IDEC-Datasensor Sensors

More models, more features, more solutions!

For years, customers have been using IDEC sensors for color detection, water detection and laser measurement. Now, after expanding the IDEC partnership with Datasensor, a sensor market leader in Europe, you get even more reliable, high-quality products while gaining additional solutions for all your sensing needs. Of course, this all comes with superior IDEC customer service and support. Knowledgeable IDEC Field Sales are ready to assist in the selection of products and to support your design-in process. When you need assistance we are available to provide it. To see more information, get technical support or to contact your local Field Sales Representative, visit:

www.IDEC-DS.com

Universal Photoelectric Sensors

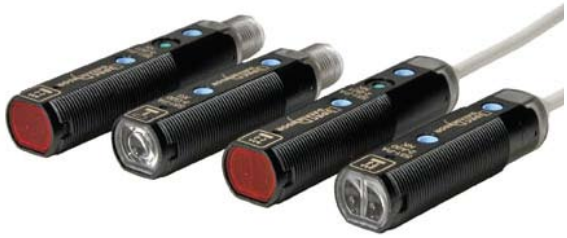
M18 Tubular

Short Body – S15 Series

- Short housing of only 40mm
- Dark/light selectable
- Cable or pig-tail versions, IP69K rating
- No sensitivity adjustments
- Ranges up to 20m
- Retro-reflective, polarized retro-reflective, diffuse & through-beam models

The S15 series is especially suitable for applications with limited space. It is available with cable output to maximize its reduced dimensions and offers great installation flexibility. IP69K mechanical protection protects against water up to 80ºC.

Cost-Effective – S51 Series



- Best performance/price ratio!
- Flat plastic or metal housing, also 90° radial versions
- Cable or quick disconnect, NPN or PNP
- Standard 3-wire connection configuration
- Dark/light selectable
- Ranges up to 20m & high-speed response time
- Through-beam, retro-reflective, polarized retro-reflective & diffuse models

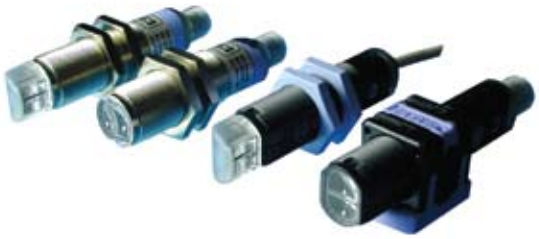
The S51 series offers a wide range of operating distances. The normally open output is activated in light mode in proximity models and in dark mode in retro-reflective models. The output mode can be inverted using the dark/light selection input wire provided, making these extremely versatile sensors.

Universal Voltage – S5 Series

- Universal voltage: 15-264V AC/10-30V DC
- NPN/PNP and dark/light selectable
- Long operating distances for all functions
- Models with sensitivity adjustment, also 90° radial version housing
- Through-beam, retro-reflective, polarized retro-reflective, retro-reflective for clear objects, diffuse, fixed focus & fiber-optic models

Varied optic functions can be selected including fixed focus or diffuse models with short, medium or long operating distances.

Microprocessor Based – S50 Series



- Flat plastic tubular housing or metal cylindrical housing
- Versions with axial or 90° radial optics, with easy teach-in adjustment or no adjustment
- Ranges up to 60m
- Through-beam, diffuse, retro-reflective, polarized retro-reflective, models for clear objects, background/foreground suppression, fixed focus, analog distance, contrast, luminescence and laser models

The EASYtouch™ pushbutton teach system provides rapid and accurate setting of switching points. It is available both in flat plastic format, ideal for M18 nut or screw mounting, as well as a cylindrical metal housing.

Heavy Duty – S10 Series

- Full metal housing, AISI-316L stainless steel versions
- IP69K mechanical protection
- High excess-gain & long operating distances
- Ranges up to 18m
- Through-beam, retro-reflective, polarized retro-reflective, retro-reflective for clear objects, diffuse & fixed focus models

The S10 series is perfect for applications in the mechanical or food industries. The IP69K rating guarantees protection against water up to 80ºC and is resistant to harsh chemicals and detergents.

