C)	185 °F (85 °C)	185 °F (85 °C)	185 °F (85 °C)	482 °F (250 °C)
R/W Memory (Bits)	1 k, 2 k	1 k	1 k	0.5 k	0.5 k	0.5 k	0.5 k
13.56 MHz (HF)	IQC*CT	IQC21-58	IQC21-F125				
125 kHz (LF)	IPC03-20CT	IPC03-58					
900 MHz (UHF)				IUC76-F203*	IUC77-F151*	IUC76-F152*	IUC76-F157*
To find our preferred parts, go to: www.pepperl-fuchs.us/rfid							

Embeddable

These tags can be flush mounted in any material but were specifically designed to mount in metal. All tags have a read-only fixed code that can be used for unique identification.

Most also have read/write memory and those sizes are listed in the tables below.

							
Tag Style	8 mm	10 mm	12 mm	15 mm	16 mm	24 mm	39 mm
Read Range	7 mm	9 mm	12 mm	15 mm	15 mm	24 mm	45 mm
Temperature	185 °F (85 °C)	185 °F (85 °C)	185 °F (85 °C)	185 °F (85 °C)	185 °F (85 °C)	185 °F (85 °C)	302 °F (150 °C)
R/W Memory (Bits)	1 k	1k, 16 k	1 k	8 k	1 k	1 k	1 k
13.56 MHz (HF)	IQC21-8	IQC*-10	IQC21-12.4	IQC24-15*			IQC21-39
125 kHz (LF)			IQC03-12.4		IPC03-16GK	IQPC03-24	
To find our preferred parts, go to: www.pepperl-fuchs.us/rfid							



Handheld Programmers

Handhelds are perfect as an accessory to an existing system or as a stand-alone tool to read and write tags.

Features include:

- Backlit display and key pad
- Standard software included, customizable using JavaScript SDK
- Bluetooth wireless up to 300 ft range








13.56 MHz (HF)	■
125 kHz (LF)	■

Barcode Solutions





Connector Box for Barcode Readers

The CBX can be used with any VB14N reader. It facilitates easy wiring of I/O, power, and upper-level bus systems to the reader. Up to 32 scanners can be connected using the ID-Net protocol.

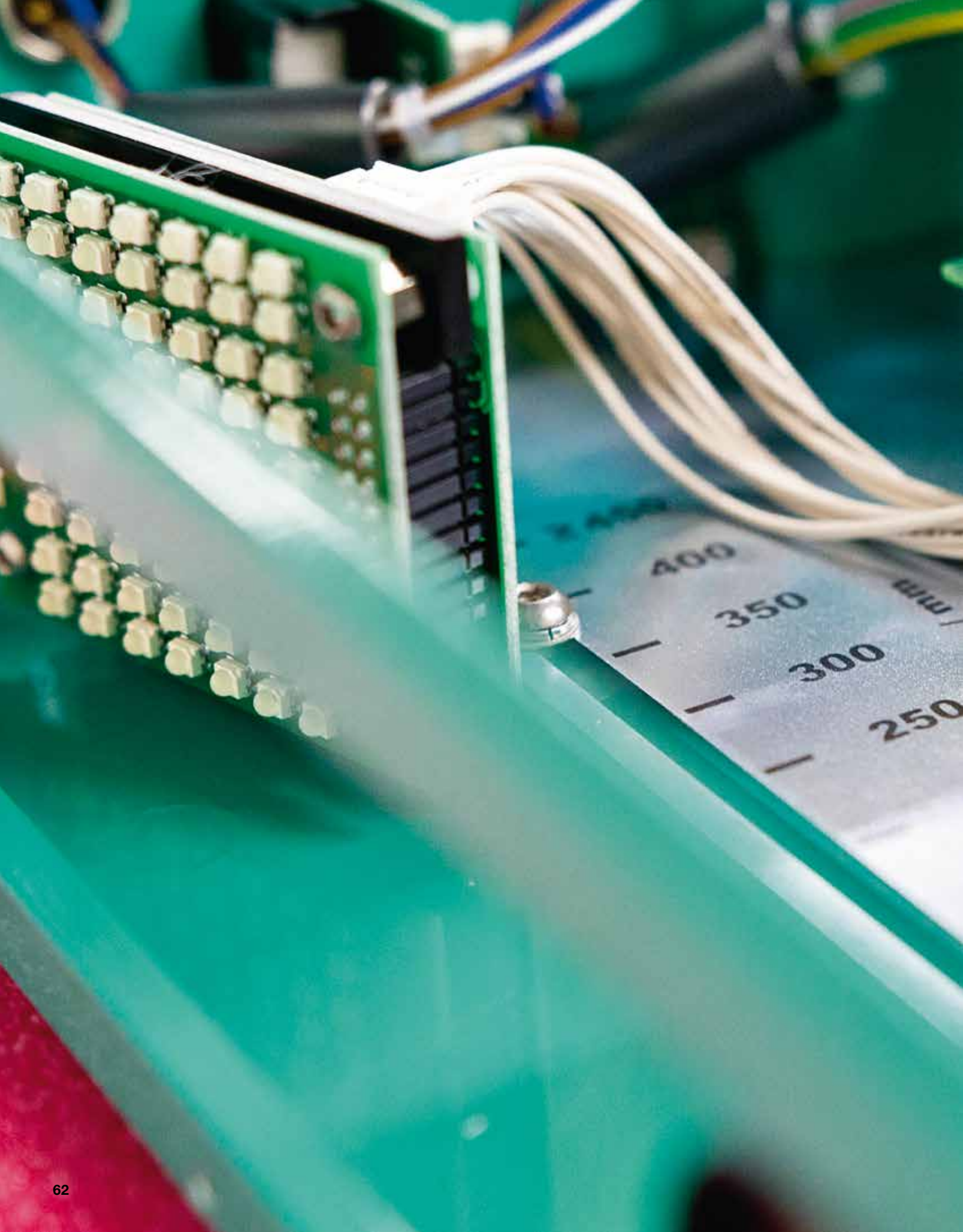
Barcode Imagers						
	OPC120P	OPC120W	OHV1000	MAC335	OHV100	OHV200
Highlights	<ul style="list-style-type: none">■ Polarization filter for highly reflective surfaces■ Rotary encoder input to read long barcodes■ Code quality index output■ Logo comparison■ PROFINET	<ul style="list-style-type: none">■ Rotary encoder input to read long barcodes■ Code quality index output■ Logo comparison■ RS232 or Ethernet TCP/IP	<ul style="list-style-type: none">■ Reads peened and laser etched DPM codes■ Dual optics can read both DPM and large 1-D barcodes	<ul style="list-style-type: none">■ All common 1-D and 2-D codes■ 3 readings/s■ Omnidirectional reading■ JavaScript programmable■ 20 mm to 300 mm read distance depending on code type	<ul style="list-style-type: none">■ All common 1-D and 2-D codes■ Durable housing and secured cable ensure drop-shock survivability■ Low-priced, wired-only version	<ul style="list-style-type: none">■ All common 1-D and 2-D codes■ 3 readings/s, omnidirectional■ Wireless Bluetooth or USB interface
	Fixed mount imagers	Fixed mount imagers	Handheld	Fixed mount imagers	Handheld imagers	Handheld imagers
 1-D Barcode Symbolologies*	Code 39, Code 128, Int 2 of 5, EAN13, Pharmacode	Code 39, Code 128, Int 2 of 5, EAN13, Pharmacode	Codabar, Code 39, 128, Int. 2 of 5, Matrix 2 of 5, Micro QR, MSI Plessey, Pharmacode, NEC 2 of 5, Postal Symbolologies (4CB, Postnet, Planet, Australian, Royal, Japan, KIX, Intelligent Mail), UCC RSS, UPC/EAN/JAN			
 2-D Barcode Symbolologies*	Data Matrix	Data Matrix	Aztec, Codablock F, Composite, Data Matrix (ECC200), GoCode, Maxicode, Micro PDF417, MSI Plessey, PDF417, QR Code, RSS Stacked			
Field Size	65 mm x 105 mm	65 mm x 100 mm	200 mm	200 mm x 160 mm	200 mm	200 mm
Decoding Speed	100 symbols/s	30 symbols/s	3 symbols/s	3 symbols/s	3 symbols/s	3 symbols/s
Maximum Symbol Speed w/trigger	10 m/s	6 m/s		Stationary reads only		

