Zumbach

SWISS PRIME MEASURING SINCE 1957

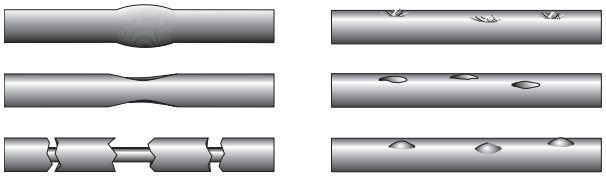
KW 13/33TRIO

Lump and Neckdown Detector Series

Lump & Neckdown Detection of the Highest Level

KW TRIO – WHENEVER HIGHEST QUALITY IS REQUIRED

For continuous quality control, lump & neckdown detectors are as important as diameter gauges and spark testers. The new line of KW TRIO detectors capture with the highest accuracy, reliability and velocity, even the smallest lumps and neck downs in wires, conductors, optical fibres, cables, tubes and hoses.
3-axis detectors provide more precise detection of short-term faults, because very often, in wire and cable products, the fault covers only a limited angle on the product circumference, e.g. small bumps or blisters.



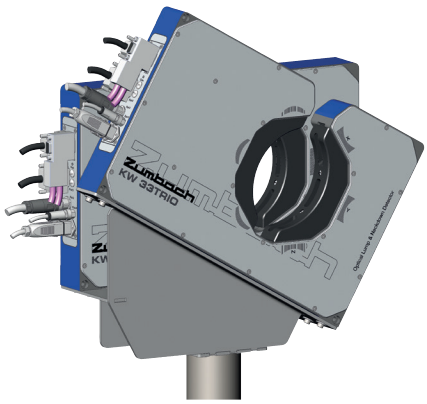
The experience of a pioneer for on-line measurement
Our lump and neckdown detectors are based on ZUMBACH's experience of almost 60 years in development and production of optical diameter measurement and fault detection solutions. In order to detect product defects quickly and reliably, ZUMBACH offers fault detectors based on the latest technologies to ensure that high quality products can be produced reliably and with the utmost efficiency.

Advantages
- 3 times higher certainty of detection as with models with less axes
- Flexible mounting concept
- Remote operation and display unit
- Micro-processor for intelligent fault analysis and classification
- Integrated air purging of the measuring windows
- Theoretically unlimited lifetime
- Detailed fault log
- Insensitive to stray light

Thanks to the very compact design, the lump & neckdown detector can easily be integrated in any extrusion line or re-winding process. The measuring field is dimensioned in such a way that during the start-up, even extremely big lumps pass smoothly through. Its open design enables quick and easy threading of the product without stopping production.

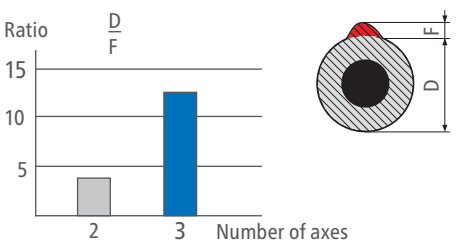
Interfaces for easy integration
Versatile use of the KW TRIO is guaranteed thanks to multiple interfaces. Via the serial RS port, connection can be made to one of the well known USYS data acquisition, processing and display systems. Profibus DP, Profinet IO and Ethernet versions allow the connection to a higher-level host, such as a PLC or data acquisition system.

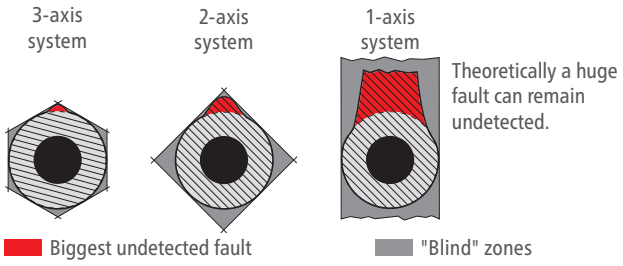
6-axis measurement for highest reliability
An ingenious mechanical design to accommodate two detectors, provides maximum coverage and detection of smallest deviations on the product circumference.



