



PRODUCT

HIGHLIGHTS 2004

FACTORY AUTOMATION



INDUCTIVE AND CAPACITIVE SENSORS

INTELLIGENT SENSORS ARE GREEN

Are you looking for a linear distance or angle measurement system, but you don't want to use magnets, ferrite, or customised solutions for predetermined lengths?

Pepperl+Fuchs offers you a new type of intelligent measurement system, based on well-known inductive or capacitive oscillator technology. With this intelligent measurement system, you can realise a wide range of applications, such as length, angle of rotation, distance, or lift height measurements. The object to be detected need not be a ferrous material. For the inductive series, it can be steel, and for the capacitive series it can be any material. The system offers very high precision and reproducibility, a wide operating temperature range, and very high resistance to interference or failure. The sensors can be delivered with a standard factory setting, or they can be adjusted on-site to the individual installation situation using simple technology.

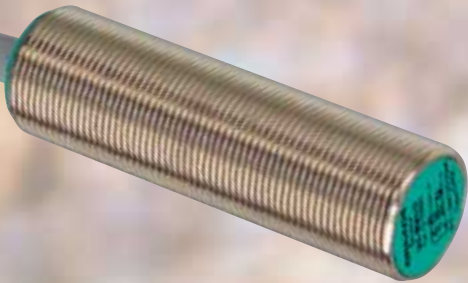
*...with intelligence
and Know-How
always the right
advantage...*

THE INTELLIGENT SENSOR

- Switch points and/or switching behavior
- Automatic configuration for installation particulars
- Rotation speed monitoring
- Wear monitoring

THE LINEAR DISTANCE MEASUREMENT SYSTEM

- Inductive or capacitive system
- Very high resolution
- Very high reproducibility
- Distance or angular measurement system
- Freely programmable measurement area





VARIKONT L- ALWAYS A GOOD SOLUTION

The new VariKont L family always has the right switch ready for you. Whether for the Ex-hazardous area, as bus-compatible AS-i version with integrated oscillator monitoring and switch-on/switch-off delay or near welding systems.

- LEDs visible from all angles
- Easy mounting

New versions:

- Weld-proof
- ATEX category 3G3D
- AS-i

MOBILE EQUIPMENT SERIES

Sensors with e1 approval which meet the particular EMC requirements for vehicles and the resulting automotive standards.

- e1 model approval
- Application in vehicles, without loss of operational approval
- Increased switching distance



FP SWITCHES – VISIBLY IMPROVED

Proved through years of hard use, the new FP switch family now has some new features which make daily use even easier and safer.

- Corner LED
- Increased switching distance
- IP68 protection class
- Versions: – weld-proof
 - ATEX category 3D3G
 - AS-i connection
 - Higher temperatures



INDUCTIVE AND CAPACITIVE SENSORS

SENSORS FOR THE DUST-EX-AREA

- Inductive and capacitive sensors
- Cylinder, slit, and rectangular type
- NAMUR sensors for category 1D and 3D
- Integrated output (direct voltage (DC), 3- or 4-wire) for category 3D
- DIN EN 61508 - safe is safe
- Up to SIL 3 acc. to DIN EN 61508
- Slot, rectangular and cylinder-type sensors
- Intrinsically safe ATEX versions for use in gas and dust-Ex area

BT 65B – ADJUSTABLE ACTUATOR

- 2 infinitely variable and independently adjustable damping rings
- Usable damped or undamped for final position
- Chemical-resistant design made of electrically conductive polyamide and high grade steel

SENSORS WITH GL APPROVAL

- Certificate available from the Germanischen Lloyd
- Well-tested cylinder types (M12, M18, M30) and rectangular designs
- Direct current 3- and 4-wire
- Environmental category "D" for closed environments with high heat and vibration requirements
- Environmental category "G" for open deck with additional salt mist influence

ULTRASONIC SENSORS

ULTRASONIC DOUBLE-SHEET DETECTION

UDC-18GM-400-3E3

The new double-sheet control detects a large selection of weights from 10 g/m² ... 2000 g/m² and even thin sheet metal or thick cartons can be evaluated reliably. Using the functional displays, visible from any angle, the detected states "no sheet", "single sheet", or "double sheet" are clearly displayed.

- Differentiation between "no sheet", "single sheet", and "double sheet"
- Visual LED adjustment aid for optimal adjustment of sensor heads
- Simple program selection for evaluation of application specific materials
- Output pulse extension of 120 ms possible

...technology on
"highest" level...