To find our preferred parts, go to: www.pepperl-fuchs.us/barcode

* We are continually expanding solutions. Please consult the factory for symbolologies not listed.

Laser Barcode Readers		
	VB14N-300	VB14N-600
Highlights	<ul style="list-style-type: none">■ Medium-range scanning■ Code reconstruction■ Optional oscillating mirror	<ul style="list-style-type: none">■ Long-range scanning■ Code reconstruction■ Optional oscillating mirror
Reading Range	50 – 300 mm	200 – 600 mm
Scan Rate	500 – 800 s ⁻¹	0 – 1000 s ⁻¹
Raster (-R versions)	18 mm @ 300 mm	24 mm @ 500 mm
Symbolologies	2/5 family, Code 39, Code 93, Code 128, EAN/UPC, Codabar, EAN 128, Pharmacode	Code 2/5, Code 39, Code 93, Code 128, EAN/UPC, EAN 128, Codabar, Pharmacode, ISBN128

To find our preferred parts, go to: www.pepperl-fuchs.us/barcode



OIT Series High-Temperature Imagers



Pepperl+Fuchs offers robust industrial ID systems for a range of manufacturing environments and processes that are designed to be suitable for temperatures up to 500 °C and high mechanical loads. The code carriers use no memory chips, paper, or plastic tags. They consist of a metal plate with a matrix of drilled holes encoded with the tag information (up to 999,999 different 6-digit codes). OITControl, software for the OIT reader, provides a clearly arranged user interface for convenient OIT operation. Using an XML configuration file, OITControl adapts to your plant requirements.



Specifications:

Reading Range	200 – 450 mm
Interface	RJ45 connector for Ethernet TCP/IP network connection. Connection to EtherNet/IP, Modbus/TCP, or PROFINET is available optionally.
Dimensions	260 mm x 170 mm x 90 mm
Lighting	Internal or external for extended range models
Viewport	Field-replaceable, scratch-resistant, high-temperature mineral glass

Industrial Vision Sensors



Highlights:

Pepperl+Fuchs has a long history in the field of vision sensor technologies. Simple sensors for rack fine positioning to complex sheet verification sensors are just some of the many products available. VMT, part of Pepperl+Fuchs, also deals with complex automotive vision systems. Complete system packages include applications for 2-D and 3-D robot visual guidance, inspection of electronic assemblies, loading and unloading systems, and "best-fit" online robot position control.



Sheet Verification Sensor

Pepperl+Fuchs BIS510P sensor is designed for the specific task of verifying the page order of printed media. Pages of a book are put together using a collating or gathering machine. This is a surprisingly labor-intensive process because each section of the book is manually loaded into the machine. It would be easy for the operator to mix up sections, flip sections over, or accidentally forget to remove the blank section divider page from the stack.

- Automatic Teach-in of reference image
- Can be completely run without network connection
- Direct connection of trigger sensor for sheet detection
- Encoder input for automatic trigger locating
- Ethernet communication for fast image and data communication
- Free configuration software



Rack Fine Positioning Sensor for ASRS

Unlike traditional retroreflective solutions requiring reflectors mounted in precise locations, the PHA Series vision sensor detects reference points directly. The elimination of reflectors and mounting accessories saves time and money in installation, adjustment, and maintenance. Multiple items located on one shelf are no problem for the PHA Series. Vision sensors use drilled holes in the shelf crossbar as the reference coordinates.

- Detects the position of an index hole
- Large capture range
- Large detection range
- Integrated contrast compensation
- Compact design
- Integrated illumination




Industrial Vision Sensors

BIS510P Vision Sensor

Image and code matching in one vision sensor
The BIS510P vision sensor verifies the correctness of sheets in collating, folding, and binding machines. It combines the benefits of vision systems and sensors. It is an independent vision sensor that contains a high-resolution camera and a control interface. There is no need for a separate control system, so the sensor is smaller and less expensive, making mechanical integration easier.

It monitors the sheet sequence on the basis of the print image. The first sheet is automatically "taught-in" and then compared with subsequent sheets. The sensor can implement sheet verification at maximum speeds of up to 4 m/s and 10 sheets/s and is well equipped to cope with future post-print machines.

- Image and code matching in one sensor reduces installation requirements
- Reads barcodes vertically and horizontally, data matrix codes omnidirectionally
- Optimal illumination ensures reliable detection even on reflective surfaces
- High reading speed up to 4 m/s with a maximum of 10 sheets/s

	
	BIS510P
Field of View	65 mm x 40 mm
Operating Distance	55 mm
Tolerance Area	> ±10 mm (X,Y) > ±5 mm (Z) 5° torsion
Surface Curvature	Radius > 100 mm
Sheet Speed	< 4 m/s
Response Time	< 100 ms
Resolution	0.1 mm/pixel
Code Symbolologies	2/5 interleaved, Code39, EAN128, EAN13, Data Matrix (optional)
Sensor Type	752 x 480 monochrome
Illumination	Flashing white light LEDs
Electrical Connectors	8-pin, M12x1, standard (supply+IO) 5-pin, M12x1, standard (IO) 4-pin, M12x1, standard (LAN)
Protection Class	IP65, dust resistant
Ambient Temperature	-0 °C to 45 °C
Storage Temperature	-20 °C to 60 °C