Miniature

Cost Effective – SA1E Series

- High reliability & precision
- High-speed response time
- NPN or PNP output
- Dark ON or Light ON operation modes
- Ranges up to 15m
- Through-beam, polarized retro-reflective, diffuse proximity, small-beam reflective, convergent reflective & background suppression models

Ensuring the accurate recognition of target objects is critical for many control systems. Reliable object recognition means fewer false alarms, increased productivity and less product rejection. When selecting sensors for your applications, the most important criteria to consider are: reliability, durability and ruggedness. SA1E sensors incorporate all of these features in a compact housing, and are also easy-to-install and competitively priced.

Sub-miniature – SMall Series

- Subminiature housing, ideal for extremely reduced spaces
- 15mm, 20mm, 30mm & 50mm fixed focus
- 1.5m retro-reflective and 2m through-beam models
- Amplified NPN or PNP output with NO-NC double output
- Through-beam, retro-reflective, polarized retro-reflective & fixed focus models

The extremely compact dimensions and wide detection field of all SMall series models suit most automatic machinery applications for packaging, assembling, and printing as well as distribution and vending machines. All SMall models have visible red emission.

High Performance Laser – S8 Series

- High-performance in compact dimensions (14 x 42 x 25mm)
- 50µs response time, 10KHz fast
- Extremely focused Class 2 laser < 1mm
- Laser background suppression 200mm
- Polarized retro-reflective for clear objects, no blind zone
- RGB Contrast mark model
- Laser retro-reflective & polarized retro-reflective coaxial models
- Dark/light and sensitivity pots

The S8 series of compact sensors offers excellent detection performance usually associated with sensors that have larger dimensions and a higher price. The S8 is a great solution for packaging lines, food and beverage industries, automotive, test and assembling machines and electronic plants.

Microprocessor Based – S40 Series

- Miniature high-tech sensor
- Microprocessor based Teach-in & Remote setting
- Laser Class 2 models
- Cable or M8 connection, NPN or PNP
- ABS housing with IP67 protection
- Ranges up to 6m
- Through-beam, retro-reflective, polarized retro-reflective, retro-reflective, retro-reflective for clear objects, diffuse & background suppression models

In an innovative miniature housing, the S40 series offers all the standard optic functions with the advantages of microprocessor control and automatic Teach-in and Remote setting using EASYtouch™. The 0.7m version for the detection of transparent glass or PET objects and 6m through-beam models come with visible red laser emission.

Basic Functions –S41 Series

- Miniature basic line sensor
- Double NO-NC NPN or PNP output
- Models with sensitivity adjustment
- Polarized retro-reflective & emitter-receiver with narrow beam
- Ranges up to 6m
- Through-beam, polarized retro-reflective, retro-reflective for clear objects, diffuse & fixed focus models

Offering a basic line of photoelectric sensors in a miniature housing, the S41 series is ideal for applications that require reduced dimensions and cost. The through-beam model is available in a narrow beam emitter version that allows the sensors to be placed side by side without interference. The LED emission is red for the fixed focus proximity and infrared for the other models.

Compact

Universal Voltage – S6 Series

- Universal voltage 15-264V AC versions with relay output
- 10-30V DC version with transistor output
- Compact 50 x 50mm housing
- Standard cable or M12 connection
- Ranges up to 20m
- Dark/light selectable
- Through-beam, retro-reflective, polarized retro-reflective, retro-reflective for clear objects, diffuse, background & foreground suppression models

The operating distance of the S6 series can be set for each model: 2m diffuse proximity, 25 or 50cm background suppression, 5m polarized retro-reflective, 1m retro-reflective versions for transparent objects and 20m through-beam. Proximity models with 5 to 20cm foreground suppression and 12 to 110cm background suppression are available.

Full Operating Modes – S60 Series

- Sensitivity adjustment
- Independent NO-NC outputs
- M12 connection with standard NPN or PNP configuration
- Ranges up to 60m
- Rotating connector
- Through-beam, polarized retro-reflective, retro-reflective for clear objects, diffuse, background suppression, foreground suppression, analog distance, contrast, luminescence & laser models

The S60 series have a sensitivity adjustment that provides quick and precise setting of the switching threshold. These sensors also have an M12 connection that can be used straight or rotated to a right-angle position. All versions have NPN or PNP outputs and standard configurations conforming to the EN60947-5-2 standard.