SHORT -> SHORTER -> SHORTY UB300-18GM40-E5-V1

The new "Shorty" from Pepperl+Fuchs currently offers the maximum in miniaturisation in its class. With a diameter of 18 mm and a component length of only 40 mm including evaluation electronics and output, it has plenty of room even with very narrow installation requirements.

- Function indicator visible from any angle
- Detection range 400 mm
- Only 40 mm long
- Switch, current, and voltage outputs

SMALL IN DIAMETER – BIG IN PERFORMANCE THE UB400-12GM-E5-V1

A mere 12 mm is the threaded sleeve of the tiny ultrasonic sensor. The range of 400 mm and especially the small blind range of up to 30 mm make use in miniature applications problem-free.

- Diameter 12 mm
- Overall length 70 mm
- Detection range 400 mm
- TEACH-IN of necessary switching points
- Switch, current, and voltage outputs

PHOTOELECTRIC SENSORS

OUR LITTLE ONE GROWN UP - NEW ML7 PHOTOELECTRIC DETECTOR SERIES IN A SMALL HOUSING

Complete family of miniature photoelectric detectors for limited space, high precision, and simple operation.

- Side light outlet ML7 or frontal ML71
- TEACH-IN in accordance with proposed standard IEC60947-5-2
- LED green: POWER-ON, flashing in case of a short circuit
- LED yellow: Switching status, flashing in case of shortfall of functional reserve
- LED display behind the front panel (ML7 only)
- Flexible mounting alternatives with three mounting holes and elongated hole (slot)
- Protection class 2 with rated voltage 230 V
- VISO+ device



DK12 –

NEW IMPRINT DETECTOR IN THE TRIED-AND-TESTED MLV12 HOUSING

- TEACH-IN static and dynamic in one unit
- Simple operation using rotary switches
- Automatic selection of most optimal transmission colour (red, green, blue)
- Separate relearning of background and mark possible
- 2 push-pull outputs antivalent
- VISO+ device



A SIGN OF SAFETY AND RELIABILITY

The new generation of photoelectric sensors with the particular plus in functionality. Economical in supply. Rational in maintenance. Reliable even in critical conditions.

- Especially bright, easily visible display
- LED green for POWER-ON
- Modern output stages such as push-pull or AS-i 2.1
- HF outside light interference-resistant
- Protected against mutual interaction

...precision and
versatility
to the last detail...

M18 THREADED LIGHT BARRIERS - PROGRESS THROUGH TECHNICAL HIGHLIGHTS

Expansion of VL18 series with an unusual
combination of technical features

VT18-8-H

threaded light detectors with electronically
configurable background suppression,
red LED or laser light

VL18LL

fibre optic sensor for the connection of
glass fibre light guide

- Threaded housing M18 nickel-plated
- Mechanical light/dark switch
- LED flashing green for short circuit
- Optional function reserve output
- Push-pull output
- **VISO+** device



PRECISION AND VERSATILITY, NEW SU15.1 FIBRE OPTIC SENSOR WITH NEW PLASTIC LIGHT GUIDES

The choice of light guides makes the difference. That's why we now offer you a new, extended
selection of plastic light guides.

- Very high-performance red transmission LED
- Open collector output TTL compatible
- Alarm output
- Self-diagnosis function
- Ergonomic design simplifies installation and operation

PHOTOELECTRIC SENSORS

ML29 – THE COMPACT THROUGH-BEAM PHOTOELECTRIC DETECTOR FOR PERSONNEL DETECTION

If people and objects must be detected within a sharply defined area, such as at sliding doors, sensors from Pepperl+Fuchs can do it. The new ML29 through-beam sensor is well-suited for sideways installation, for example, in door frames.

- Extremely slim housing (< 10 mm)
- Mounting with a single drill hole or with double-sided tape.
- Range of up to 8.5 m allows personnel recognition even with broad doorways.

The ML29T variant also satisfies the higher requirements of use in bus and train doors conforming to EN 50155.

SBL-8-H – FOR SMOOTH CONVEYING

Jam sections are generally constructed using roller conveyor segments. It is important that the goods being transported are not jostled. The SBL-8-H sensor is well-suited for this. Based on the black/white difference, the device works perfectly with both new containers and with containers with clear signs of wear or even outright dirt. The designs with a double-time segment particularly enable jostling to be minimised for multiple objects per segment.