To find our preferred parts, go to: www.pepperl-fuchs.us/vision

Image comparison



Barcode reading

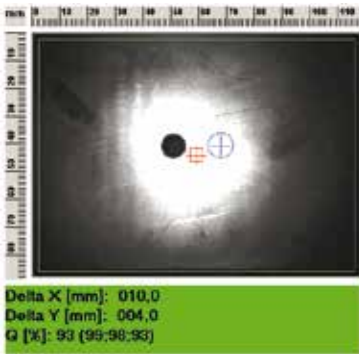


Data Matrix reading



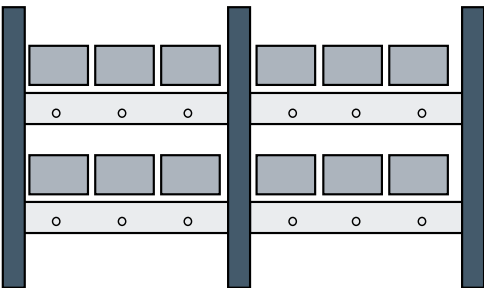
Rack Fine Positioning System

The PHA rack fine positioning system has been developed for the precision positioning of high-bay racking equipment. It detects circular holes in the racking structure and their position deviation from the nominal position. The sensor operates in two dimensions and outputs deviation from nominal in the horizontal and vertical directions with sub-mm resolution. An automatic light exposure regulator is integrated in the sensor to compensate for the different reflection characteristics of the racking profiles. The nominal position



Out of the box, the PHA Series is calibrated to work in your ASRS without further calibration. However, if you need to make changes, there is an easy-to-use, Windows®-based user interface for customizing calibration, applications, and visualization. Windows® is a registered trademark of Microsoft Corporation.

lies in the center of the capture area as the unit is calibrated and shipped from the factory. No additional calibration is required if the unit is mounted at faceplate working distance. The position is output via an RS232 or Ethernet interface, which may be connected directly to a PLC. The values are output with polarity annotation to denote right or left of centerline. In addition to the serial Ethernet output, the sensor provides the four digital outputs -X, +X, -Y, and +Y. A square tolerance range is specified around the nominal position.



If multiple items are located on one shelf, it is not possible to use the edge of the shelf as the reference for the home position. To solve this problem, the FFPL vision sensors use drilled holes in the shelf crossbar as the reference coordinates.

	
	PHA*-F200
Object Distance	150 mm to 300 mm
Object Size	Hole diameter 10 – 15 mm (10 – 15% of the capture range)
Illuminaton	Integrated IR
Capture Range Max	0 mm x 120 mm
Operating Display	LED green: Ready for operation
Function Display	4 x LED red: +X, -X, +Y, -Y
Interface Type	RS232 and Ethernet
Weight	350 g

To find our preferred parts, go to: www.pepperl-fuchs.us/vision

PosiTrack

WCS/PCV/PGV

Absolute Positioning Systems



Highlights:

PosiTrack absolute linear encoder systems use optic technology to provide fraction-of-a-millimeter position feedback in a diverse group of applications.

An Alternative to Rotary Encoders

WCS/PCV systems scan specially coded track or tape to determine the carrier mechanism's position. Because the scanning is optic-based and contact-free, mechanical wear and errors due to misalignment are eliminated.

WCS/PCV systems emulate 512 turn, 1024 pulse per revolution encoders and communicate via industry standard control protocols such as RS485, SSI, DeviceNet, PROFIBUS DP, EtherNet/IP, and parallel (binary or Gray code).

System Options – WCS and PCV

WCS uses a thru-beam infrared LED array to scan a uniquely coded reference rail. It provides +/- 0.4 mm accuracy over travel distances to 1,030 feet.

PCV scans a custom data matrix-marked tape using 2-D camera technology. Continuous position feedback to distances of 6 miles is possible, with accuracy to +/- 0.1 mm. Both systems feature read speeds up to 41 ft/s and an ultra-quick response time of 1 ms.

The PGV automated guided vehicle positioning system detects different colored route-tracking tape/paint and Data Matrix codes to provide navigation and absolute position feedback with ±0.1 mm resolution.



WCS2B and WCS3B Read Heads

WCS2B read heads feature a 10 mm slot width. The close proximity of emitter and receiver LEDs yields a high excess gain, making the WCS2B the best choice for very dirty environments such as galvanizing facilities, foundries, and steel mills. The WCS3B read head features a 31 mm slot width. Thus, in stand-alone mounting, its read head/rail alignment is more forgiving than the WCS2B. WCS3B systems are ideal for monitoring overhead or floor-based conveyors, automated warehouse equipment, and lift/lower stations.



Control Interfaces

If the WCS read head's integral RS485, SSI, EtherNet/IP, PROFINET, or CANopen outputs don't suit your interface needs, there are several additional options. Control interfaces are available that convert the RS485 signals to most standard network protocols including DeviceNet, PROFIBUS DP, and Modbus RTU. In addition, RS485-to-parallel converters and SSI controllers that enable extra-long, noise-free cable runs are also available.



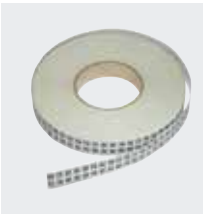
Code Rail

WCS code rail is available in fiber laminate or stainless steel and provides a unique positional code every 0.8 mm of read head travel. General-purpose environments best suit the fiber-laminate material, while those requiring increased mechanical rigidity or corrosion immunity utilize the stainless type. All rail types can be horizontally curved with no effect on the read head's accuracy.



PCV Read Head

The PCV read head uses a noncontact 2-D camera and LEDs to read and decode position and identification codes on self-adhesive code tape. Unlike laser beams, the camera can read along small curve radii as well as inclines and declines. Maximum travel speeds of 12.5 m/s are possible. It's available in SSI, PROFINET, CANopen, EtherNet/IP and RS-485 protocols.



PCV Positioning Tape

The PCV system replaces the code rail with a positioning tape that is a chemically resistant, self-adhesive strip with data matrix codes. It's available in lengths up to 6 miles and in versions with 1 - 8 rows of data matrix codes for reliable vertical and horizontal position feedback. Up to 70% of the codes can be damaged or obscured without loss of readability. Temporary replacement code strips are easily generated from any printer using an on-line program.




PGV System

The PGV automated guided vehicle positioning system is the only product offering a combination of navigation, identification, and absolute position feedback in one device. It uses a 2-D camera to scan both routing tape strips and data matrix codes to provide navigation and absolute position feedback with ±0.1 mm resolution. The X and Y position, speed, and vehicle turn angle, together with the operating status are accurately controlled at all times.