High-resolution & Laser – S62 Series

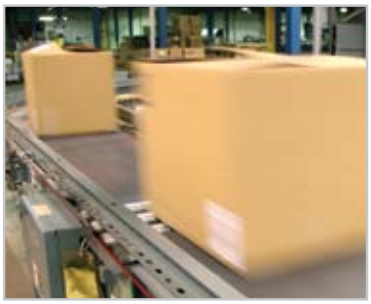
- Top performance sensor with LED or laser emission
- High-resolution background suppression models from 300mm up to 2000mm distances
- High-resolution laser background suppression in 150 and 350mm distances
- Polarized retro-reflective up to 20m laser
- NPN or PNP double output with standard NO-NC configuration
- Rotating connector

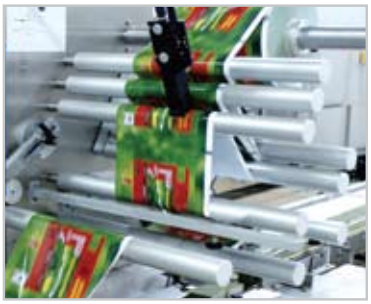
The background suppression proximity models of the S62 series can detect up to 300mm using visible red LED emission, or up to 2000mm with infrared emission. The operating distance can be adjusted using a multi-turn mechanical regulation of optical triangulation to obtain maximum immunity against color differences of the detected object or of the background, even if very reflective.

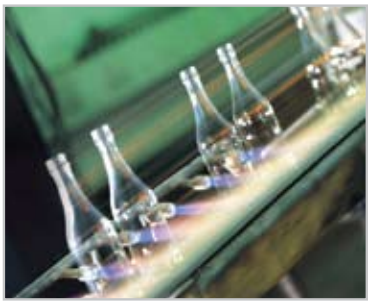
Metal Housing – S90 Series

- Sturdy metal housing in a compact 41 x 49 x 15mm format
- Complete range of universal, application & laser optic functions
- Trimmer or push-button setting with EASYtouch™ function
- NPN & PNP versions standard M12 rotating connector
- Ranges up to 60m
- Through-beam, polarized retro-reflective, retro-reflective for clear objects, diffuse, background suppression, foreground suppression, analog distance, contrast, luminescence & laser models

The S90 series offers a safety class 1 laser emission. The series includes polarized retro-reflective models with coaxial optics for the detection of reflective and transparent objects, background and foreground suppression versions, contrast sensor with white light emission for color mark detection, and an ultraviolet sensor for luminescent object detection.







Fiber Optic

High Performance – S7 Series

- 10-bit resolution models with 500µs response for long operating distances
- 12-bit resolution models with 50µs response & 4 digit display for speed
- Cost-effective models with multi-turn trimmer adjustment
- EASYtouch™ pushbutton setting with remote control, key lock & output delay
- Ultra-thin housing with CLEARLOCK™ patented fiber mounting system

With its slim 10mm body width, the S7 series is the ideal solution for precision detection of small objects and low color contrasts. This is made easier by the integral 4-digit display, that clearly indicates the received signal, selected time delay and the adjustable set point values.

Heavy Duty

Universal Voltage – SA1U Series

- Universal voltage (supports 12-240VDC & 24-240VAC)
- Ranges up to 50m
- Spring up screw terminal for easy wiring
- IP67 waterproof protection
- Time delay functions (One shot, ON, OFF delay)
- 3 amp relay contacts (NO/NC)
- Through-beam, background suppression, diffuse & polarized retro-reflective models

Long distance sensing ranges as far as 50 meters with through-beam models and as close as 1 meter with diffuse models. The SA1U series also supports 12-240V DC and 24-240V AC, a much wider range of power at a great low price compared to most competitor sensors.

Long Distance – S20 Series

- Wide versatility of optic functions & connections
- High operating distances for all functions
- Models with trimmer adjustment & stability LED
- Rugged & impermeable plastic housing
- Ranges up to 50m
- Through-beam, polarized retro-reflective, diffuse & background suppression models

With special spherical lenses that can take full advantage of the high-power LED emission, visible red in the background suppression and polarized retro-reflective versions and infrared in all the other models, performance for the S20 series is never a problem. The connection block can be left straight or adjusted at a right angle, to offer flexible mounting options.