RL28-55-LAS – REFLEX LIGHT BEAM SWITCH WITH 30 M!!! DETECTION RANGE

This device represents the latest expansion of the successful 28 series. Using the latest laser technology, it achieves performance levels rivalling those of through-beam sensors. The RL28-55-LAS with a 30 m detection range makes a lot of sense in situations where power supply is only available on one side.

- Polarisation filter, meaning no error switching due to reflecting objects
- Visible, red transmission light
- VISO+ device



...quality and peak performance for perfect processes...

LS610-DA – OPTICAL DATA TRANSMISSION HAS NEVER BEEN SO SECURE AND SO SIMPLE!

For any high-bay warehouse, secure communication to the warehouse operation devices is absolutely essential. Downtime in a warehouse operation device quickly leads to serious material damage. Even worse is the failure of an entire warehouse. To be on the safe side and additionally to offer a device which sets the standard for simplicity of installation, the Optical Data Coupler LS610-DA was developed.

- For Interbus
- For PROFIBUS
- With Telegram Verification Technology (TVT)
- With plug connector
- With adjustment aid
- Device never needs to be opened



ROTARY ENCODERS – NEW DESIGNS

HOLLOW SHAFT ROTARY ENCODER

With the new RH190, Pepperl+Fuchs provides a complete product line in a range of incremental hollow shaft rotary encoders. From shaft diameters of 6 mm (Series 81) to over 10 mm and 15 mm (Series RH158) up to the new Series RH190 (15 mm ... 45 mm) there is a broad spectrum of new sensors.

INCREMENTAL ROTARY ENCODER RH190 – THE VARIABLES

- Hollow shaft rotary encoder with shaft diameter of 15 mm ... 45 mm
- Compact design (only 90 mm outer diameter)
- Hollow shaft rotary encoder max. 4,096 pulses
 - output: RS 422 or push-pull
 - connector: Plug connector or cable
- Possible applications: Lift technology, drive technology, printing press manufacturers



ABSOLUTE ENCODER

PARALLEL OR SERIAL – COULD IT BE A “BIT” MORE?

The new SSI Rotary Encoder completes the extensive product line with the functionality of zero-point setting at the device by pressing a pushbutton switch. Long walks to the control unit or the need for multiple operators to configure the system are rendered unnecessary. The absolute encoder line from Pepperl+Fuchs is completed with modern parallel rotary encoders.

All absolute encoders have 16 bit/30 bit (Singleturn/Multiturn resolution), a housing diameter of 58 mm (industrial standard), a break-resistant plastic disk, and connector or cable connection.

FVX58 PARALLEL ROTARY ENCODER IN INDUSTRIAL STANDARD

- Codes: Gray, Binary
- Functional input: Preset and Latch



ABSOLUTE VALUE ROTARY ENCODER AXY58 –

THE NEW ONE

- Data transfer up to 1 Mbaud
- Interface: optically isolated RS 422 interface
- Functional input: Counter direction and zero setting
- Zero setting button



TARGET LINE TVlxx

In the sensors of the T-line, we have cost-effective design in combination with the usual Pepperl+Fuchs quality standard. For the customer, this means a device customised specially to his own requirements at a reasonable price. By the end of 2004, rotary encoders with diameters of 40 mm, 50 mm and 58 mm will complete the portfolio of this product line.

All sensors in the TVlxx product line offer a compact design (40 mm, 50 mm or 58 mm housing). They are tempting due high availability (delivery within 3 working days) and an excellent price/performance ratio.

TVI50 INCREMENTAL ROTARY ENCODER – THE COST-EFFECTIVE ONE

- Solid shaft encoders: max. 1,024 pulses
- Shaft diameter: 8 mm
- Output: Push-pull
- Connection: Cable



...take the
right "turn"
to optimal
results...

TVI40 INCREMENTAL ROTARY ENCODER – THE LITTLE ONE

- Solid shaft encoders: max. 1,024 pulses
- Shaft diameter: 6 mm/8 mm
- Output: Push-pull
- Connection: variable cable outlet
(tangential, axial, radial
in one product)