WCS

Absolute Positioning System

Read Heads		
Description	WCS2B	WCS3B
RS485 (62.5 kBaud)	WCS2B-LS221	WCS3B-LS221
RS485 (187.5 kBaud)	WCS2B-LS211	WCS3B-LS211
RS485 Direct (19.2 kBaud)	WCS2B-LS246	WCS3B-LS246
SSI Direct – Binary	WCS2B-LS310	WCS3B-LS310
SSI Direct – Gray Code	WCS2B-LS311	WCS3B-LS311
EtherNet/IP	–	WCS3B-LS510
PROFINET	–	WCS3B-LS610
With Heating Element	Add suffix "H" to any model number	
With Overspeed Output	Add suffix "S" to any model number	
With Display	Not available	Add suffix "D" to any model number
To find our preferred parts, go to: www.pepperl-fuchs.us/positrack		

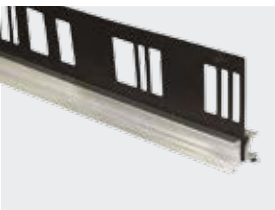
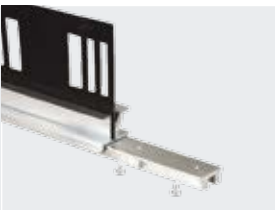



Network and Control Interfaces

					
WCS-DG210	WCS-PNG210	WCS-EIG310	WCS-PG210E	WCS-IS310	WCS-IP110
DeviceNet	PROFINET	EtherNet/IP	PROFIBUS DP	SSI – binary	Parallel – binary
Use read head model: WCS_B-LS221					
To find our preferred parts, go to: www.pepperl-fuchs.us/positrack					


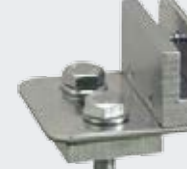
WCS2B Track System Mounting

						
WCS2-GT09-P1	WCS2-PS1-8FT	WCS2-MH2-UNI	WCS2-MC1	WCS2-LB1	WCS-MF1	WCS2-FT1
WCS2B guide trolley	Track for guide trolley	Unistrut track mounting brackets	Track interconnect plates	Locking bracket	Compression tubing	Code rail installation tool

WCS3B Track System Mounting

				
WCS3-PS1-8FT	WCS3-MC1	WCS3-MH	WCS-MF1	WCS3-FT1
Code rail support track	Track interconnect plate	Track mounting brackets	Compression tubing	Code rail installation tool

Angle Bracket Systems


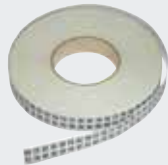

						
WCS-MB1	WCS-MB2	WCS-MB2-UNI	WCS-SP2	WCS-MB1-B	WCS-MB2-B	WCS-MB2-B-UNI
Straight Code Rail Installations			Curved Code Rail Installations			
Angle bracket, thru-hole with mounting screws included	Angle bracket, w/nut for securing code rail to "C-track"	Angle bracket, w/nut for securing code rail to Unistrut	Grooved support track for curved laminate code rail sections	Angle bracket, thru-hole with mounting screws included	Angle bracket, w/nut for securing code rail to "C-track"	Angle bracket, w/nut for securing code rail to Unistrut

Code Rail

			
WCS2-CS55-L1	WCS3-CS70-L1	WCS2-CS55-M1	WCS3-CS70-M1
Fiber Laminate		Stainless Steel	
The best choice for most applications, fiber-laminate code rails offer low cost, easy handling, and excellent durability.		The best choice for environmentally challenging installations, stainless steel code rails offer immunity to liquids, steam/high temperatures, excellent corrosion resistance, high rigidity, and tensile strength.	

PCV

Absolute Positioning System







					
Read Head			Code Tape	Serial Interface Adapters	
Model	RS485	PCV80-F200-R4-V19 PCV100-F200-R4-V19	PCV**M-CA20-0 ** =Tape length (meters)	RS485	PCV-USB-RS485-Converter
	SSI	PCV80-F200-SSI-V19 PCV100-F200-SSI-V19		SSI	PCV-KBL-V19-STR-USB
	PROFINET	PCV100-F200-B17-V1D		EtherNet/IP	
	CANopen	PCV100-F200-B16-V15		PROFINET	
	EtherNet/IP	PCV100-F200-B25-V1D-6011			
Highlights	<ul style="list-style-type: none">■ 12.5 m/s (41 ft/s) maximum speed■ 80 mm scan distance +/- 15 mm 100 mm scan distance +/- 20 mm■ 1 ms response time■ 3 PNP switching outputs■ Pushbutton or software configurable		<ul style="list-style-type: none">■ Data matrix code tape■ 10 m, 20 m, 50 m, and 100 m reels available from stock■ Self-adhesive, for fast installation■ Suitable for -40 °C to +150 °C ambient conditions■ Chemically resistant polyester laminate■ Narrow, 25 mm width (custom widths available)■ Replacement sections can be generated from a standard home/office printer	<ul style="list-style-type: none">■ PCV-to-PC interface for serial parameter modifications■ Power supply included■ Plugs into USB port■ Allows easy interface with PCV Vision Configurator Software	
	To find our preferred parts, go to: www.pepperl-fuchs.us/positrack				



Overhead cranes rely on WCS/PCV for "X" and "Y" positional tracking as well as prevention of skewing.



WCS/PCV provides continuous positional feedback of the car body throughout the assembly process.

						
Cordsets and Connectivity					Mounting Hardware	
Model	V19-G-**M-PUR-ABG ** = Length (meters)	V1SD-G-2M-PUR-ABG-V1SD-G	V19-G-ABG-PG9-FE	WCS-DCS	PCV-AB	PCV-FP
Highlights	<ul style="list-style-type: none">■ Molded M12 female cordset (8-pin)■ 2-, 5-, and 20-meter models available from stock■ For connection to PCV80 and PCV100 reader heads■ Polyurethane jacket■ Braided shield	<ul style="list-style-type: none">■ Molded M12 Ethernet bus cordset■ PUR jacket■ Shielded■ 4-pin CAT 5e	<ul style="list-style-type: none">■ 8-pin, M12 female connector■ Attach your own preferred cable■ Contains grounding clamp■ Accepts cable diameters from 5 mm to 8 mm	<ul style="list-style-type: none">■ 6-conductor data cable■ 26 AWG■ (5.8 mm O.D.)■ Must be ordered in foot increments■ PVC jacket■ Requires field-attachable connector	<ul style="list-style-type: none">■ Right-angle bracket for PCV80 read heads■ Vertical and pivotal adjustment slots■ Stainless steel■ M6 mounting screws included (2)	<ul style="list-style-type: none">■ Flat, surface-mount bracket for PCV80 read heads■ Secures PCV80 reader to any flat surface■ Stainless steel■ M6 mounting screws included (4)
To find our preferred parts, go to: www.pepperl-fuchs.us/positrack						








WCS/PCV provides precise, contact-free position and speed feedback in elevators and lifts.



WCS/PCV linear feedback ensures material handling system transfer cars allocate their pallets to the correct conveyor.

PGV

Position Guided Vision






						
Read Head			Color Tape	Position Code Tape	Code Control Tape	Vision Configurator Software
Model	RS485	PGV100-F200A-R4-V19	PGV33M-CB19-**	PGV*-CA25**	PGV-CC25**	
	CANopen	PGV100-F200A-B16-V15				
	PROFIBUS	PGV100-F200A-B6-V15B				
Highlights <ul style="list-style-type: none">■ Noncontact lane tracking of a color strip■ Noncontact position feedback using Data Matrix tape■ Data Matrix control codes initiate starts and stops■ Excellent extraneous light immunity, >100,000 lux■ CMOS camera technology■ No wearing parts			<ul style="list-style-type: none">■ Available in blue, green, red, yellow■ 19 mm x 33 mm■ -5 °C to 70 °C■ Environmental resistance: UV radiation, humidity ** = Tape color	<ul style="list-style-type: none">■ Lengths up to 100 m■ -4 °C to 150 °C operating temp.■ Polyester laminate 150 µm thick■ Environmental resistance: UV radiation, humidity, salt spray * = Tape length ** = Starting position	<ul style="list-style-type: none">■ 1 m length■ -4 °C to 150 °C operating temp.■ Polyester laminate 150 µm thick■ Environmental resistance: UV radiation, humidity, salt spray ** = Control code number	<ul style="list-style-type: none">■ Configuration software for PGV read head■ Downloadable from Pepperl+Fuchs website
To find our preferred parts, go to: www.pepperl-fuchs.us/positrack						