Multi Functions – S30 Series

- Universal voltage: 17-264V AC/10-30V DC
- High excess-gain
- 50m through-beam, 12m polarized retro-reflective, 2m diffuse, 1m background suppression
- Models with active defogging system for condensation
- NPN/PNP or relay output with timing possibility
- Through-beam, polarized retro-reflective, diffuse & background suppression models

The S30 series housing, created with glass-fiber reinforced polycarbonate, guarantees maximum resistance. Versions with glass-front protection with an active defogging system are available.

Proximity Sensors

Inductive

IS-04 Series

- 3 wires NPN or PNP output
- 0.8mm shielded operating distance
- LED indicator

The IS-04 series is available in a 3-wire connection and shielded operating distance of 0.8mm. Its 4mm barrel is ideal for applications with limited space.

IS-05 Series, IS-08 Series

- 3 wires NPN or PNP output
- 0.8mm shielded operating distance
- LED indicator
- Cable or M8 connector

The IS-05 series is a 5mm barrel inductive sensor with a shielded operating distance of 0.8mm. It's available with a 3-wire connection, 2m cable or M8 connector.

- 3 wires NPN or PNP output
- 3mm operating distance
- LED indicator
- Cable, M8 or M12 connector
- Shielded or non-shielded models

The IS-08 series is available with a 3-wire connection, and is shielded (embedded) and unshielded (non-embedded) for mounting variations. Shielded versions allow flush mounting but limited detection range, while unshielded versions offer longer sending distances but cannot be flush mounted.

IS-12 Series, IS-18 Series, IS-30 Series

- 12, 18 or 30mm barrels
- 2, 3, or 4-wire configurations
- 8, 14 or 20mm operating distances
- LED indicator
- Cable, M8 or M12 connector
- Shielded or non-shielded models
- 10-30V DC & 24-230V AC/DC models

The IS-12, 18 and 30 series feature a programmable output configuration. The 2-wire sensors will work with any sinking or souring devices and you only have two wires to terminate. The 3-wire configuration is the most popular output and most familiar to users. The 4-wire design offers flexibility in a single device as it comes with both NPN or PNP and NO/NC outputs.

All inductive proximity sensors are cULus, CE certified and have an IP67 rating. They also offer the highest electrical protection against short circuits and reverse polarity.

Vision Sensors

Smart Vision

Plug-and-play – SVS1 Series

- Real embedded vision sensor
- Quick setup via VSC unit
- No PC needed
- Real time monitoring
- Single control inspection

The SVS1 setup is very quick and intuitive thanks to the VSC unit, with 3.5" color display and pushbuttons. No PC is needed for configuration. Image processing is completely carried out by the sensor itself, which is able to work in stand-alone mode after setup. The VSC unit can provide real time monitoring, but is not required during the functioning of the sensor and can be disconnected and used to setup multiple sensors.

Stand Alone – SVS2 Series

- Flexible setup via PC
- Ethernet communication
- Object recognition or identification tools
- 360° pattern matching
- Multiple control inspections

The setup of the SVS2 is carried-out on a PC using an Ethernet connection, ensuring a high level of flexibility. Object recognition, advanced object recognition (with 360° pattern matching) and identification (barcode, data matrix and OCV) models available.

Application Photoelectric Sensors

Slot/Fork

Label/mark detection – SR21 Series

- Less than 20µs response time (25kHz switching frequency)!
- Red/green and infrared emission models
- Detection of semi-transparent labels
- Detection of registration color marks
- 4-wire independent NPN & PNP output

The SR21 series, with a 2mm slot width, provides a 12-bit (4096 step) resolution, a 20µs response time and a switching frequency of 25kHz. The switching threshold can be set simply by pressing a button, and can even be done dynamically during label (or other reference) movement.

Cost Effective – SR22 Series

- Fast switching frequency up to 10kHz
- Infrared LED light emission
- Trimmer for sensitivity adjustment
- 4 wire NPN & PNP outputs
- Compact metal housing with glass lenses

The 2mm SR22 series slot sensors have been developed as a cost effective solution for label detection on reels. The infrared LED emission allows detection over even dark or thick supports, while the quick response time of only 100µs allows up to a 10kHz switching frequency for faster labeling processes.