AS-INTERFACE

SENSOR SYSTEMS

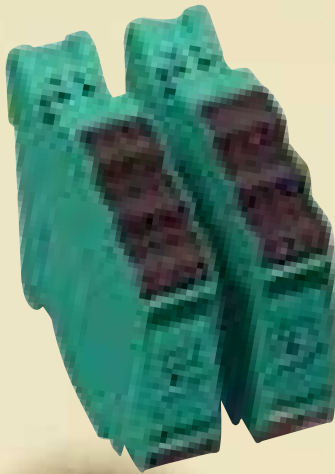


PROFIBUS GATEWAY

- Single and dual master with PROFIBUS connection in accordance with Spec. 2.1 and up to 12 MBaud transfer rate with only 75 mm width
- Duplicate address detection
- Ground fault monitoring
- Acyclic communication acc. to PROFIBUS DP V1
- Backlit, large graphical display
- Enhanced diagnostic functions for AS-Interface Safety and sporadically occurring errors
- Inset PROFIBUS plug



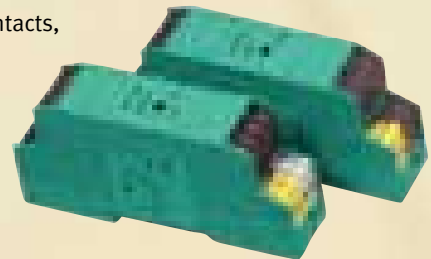
New AS-Interface Generation
62
Slaves



KE-/KE1 MODULES

These modules, with a mere 22.5 mm width, offer a lot of functionality, removable colour-coded terminals and are designed to Spec. 2.1.

- KE cabinet module with 110 mm height, suited for contacts, 2- and 3-wire sensors
- KE1 junction box module with 50 mm height, ideal for connection of contacts.



MODULE WITH 8 INPUTS

Now a module with 8 inputs is available in the G2 design, too. That saves room and the costs for a second base.



SAFETY MONITOR

This monitors the communications between safe modules and is available with 1 or 2 shutoff circuits.

The "enhanced" monitor offers:

- 6 AND/OR combinations
- S-flip-flop for a further dependency
- Restart inhibit, on-site acknowledgement, tumbler as well as shutoff based on stop categories 1 and 2



*...one team,
one system –
with safety to success...*



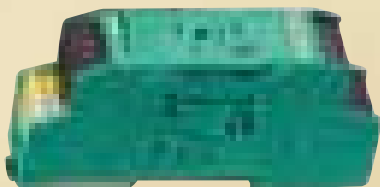
AS-INTERFACE – SAFETY AT WORK

The same AS-Interface system can also carry safety-oriented signals (up to cat. 4 acc. to EN 954-1 or SIL 3 acc. to IEC 61508). All components are TÜV-certified.



SAFE MODULE IN KE1 DESIGN

The KE1 module is ideally suited to integration in the switching cabinet/junction boxes and offers 4 safe inputs, 2 standard outputs (logical combinations of inputs/outputs possible within the module) ... with safety from Pepperl+Fuchs



Data transfer considered "safe"

IDENT CONTROL

INNOVATIVE, FLEXIBLE, PRACTICAL

SYSTEM OVERVIEW

With the **IDENT Control** System including bus connection to current field bus systems, a combination of up to 4 inductive read/write heads (125 kHz) or microwave antennae (2.45 GHz) may be connected. Alternatively, 2 antennae and 2 trigger sensors may be connected. The metal housing of the **IDENT Control** is suitable for switching cabinet (snap hooks for DIN rail) or field use (IP67) and due to integrated ground technology, offers EMC features well over standard requirements. Configuration can be performed using the 4 function keys and the LC display directly at the unit.

With the EtherNet Connection, the **IDENT Control** offers Web server functionality and in case of error can directly call a mobile telephone. All interfaces are pluggable.



INDUCTIVE READ/WRITE HEADS

Different designs in M18, M30 and rectangular designs up to 80 mm x 80 mm x 60 mm and with read distances of up to 100 mm



HANDHELDS AVAILABLE AS MOBILE SOLUTION

MICROWAVE ANTENNA

The microwave antenna (140 mm x 170 mm x 40 mm) can attain up to 4 m write or read distance with connection using 4-pin M12 connectors.



IDENT Control

NEW

STANDSTILL MONITOR

SIMPLE TO SET UP AND COST-EFFECTIVE

- 2 output relays (normally closed and normally open, for secure monitoring)
- DIN rail mounting
- Housing width 20 mm
- Removable terminals
- Connection to NAMUR or 3-wire sensors
- Second input for start-up override/rotation direction monitoring
- Diagnostic LEDs
- DIP-switch for cutoff frequency and function setting

... also, Pepperl+Fuchs offers a wide range of counters and transducers.