NEW CONCEPT IN OPTICS AND ELECTRONICS

A highly developed optical system generates 3 narrow light beams under 60° in the same plane. Three individual detectors simultaneously register any minor variation of the light received due to product faults. The faults are detected even if they are very short and pass by at high speeds. With the TRIO concept, the "blind" zones have been reduced drastically, in comparison with 2-axis and single axis systems. The result is a much higher detection reliability and higher sensitivity.



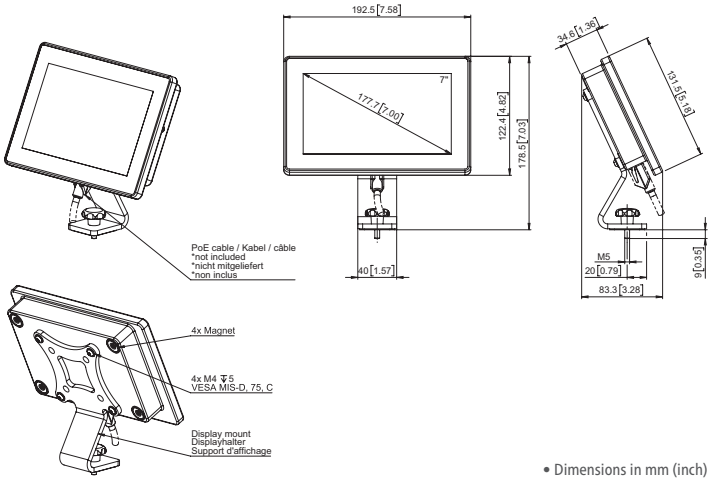


A powerful micro processor as well as full digital signal processing, make the lump & neckdown detectors essential tools for faultless quality control. A unique measuring principle and complex optics solution, ensure immunity to stray and intense light whilst providing the highest detection accuracy and identification of lumps and neckdowns in the micrometer range. An internal database allows to store the last 100 detected faults, including fault characteristics such as fault number, type, height, position and length of fault. This database can be either accessed via the local operating and display unit or via the inbuilt interfaces.

OPERATING AND DISPLAY UNIT VISU-TOUCH

The KW detectors are also available as stand alone devices.
Thanks to a local operating and display unit, these versions can be fully operated and configured at the device.

- 7" touch screen to display values and messages
- Set point and tolerance inputs with colour variation for fast indication of tolerance violations
- Inbuilt terminal for extended device configuration/interrogation
- Can be used as local display or remote networked display



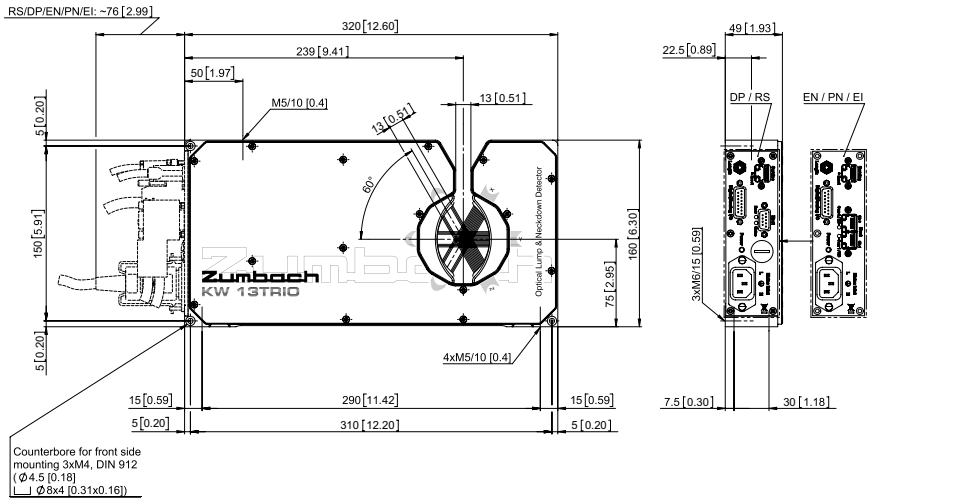
• Dimensions in mm (inch)