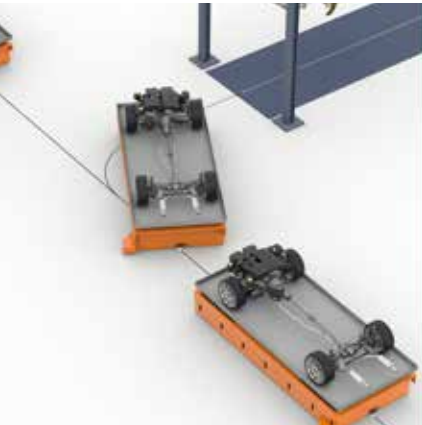


AGV movement is controlled by scanning tapes and painted strips.



Seamless scanning of damaged strips.

					
Serial Interface Adapters		Cordsets & Connectivity			
Model	PCV-USB-RS485 - Conversion set PCV-KBL-V19-STR-RS485	V19-G-**M-PUR-ABG ** = Length (meters)	V15-G-2M-PUR-CAN-V15-G CANopen	V15B-G-2M-PUR-ABG-V15B-G PROFIBUS	V19-G-ABG-PG9
Highlights <ul style="list-style-type: none">■ PGV-to-PC interface for serial parameter modifications■ Power supply included■ Plugs into USB port■ Use with Vision Configurator Software		<ul style="list-style-type: none">■ Molded M12 female cordset (8-pin)■ 2-, 5-, and 20-meter models available from stock■ For connection to PCV80 and PCV100 reader heads■ Polyurethane jacket■ Braided shield	<ul style="list-style-type: none">■ Molded M12 CANopen bus cordset■ PUR jacket■ 5-pin, 2 m■ Immune to vibration, with mechanical latching	<ul style="list-style-type: none">■ Molded M12 PROFIBUS bus cable■ PUR jacket■ 2-pin, shield attached to coupling nut■ Data transmission up to 12 MBit/s	<ul style="list-style-type: none">■ 8-pin, M12 female connector■ Attach your own preferred cable■ Contains grounding clamp■ Accepts cable diameters from 5 mm to 8 mm
To find our preferred parts, go to: www.pepperl-fuchs.us/positrack					



Turn angle feedback. Provides smooth navigation.



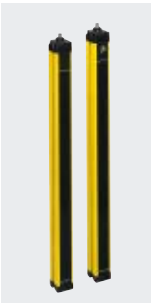
Data matrix control codes initiate decisions at work stations and "Y" branches.

Machine Safety Sensors and Controls



Highlights:

- **Light curtains and grids** – can be used as area guards, perimeter guards, and machine (point of operation) guards.
- **SafeBox system** – enables the connection of all components of a protection system to a single control unit.
- **Single-beam photoelectric safety sensors** – are available in a rugged, compact housing to fit in most applications.
- **Ergonomic safety palm button and two hand controls** – guarantee operator exclusive machine actuation when connected according to NFPA and ANSI standards.
- **Safety bump edges** – protect closing edges and pinch points.



SLC14/SLC30 Light Curtains – Finger and Hand Detection

These self-contained systems feature cost-effective, point-of-operation safeguarding. Integral redundant and monitored electronic OSSDs easily connect to existing machine safety controls, or use the SafeBox Controller to provide muting functions and integration with other machine safety devices.

SLC-2, -3, -4 Beam Light Grids

Entry/exit safeguarding is easily accomplished with SLC light grids. Classified Type 4 according to IEC 61496-1 and -2, they are suitable for performance level (PLe) applications per ISO 13849-1. They can be used as a self-contained 2-piece system, or with the SafeBox Controller for applications requiring muting or integration with other safety devices.



SLP Series – 3-Piece Safety Light Grids

SLP Series Safety Light Grids are perfect for applications requiring a cost-effective three-piece solution for long-range or perimeter detection. Versions include a very cost-effective system of an integrated transmitter/receiver lightbar partnered with a passive mirror, to 2-, 3-, or 4-beam configurations. SLP Safety Light Grids are used together with the SafeBox Controller to form a Type 4 (according to IEC 61496-1, -2), suitable for performance level (PLe) applications per ISO 13849-1.



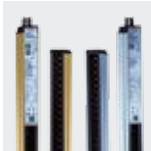
SLA Series – Single-Beam Safety Sensors

Versions with compact, die-cast housings can fit into tight spaces. Other long-range versions can easily be used to safeguard along conveyors and around larger machinery. Used with the SafeBox Controller, all are approved to Type 4 (according to IEC 61496-1, -2) and suitable for performance level (PLe) applications per ISO 13849-1.



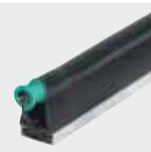
SafeBox – Modular Safety Controller

The SafeBox Modular Safety Controller enables all components of a machine protection system to connect to a single control unit. With its modular design, it configures easily to fit a wide variety of applications. SafeBox is great for integration of photoelectric safety sensors, mechanical safety systems, and safety switches to meet the requirements of performance level (PLe) applications per ISO 13849-1. It also can provide emergency stop functions for connected e-stop sensors and switches, and a range of muting capabilities for SLC, SLP, or SLA light barriers. The system meets the requirements of both IEC 61496-1 and EN 61508 (SIL3).



SLCS/SLCT Safety Light Curtains



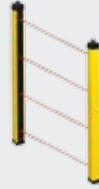
Available in Type 4 or Type 2 versions (per IEC 61496), the SLCS and SLCT Series safety light curtains feature completely integrated control electronics and solid-state OSSDs – no separate control module is needed. With a maximum range of 8 m, SLCS and SLCT safety light curtains are available in 14, 30, 60, and 90 mm resolutions.



PSE4 Series – Safety Bump Edges

PSE4 incorporates a thru-beam photoelectric sensor on either end of a pressure-sensitive rubber strip mounted in an aluminium profile that is connected to a safety controller. The system monitors deformation of the rubber profile, such as when an object presses against the strip, to safely monitor pinch points or closing edges on doors or machines. The system is classified Type 4 (according to IEC 61496-1, -2) and suitable for performance level (PLe) applications per ISO 13849-1.