U Shaped Laser – SRF Series

- Visible red LED emission versions
- High-resolution laser versions
- Versions with 30, 50, 80 & 120mm slots
- Sensitivity adjustment & dark/light selectors
- Sturdy metal housing with glass lenses

These particular 'U' shaped receiver and emitter units, together with the high resistance of the metal housing, make monitoring extremely simple and quick with the SRF series. These sensors can be used in many different applications including opaque label detection on transparent supports, monitoring of correct material position and dimension or object counting on conveyor belts.

Color

Full Color – S65-V Series

- Best performance for color detection!
- High chromatic sensitivity
- 3-channel color sensor with C or C+I functions & 10 tolerance levels
- White light LED emission & RGB photo receiver
- Independent NPN or PNP outputs & RS485 serial interface
- Easy setting using pushbuttons & 4-digit display

The S65-V sensor can memorize and recognize three colors on three independent channels. C (chromaticity) or C+I (chromaticity and intensity) detection algorithm and tolerance levels can be selected for each color. Additional functions include keylock and synchronization with external events through a specific input. The control panel has two push-buttons for setting the sensor, LED outputs and a 4-digit display for messages and sensor configuration.

Distance

Long Distance TOF – S80 Series

- Time-of-Flight laser sensor
- High precision & speed
- 7m measurement range in diffuse mode
- 100m measurement range in retro-reflective mode
- 4-20mA scalable analog output
- 4-digit display & RS485 serial interface

In a compact sturdy metal housing, the S80 series offers an innovative class 2 laser distance sensor with Time-of-Flight measurement. This technology, based on the measurement of the time between the emission and receipt of the laser light pulses, ensures accurate distance detection. The sensors function in positioning or detection applications, such as double-threshold background suppression over long distances.

Cost Effective TOF – S81 Series

- Cost effective Time-of-Flight Laser sensor
- 4m measurement range in diffuse mode
- Easy setting using pushbuttons
- 2 PNP or NPN digital outputs
- 0-10V analog output or alarm output

The S81 series is based on the Time-of-Flight technology that guarantees precision and fast measurement speed. It works as direct proximity up to 6m for object positioning or long distance background suppression. Two models are available, one with an analog output proportional to the result of the distance measurement, the other will send an alarm signal depending upon the operating condition of the lens.

Light Grids

Crossed Beam Detection – AS1 Series

- Area sensors with crossed beams
- 100mm height
- Operating distance 3m
- 0.2mm minimum detectable object thickness
- PNP output & Scan mode input

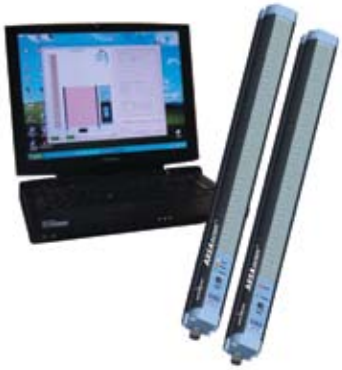
The AS1 photoelectric light grids are crossed-beam area sensors able to detect all objects, as small as a 0.2mm thickness, inside a 100mm height, over operating distances reaching 3m between emitter and receiver. They are an ideal solution for detection of very small objects. With their short response time, ultra-compact AS1 light grids are perfect for fast conveyor lines, such as insertion and downloading lines, and for detection and counting of objects in random positions.

Analog Output Barriers – DS1 Series

- Position & dimension measurement
- 5mm resolution & 1ms response time
- 100 to 300mm height
- Operating distance up to 2.1m
- PNP digital & 0-10V analog outputs

The DS1 AREAscan™ sensor is a compact multibeam light grid suitable for detection and measurement of objects with different shapes and sizes. The electronics are fully integrated and as a result, no external drivers are required. A value is supplied through the analog 0-10V output that is proportional to the number of interrupted beams.

Long Barriers with User Interface – DS2 Series



- Measurement for automated material handling
- Versions with 6 or 25mm resolution
- 150 - 2500mm controlled height
- Operating distance up to 10m
- PNP, 0-10V outputs & serial RS485

The AREAscan™ family of the DS2 series measurement configuration can be set manually thanks to internal dip-switches, or using a graphic interface from a remote PC on the serial port. Once the program has been loaded on the flash memory, the device functions in a stand-alone mode. The serial interface transmits measurements, operation status and the settings of the different baud-rate versions in binary or ASCII code. The DS2 light arrays suits different height or dimensional measurement applications in the automated material handling industries.