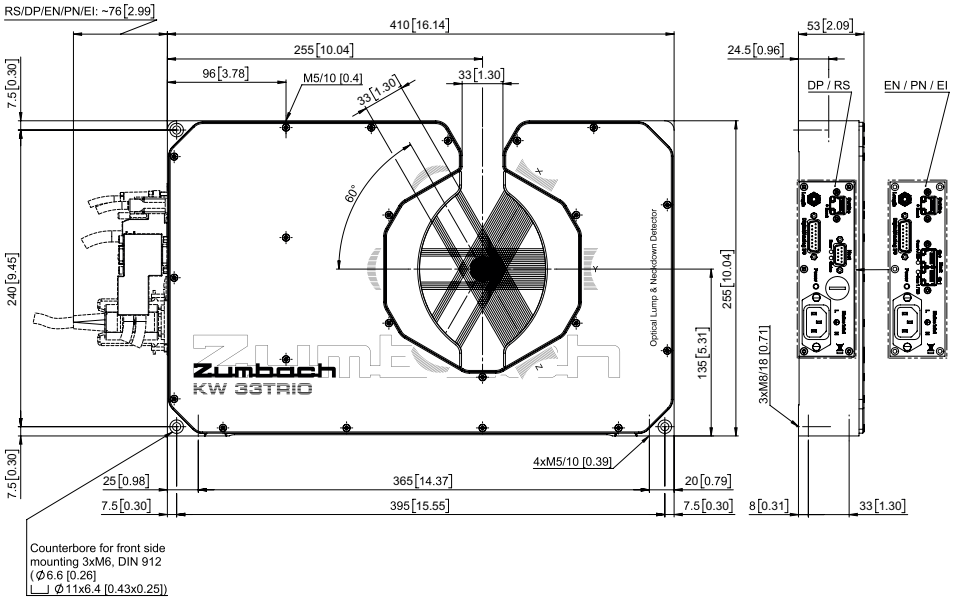
Article-No.:VISU.001.01XXX

Ethernet network cable, Sales No.: A15 608 8XXX
Ethernet network cable cat. 6 S / FTP with RJ45 connectors.

PoE injector 48 V / 24 W, Part No.: N2.7860.1000
Required for long Ethernet network cables > 20 m.

LUMP DETECTORS DIMENSIONS





Dimensions in mm (inch)

TECHNICAL DATA

Model	KW 13TRIO-EN-xx	KW 33TRIO-EN-xx
Numbering of measuring axes	3	3
Measuring field M [1]	13 mm (.5 in.)	33 mm (1.3 in.)
Tolerance range setting [2]	0.01...10 mm (.0004 ... .4 in.)	0.025...30 mm (.001 ... 1.18 in.)
Tolerance range solution	0.001 mm (.00004 in.)	0.001 mm (.00004 in.)
Minimum fault length	0.25 mm (.01 in.)	0.30 mm (.012 in.)
Smallest detectable fault (high)	0.01 mm [2] (.0004 in.)	0.025 mm [2] (.001 in.)
Accuracy	+/- 0.008 mm (.0003 in.), +/- 1% (of the fault height)	+/- 0.02 mm (.0008 in.), +/- 1% (of the fault height)
Recovery time [3]	4 µs	4 µs
Max. line speed	5 - 3000 m/min (9850 ft./min.)	5 - 3000 m/min (9850 ft./min.)