Machine Safety Sensors and Controls

			
Highlights	<ul style="list-style-type: none">■ Ultrathin profile (only 20 x 30 mm) for unsurpassed mounting flexibility■ 14 mm (finger detection), 30 mm (hand detection), 60 mm, or 90 mm resolutions■ Innovative mounting accessories■ Selectable startup/reset interlock, beam coding, external relay monitor	<ul style="list-style-type: none">■ 14 mm resolution for finger detection or 30 mm resolution for hand detection in point-of-operation safeguarding applications■ Lightbar diagnostics for prefault indication, status/fault codes■ Selectable startup/reset interlock■ Beam coding prevents crosstalk	<ul style="list-style-type: none">■ 2-, 3-, 4-beams for body detection in entry and perimeter access applications■ Lightbar diagnostics for prefault indication, status/fault codes■ Selectable startup/reset interlock■ Beam coding prevents crosstalk
Operating Range	SLCT: 0.2 – 8 m, SLCS: 0.4 – 8 m	SLC14: 0.2 – 5 m, SLC30: 0.2 – 15 m	0.2 – 20 m
Protected Height	14 mm: 100 – 1200 mm 30 mm: 100 – 2400 mm 60, 90 mm: 300 – 2400 mm	150 – 1800 mm	500, 800, 900 mm
Approvals and Certifications	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE
Safety Type according to IEC 61496	SLCT: Type 2, SLCS: Type 4	Type 4	Type 4
Emitter Element	Modulated infrared LED	Modulated infrared LED (880 nm)	Modulated infrared LED (880 nm)
Aperture Angle	± 2.5°, per IEC61496	± 2.5°, per IEC61496	± 2.5°, per IEC61496
Enclosure Protection Class	IP65	IP67	IP67
Enclosure Type	SLCT: Aluminum extrusion, silver anodized SLCS: Aluminum extrusion, gold anodized	Aluminum extrusion, RAL1021 (yellow) coated	Aluminum extrusion, RAL1021 (yellow) coated
Optical Face	Clear polycarbonate	Plastic; optional protective glass available	Plastic; optional protective glass available
Outputs	2 independent 24 VDC PNP semiconductor monitored channels	2 independent 24 VDC PNP monitored channels, 500 mA; 1 PNP each for start monitor and OSSD status, 100 mA	2 independent 24 VDC PNP monitored channels, 500 mA; 1 PNP each for start monitor and OSSD status, 100 mA
Connection Type	Standard micro connectors, Receiver: 8-pole, Transmitter: 4-pole	Standard micro connectors, Receiver: 8-pole, Transmitter: 4-pole	Standard micro connectors, Receiver: 8-pole, Transmitter: 4-pole
Optional Features	Quick-release clamp bracket Top-to-top mounting bracket	Cascade (master/slave) Relay monitor (EDM) Muting (via SafeBox controller)	Relay monitor (EDM) muting (via SafeBox controller)

To find our preferred parts, go to: www.pepperl-fuchs.us/machinesafety



SafeBox Safety Controller

The SafeBox Safety controller's DIN rail-mounted housing is available in sizes that accommodate two to eight modules, providing application flexibility for a total of up to 32 safety input devices or channels.

SafeBox module types include:

- OR: Relay OSSD module
- 4CP, 4XP: CPU modules with four inputs
- 4C, 4X, 6C: 4- or 6-channel input modules
- 4M: Muting module
- 2E: E-stop module
- Blank covers for spare slots

			
SLP Series Light Grids	SLA12 Series Sensors	SLA29 Series Sensors	PSE4 Safety Bump Edges
<ul style="list-style-type: none">■ 2-, 3-, 4-beams for body detection in entry and perimeter access applications■ Long range (to 65 m) for workcell perimeters & along conveyors■ Uses SafeBox controller to form a complete safety system	<ul style="list-style-type: none">■ Rugged die-cast metal housing■ Compact size fits in tight spaces■ Alignment aids and “signal reserve” indication on receiver■ Rotatable connector or fixed cable for mounting flexibility■ Uses SafeBox controller to form a complete safety system	<ul style="list-style-type: none">■ Long range (65 m) for workcell perimeters & along conveyors■ Visible red light for simple installation and alignment■ Alignment aid and “signal reserve” indication on receiver■ Uses SafeBox controller to form a complete safety system	<ul style="list-style-type: none">■ Fully encapsulated sensors guard against liquid and dust ingress■ Ideal for mounting along door or gate edges■ Suitable for finger protection
0.2 – 65 m	0.2 – 10 m	0.2 – 65 m	n/a
500, 800, 900 mm			up to 10 m
TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE
Type 4 (with SafeBox controller)	Type 4 (with SafeBox controller)	Type 4 (with SafeBox controller)	Type 4
Modulated visible red LED (665 nm)	Modulated visible red LED (660 nm)	Modulated visible red LED (660 nm)	Modulated infrared LED
± 2.5°, per IEC61496	± 2.5°, per IEC61496	± 2.5°, per IEC61496	
IP65	IP67	IP67	IP68
Aluminum extrusion, RAL1021 (yellow) coated	Frame: zinc, pressure die-cast Sides: plastic	ABS plastic, RLA1021 (yellow)	Strip: rubber Profile: aluminium
Plastic; optional protective glass available	Plastic	Plastic	
2 normally-open force-guided contacts, 10 mA to 6 A load current (via SafeBox controller)	2 normally-open force-guided contacts, 10 mA to 6 A load current (via SafeBox controller)	2 normally-open force-guided contacts, 10 mA to 6 A load current (via SafeBox controller)	2 normally-open force-guided contacts to 6 A load current
Internal wiring chamber/terminal strip	Micro connector, rotatable by 90°, or 2.5 cm fixed cable	Micro connector or terminal compartment	Terminal strip
Startup/restart interlock Diagnostic display muting (all via SafeBox controller)	Startup/restart interlock Diagnostic display muting (all via SafeBox controller)	Startup/restart interlock Diagnostic display muting (all via SafeBox controller)	

To find our preferred parts, go to: www.pepperl-fuchs.us/machinesafety

With its modular flexibility, SafeBox can be configured for a range of applications, including:

Muting controller for SLA single beams	SB4-OR-4CP-4M
Muting controller for SLC safety light curtains	SB4-OR-4XP-4M
4-channel safety controller	SB4-OR-4CP
4-channel safety controller with two e-stop inputs	SB4-OR-4CP-2E
8-channel safety controller	SB4-OR-4CP-4C

Typical Applications:

- Point-of-operation safeguarding on load/unload stations for assembly machines, metalforming equipment, and automotive body welding fixtures
- Perimeter and access safeguarding for robotic assembly workcells
- Access protection around conveyors and material handling equipment

Cordsets



Micro DC Cordsets (M12)

- PVC, PUR
- 4-, 5-, & 8-pin
- 0.34 mm² + 0.75 mm² (20 + 18 AWG)
- NPN & PNP LED versions
- Shielded cables for analog sensor interface M12 – 5-pin – 8-pin

Micro AC Cordsets (1/2"-20)

- PVC & irradiated PUR jacket styles available
- 3-, 4-, & 5-pin versions

DC Cordsets (M8)

- PVC, PUR
- 3- & 4-pin types
- Straight & right-angled versions

Cordset Accessories

- Receptacles – M8, M12, 1/2", 7/8"
- Field attachables – M8, M12
- Splitter adapters – M12

Sensor Junction Blocks

- 4- and 8-port
- M8 and M12 connections
- Consolidates sensor wiring

Mini Cordsets (7/8"-16)

- Compatible with AC & DC sensors
- Yellow PVC cable jackets
- 3-, 4-, & 5-pin versions

Special Cordsets (M12)

- High-temperature POC cable
- Ideal for sensor connection in welding applications



Field-Attachable Connectors

Available as terminal and insulation displacement connectors, these provide the fastest method to add a connector to a cable. No special tools are required. Insulation displacement and terminal connection style connectors can terminate a wide range of wire gauges, providing an efficient, tight, and reliable connection.