High Performance – DS3 Series

- 0.5mm resolution detection, high-resolution measurement
- Operating distance reaching 1.5m & up to 600mm controlled height
- Digital PNP & 0 - 10V analog outputs
- Simple configuration obtained using the internal dip-switches
- Teach-in setting with remote & self-calibration function

The AREAscan™ light grids of the DS3 series are opto-electronic multi-beam devices that can be used to detect, measure and control the position of objects, including transparent and small objects. Internal dip switches for configuration are available on all models, together with the Teach-in setting button with Remote and self-calibration function, LED indicators for the signaling of device operation and auto-diagnostic status.

Luminescence

Microprocessor Based – LDμ Series

- High-power UV LED emission
- Microprocessor based Teach-in setting
- High switching frequency at 2kHz
- Fiber optic accessories & high-resolution lenses

The LDμ luminescence sensors emit ultraviolet light and detect only visible light converted and reflected from fluorescent objects or marks, independent from the background's color and surface. A microprocessor controls and synchronizes the emission, reception and output circuits offering a completely automatic setting. The LDμ sensors can reach a 75mm operating distance and a 2kHz switching frequency, thanks to the UV high-power emission.

High Power UV Emission – LD46 Series

- UV luminescent mark detection
- High-powered UV emission for improved sensitivity
- Fast switching frequency & response time
- Easy setting with a clear bar graph indicator

The LD46 series sensors emit ultraviolet (UV) light and receive visible light reflected from luminescent surfaces. This technology allows the detection of fluorescent marks (even invisible to the human eye) on any object independent of its material, color or distance, inside the operating range. In addition, it ignores light interference or reflections from non-luminescent surfaces, like glass, mirrors or shiny metal surfaces.

Cost Effective – LD50 Series

- High sensitivity & powerful UV LED emission
- Fast switching frequency & quick response time
- Easy setting using two pushbuttons
- Sturdy plastic housing with standard dimensions & mounting holes

The LD50 series optics, together with the UV LED emission and the visible light receiving sensitivity, allow the detection of the lowest luminescence levels, such as small fluorescent markings, with the highest immunity from the surface color or reflectivity variations. Different luminescence levels on the same surface can be distinguished. LD50 sensors can be used on packaging machinery for food, cosmetic or pharmaceutical goods, for the detection of paper made luminescent targets, like labels on reflective surface or sheets placed inside transparent or semi-open boxes.

Contrast

Microprocessor Based – TLμ Series

- Teach-in, remote & auto-set models
- Red/green or white LED emission
- Various interchangeable lenses & fiber-optic versions
- Metal housing with adjustable optics & connectors

The TLμ series offers the most reliable and innovative solutions for detection of register marks and other neutral or colored references. The microprocessor-based setting can be either Teach-in using two pushbuttons or Remote (by cable) and the sensor can rapidly memorize and recall 4 different formats. The setting can also be dynamic and completely automatic in models with Auto-Set function.

RGB LED Emission – TL46 Series

- Highest performance for registration mark detection, RGB LED
- Automatic, manual & remote setting
- Up to 17μs response time (30kHz operating frequency)
- NPN/PNP, analog outputs & remote input
- Standard mounting, M12 connector rotates in 5 positions

The TL46 series is characterized in terms of resolution, definition and precision of the light spot emitted by RGB LEDs, fast response time and fast switching speed. The TL46-WL has 3 pushbuttons to set the sensor, 4 LEDs signaling the output status, sensor acquisition condition, delay output activation and pushbutton activation. A bar graph is also available for manual setting of the threshold to detect particularly difficult contrasts. It also has a 20kHz switching frequency.

Cost Effective – TL50 Series

- High-resolution & RGB LED emission with automatic color selection
- 15kHz switching frequency & 33ms response time
- Easy setting using two pushbuttons
- Sturdy plastic housing with standard dimensions & mounting holes

The TL50 series optics, RGB LED emission with automatic color selection and the very fine resolution allow the detection of very low contrast in color or grayscale between object and background, or between different objects or surfaces. Typical applications for the TL50 series include food, cosmetic or pharmaceutical packaging and the detection of print registration marks, labels or other references on plastic films or packages, even on transparent material.