Interfaces/Connections					
Model KW 13/33 TRIO-	EN-RS	EN-DP	EN-EN	EN-PN	EN-EI
Interface "Service"	Ethernet TCP / IP, RJ45 10 / 100BaseT, galvanically isolated				
Interface "Host"	RS-232/-422/-485, D-sub. connectors 9p./m, galvanically isolated	Profibus DP (RS-485), D-sub connector 9p./f, galvanically isolated	Ethernet TCP / IP, 2 x RJ45 10 / 100 BaseT, galvanically isolated	Profinet IO, 2 x RJ45 10 / 100 BaseT, galvanically isolated	EtherNet / IP, 2 x RJ45 10 / 100 BaseT, galvanically isolated
"Length" Input for length detector	– Digital input 24/5 VDC, also for proximity switch e.g. NAMUR 0.25 Hz...5 kHz – Incremental encoder input (A, B) 24/5 VDC, 0.25 Hz...200 kHz				
"Digital/Analog IO"	External tolerance input: 0...10 V (adjustable resolution) Analogue outputs: +/- 10 V/4 mA (adjustable resolution) Digital inputs: 24/5 VDC for reset and pause statistic, reset length Digital-/relays outputs: max. 30 VDC/350 mA for general alarm, lump, neckdown				
LED Service interface	Indicates link and traffic				
LED Host interface	Indicates traffic	Indicates traffic and error	Indicates link and traffic	Indicates link, traffic, system error and bus error	Indicates link, traffic, module status and network status
"Power" LED	Display of operation status				
Mains voltage	100-240 VAC				
Operating range	85-265 VAC typically				
Mains frequency	50/60 Hz				
Operating range	47-63 Hz typically				
Power	35 VA				
Ambient temperature	Operating: 0…45 °C (32…113 °F), Transport / Storage: -20…50 °C (-4…122 °F)				
Max. atmospheric humidity	95 % (non condensing)				
Altitude	0…3000 m (0…9843 ft.) over sea level				
Type of protection	Case IP 65, connection plate IP 40				
Weight	KW 13TRIO-EN-xx: 2.8 kg (6.17 lbs); KW 33TRIO-EN-xx: 6.2 kg (13.66 lbs)				

[1] M stands for measuring field height. In practice, the largest object diameter corresponds to measuring field height minus instability of position.
[2] The smallest fault tolerance of 10 µm, may only be selected under ideal operating conditions, i.e. dust-free, dry environment and precisely centred guidance of the object.
[3] Shortest possible time between failures so that they are recognized as a single point of failure.

• All technical data are subject to change without notice

OPTIONS / ACCESSORIES

Guides

KW 13TRIO

For ø up to 4 mm (.16 in.)
KW.131.400

For ø from 3...13 mm (.12 to .51 in.)
KW.131.410

For ø from 0...3/8 mm (0 to .12/.31 in.)
KW.131.420

For ø < 1 mm (.04 in.)
KW.131.430

KW 33TRIO

With ceramic V rollers. Infinitely adjustable to product diameter
KW.331.400

With steel V rollers. Infinitely adjustable to product diameter
KW.331.410

With ceramic V rollers. For ø 0...8/20 mm (0... .31/.79 in.)
KW.331.420

With steel V rollers. For ø 0...8/20 mm (0... .31/.79 in.)
KW.331.430

Calibration

Small kit
- KW 13TRIO:
  # KW.131.920
- KW 33TRIO:
  # KW.331.920

Big kit
- KW 13TRIO:
  # KW.131.900
- KW 33TRIO:
  # KW.331.900

Floor stands

Height-adjustable floor stands

KW 13TRIO
ST02.300.10760

KW 33TRIO
ST02.333.30750

KW 13TRIO
ST02.300.13110

KW 33TRIO
ST01.333.33100

For 2 KW detectors and 6-axis measurement.

Fine height adjustment FHV 1 for floor stand ST 1
ST01.040.10000

Miscellaneous

Maintenance kit for air curtains
A34 200 0080

Hose fittings for air curtains
KW.331.140

Acoustic alarm for RS models
KW.331.09150

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