Junction Blocks

Multiport junction blocks are available in 4-, 6-, or 8-port models and greatly reduce installation times by consolidating all your field wiring into one compact block. They can be ordered in a variety of cable lengths and quick disconnects to suit your application requirements. LED indicators for power and status and an IP67 protection rating are standard on all models.



Receptacles

A wide variety of receptacles is available for virtually every application. Male and female versions with M8, M12, 1/2" and 7/8" connections in 3-, 4-, and 5-pin designs are offered to solve your installation requirements. The machined aluminum housings provide an IP67 protection rating.



M12 and M8 DC Cordsets

A comprehensive range of M12 and M8 DC cordsets is available in a variety of cable types, including PVC, PUR, and irradiated PUR. Standard lengths range from two to ten meters, and many custom lengths are available.



Welding/High-Temperature Environments

These special cable-jacket material cordsets are ideal for applications where the cordset is exposed to high-temperature weld slag.



Communication Cables

Communication cables for PROFIBUS and Ethernet connectors complement our line of absolute encoders offering industrial network solutions.



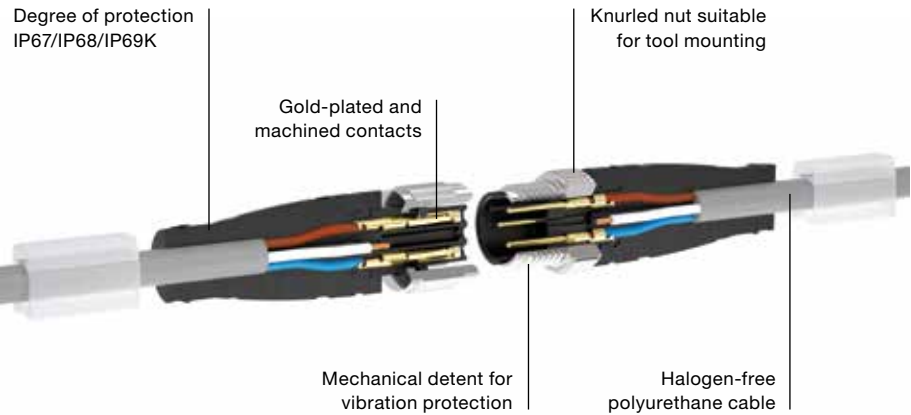
Valve Connectors

Connection cables for valve and solenoid interconnect are available for DIN Type A, B, and C connection types. We offer a complete line that includes models with LED and suppression devices.

The New Generation – Connectors with Impressive Properties

Optimized size and design for a secure grip and connection in the tightest of spaces

- Gold-plated, machined contacts ensure low connection resistance
- Halogen-free PUR cable prevents toxic vapors being released in the event of a fire
- The knurled nut allows the connectors to be securely tightened
- Integrated vibration protection



Cordsets

Basic Cable Connectors Nomenclature

Our standard line of cables and cordsets includes cables that connect to various types of sensors and receptacles. These connection interface styles include industry-standard Micro DC M12 style, DC M8 style, Micro AC 1/2" style, as well as

the Mini AC 7/8" connector types. See below our standard nomenclature prefix coding for the various types of possible connection devices. Standard lengths include 2, 5, and 10 meter, as well as many other nonstandard lengths.




Cable/Connections	M12	M8	1/2" connector	7/8" connector
2-wire	V1-G-N			
3-wire	V11	V3	V12	V93
4-wire	V1, V1-G-N4	V31	V124	V94
5-wire	V15		V125	V95
8-wire	V19			

For male connector ends, an "S" is added after the connector code. V1 = female connector end, V1S = male connector end.

M8 and M12 Style Cables and Cordsets – Colors

Cable	Black	Yellow	Grey	Orange	Blue
PVC	■	■	■		■
PUR	■		■		■
POC				■	
PUR-H/S (irradiated PUR)		■ (½" Micro AC only)			




M8 Cables and Connectors

			
	Single-End Sensor Cables	Dual-End Extension Cables	Snap Lock – Female Cables
Type	M8	M8	M8
Series	V3, V31	V3, V31	V3-GR, V31-GR
Conductors	3, 4	3, 4	3, 4
Cable Type	PVC, PUR, POC	PVC, PUR, POC	PUR
LED Indication	3-pin & 4-pin	3-pin & 4-pin	
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset			

M12 Cables and Connectors




Cables are available in many types and styles for connecting proximity sensors to machine control automation systems. Single-end cables are available for direct wiring to the interface

device or as extension cables for connection to multiport interface devices such as I/O junction blocks. Our cables are available for the most demanding environments.

			
	Single-End Sensor Cables	Dual-End Extension Cables	NAMUR Single-End Cables
Type	M12	M12	M12
Series	V11, V1, V15, V17, V19	V11, V1, V15, V17, V19	V1-G-N, V1-G-N4
Conductors	3, 4, 5, 7, 8	3, 4, 5, 8	2, 4,
Cable Type	PVC, PUR, POC	PVC, PUR, POC	PUR
Shielded Models	V15-... ABG, V19-...ABG	V15-... ABG, V19-...ABG	
LED Indications	3-pin & 4-pin	3-pin & 4-pin	
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset			

Available with stainless steel coupling nuts.





Micro & Mini AC





			
	Single-End Sensor Cables	Dual-End Extension Cables	Single-End Sensor Cables
Series	1/2" Micro AC	1/2" Micro AC	7/8" Mini AC
Models	V12, V124, V125	V12, V124, V125	V93, V94, V95
Conductors	3, 4, 5	3, 4, 5	3, 4, 5
Cable Type	PVC, PUR-H/S	PVC	PVC
Cable Colors	Yellow	Yellow	Yellow
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset			

Cordsets







Field Attachables

Field-attachable connectors are available for many cable styles and many mating connector applications. While many styles use a standard screw terminal connection method, a variety of models offer quick-connect insulation displacement technology, making connection easier and quicker than ever. This allows you to easily customize your cabling by creating application-specific cable lengths on site.