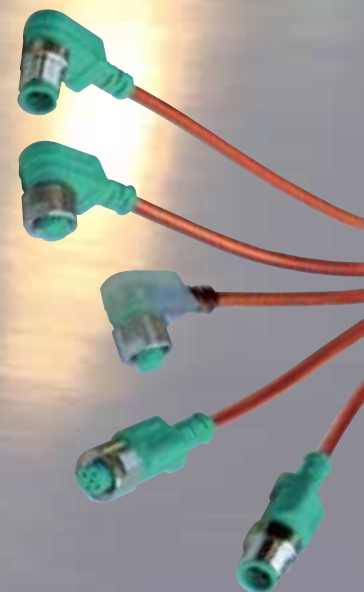


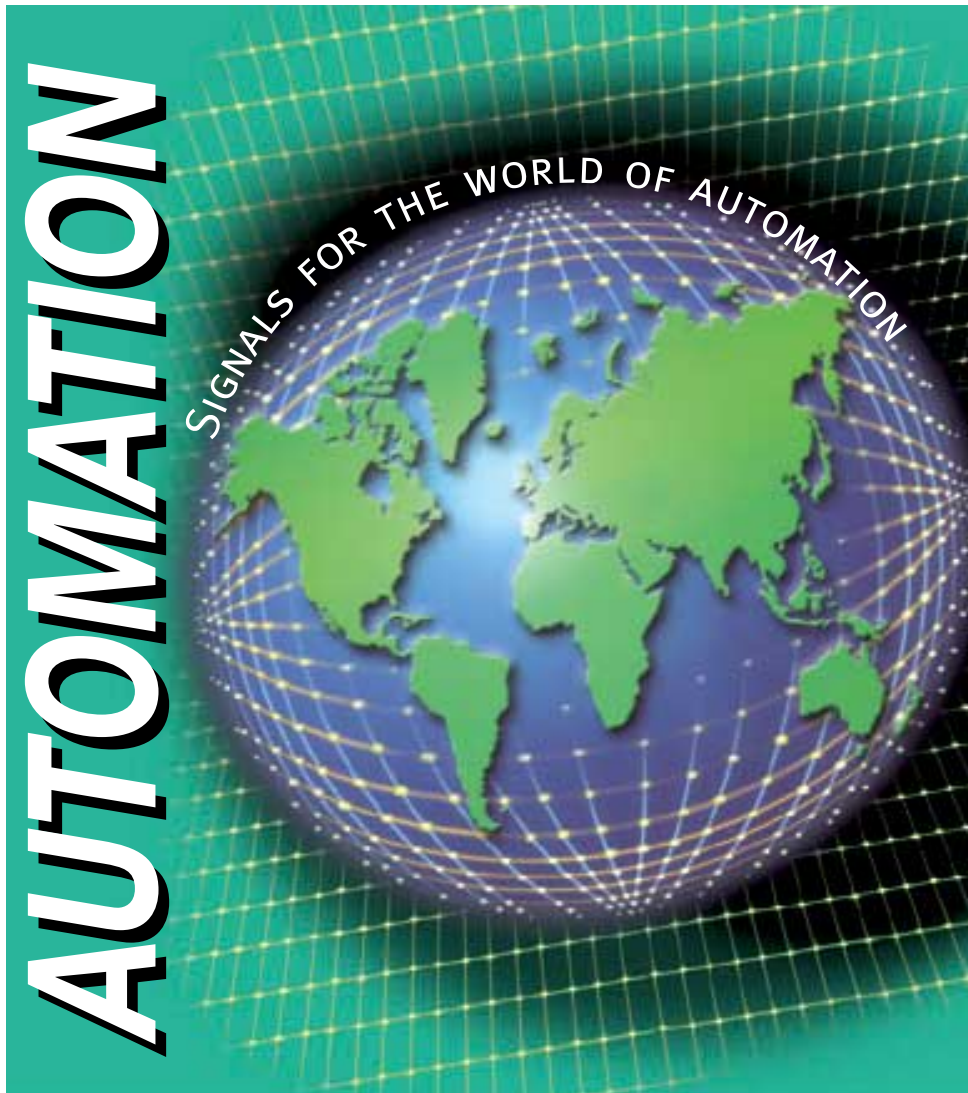
...flexible and multi-functional – really tempting...

ACCESSORIES

Complete solutions including accessories from Pepperl+Fuchs; not just sensors, but also a complete package of products for automation

- Plug connectors
- Splitter boxes
- Mounting accessories
- Sensor testers





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SIGNALS FOR THE WORLD OF AUTOMATION