				
Series	M12	M12	M8	M8
Models	V1, V15, V17, V19	V1	V3, V31	V3, V31
Style	Female/Male	Female/Male	Female/Male	Female/Male
Conductors	4, 5, 8	4	3, 4	3, 4
Connection Type	Screw terminal	Insulation displacement	Screw/Solder connection	Insulation displacement
Shielded Models	Yes	No	No	No
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset				

				
Series	1/2" Micro AC	7/8" Mini AC	M18	Rd24
Models	V12	V93, V94, V95	V18	V16
Style	Female/Male	Female/Male (Internal/external threading)	Female	Female/Male
Conductors	3	3, 4, 5	4	6+PE
Connection Type	Screw terminal	Screw terminal	Screw terminal	Screw terminal
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset				


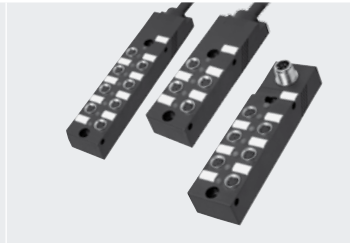
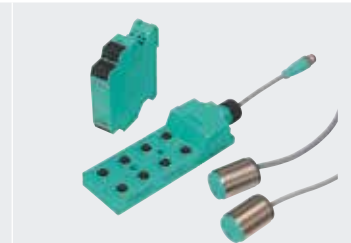
Panel Receptacles

						
Series	M12	M8	M12	1/2" Micro AC	7/8" Mini AC	M12 Micro DC
Models	V1, V15, V19	V3, V31	V1, V15, V19	V12, V124, V125	V93, V94, V95	V1, V15
Style	Female/Male	Female/Male	Female/Male	Female/Male	Female/Male	Female/Male
Pin Count	4, 5, 8	3, 4	4, 5, 8	3, 4, 5	3, 4, 5	4, 5
Mounting	Front panel	Front panel	Front/Back panel	Front panel	Front panel	Front panel
Mounting Thread	1/2" NPT	M8	M16 or PG9	1/2" NPT	1/2" NPT	1/2" NPT
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset						

Available with PG9 and M16 mounting thread.


Junction Blocks and Wireless Inductive System (WIS)

Sensor I/O junction blocks offer many advantages in consolidating the sensor wiring point connections to a central collection block. This makes cable routing for modular machine design more organized and allows convenient wiring verification and troubleshooting. Each I/O port block includes LED indication that can be used to verify sensor functionality and indicate machine operation status. The Wireless Inductive System (WIS) allows noncontact, short distance wireless coupling of power and signal for up to eight sensors. Available with both 30 mm and FP (80 x 80) signal coupler/receivers.

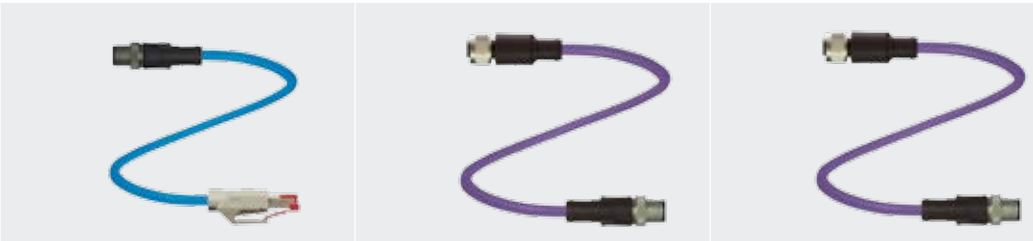
			
Series	M12	M8	Wireless Inductive System (WIS)
Ports/Inputs	4/4, 4/8, 8/8, 8/16	4/4, 6/6, 8/8	8
Connection	PUR cable, terminals, M23	PUR cable, M23, M12	Inductive coupled power/signal
Sensor Input Type	PNP	PNP	PNP
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset			

Cordsets

Splitters

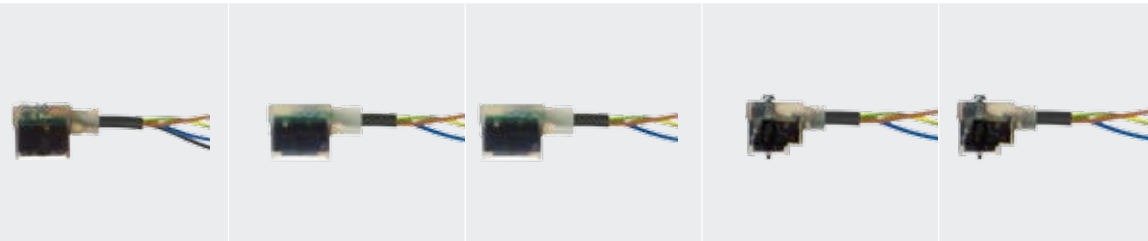
				
Series	T-Splitters	Y-Splitters	Y-Splitters	Y-Splitters
Type	V1, V15	V1	V3	V1, V3
Connectors	M12	M12	M12, M8	M12, M8
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset				

Specialty Cables

			
Series	Ethernet	PROFIBUS	DeviceNet/CANopen
Style	V1SD	V15B	V15-CAN
Types	M12 to M12	M12 to M12	M12 to M12
	M12 to RJ45		
	RJ45 to RJ45		
	Field attachables (D-Coded)	Field attachables (B-Coded)	Field attachables (A-Coded)
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset			

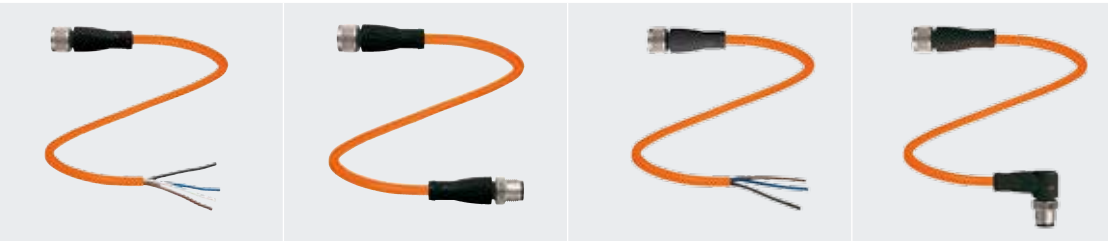
Valve Connection Cables

Pepperl+Fuchs offers a complete line of valve connection cables and field-attachable valve connectors in standard Type A, B, C, BI, and CI models. The cables come preleaded or with an integral M12 style straight or right-angled connector. The valve plug heads are also available with suppression circuits and LEDS as standard feed-through cables to meet your application requirements.

					
Series	A Type	B Type	BI Type	C Type	CI Type
Models	VMA	VMB	VMBI	VMC	VMCI
Contact Spacing	18 mm	10 mm	11 mm	8 mm	9.4 mm
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset					

Automotive

Cables for the automotive industry are exposed to grease, oil, and dirt, as well as welding areas with exposure to hot metal welding flash and slag. In these areas, we recommend our weld-immune cable products, specially created for the toughest applications.

				
Series	M12	M12 / M12	M8	M8 / M12
Models	V1	V1 female / V1 male	V3	V3 female / V11 male
Conductors	4	4	3	3
Cable Type	POC	POC	POC	POC
Cable Colors	Orange	Orange	Orange	Orange
To find our preferred parts, go to: www.pepperl-fuchs.us/cordset				

Model with LED illumination available.

Your automation, our passion.

Explosion Protection

- Intrinsically Safe Barriers
- Signal Conditioners
- Fieldbus Infrastructure
- Remote I/O Systems
- HART Interface Solutions
- Wireless Solutions
- Level Measurement
- Purge and Pressurization Systems
- Industrial Monitors and HMI Solutions
- Electrical Explosion Protection Equipment
- Solutions for Explosion Protection

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- AS-Interface
- Identification Systems
- Logic Control Units