Zumbach

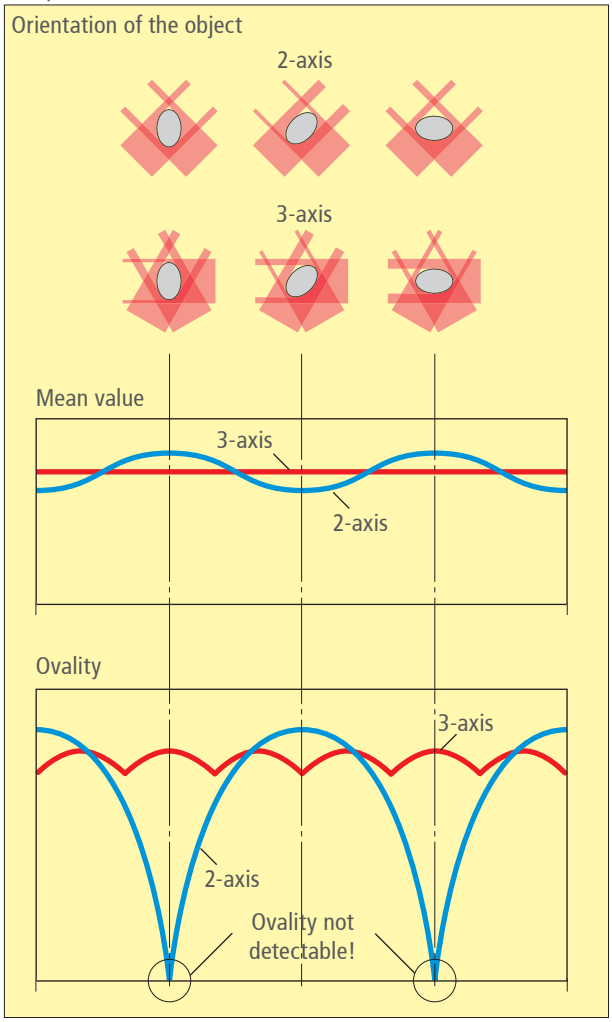
SWISS PRIME MEASURING SINCE 1957

3-Axis Laser Measurement –
The New Solution for Accurate Diameter and Ovality Measurement.

ODAC® 63TRIO

The ODAC® 63TRIO measuring head supplements the program of 3-axis laser measuring systems with a measuring field of 64 mm (2.52 in.).
The principle is the same as for the smaller model ODAC® 33-TRIO, which pioneered the synchronous 3-axis measurement. Since commissioning the first system, the 3-axis measurement has been hugely successful.
The accurate detection of out-of-round condition, regardless of the orientation of the product ovality in combination with the reliable and fast diameter measurement as well as other valuable functions, are features that no "ODAC TRIO customer" would like to do without.

Comparison of 3- and 2-axis measurement:

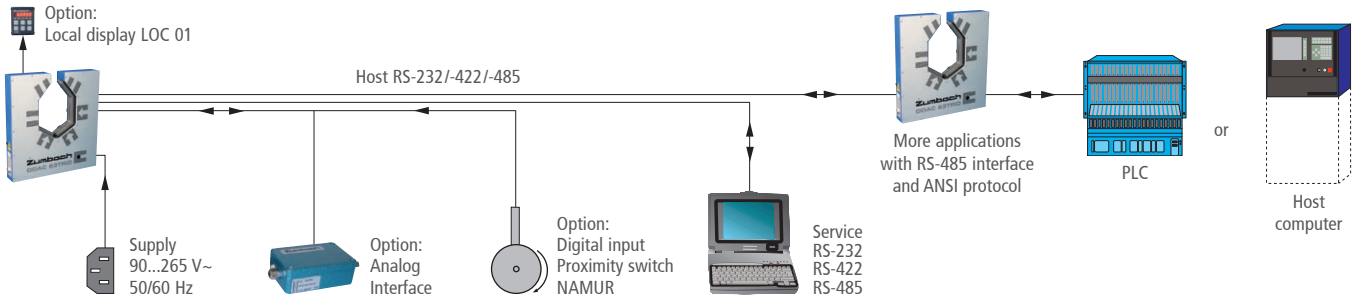


- Scan rate = 3 x 600/s, F version = 3 x 1500/s
- Integrated processor
- Calibrated single scan CSS
- Single scan monitoring
- Data rate up to 200/s
  Depending on version of measuring head, number of transmitted measured values as well as the baud rate of the interface.

Main Advantages

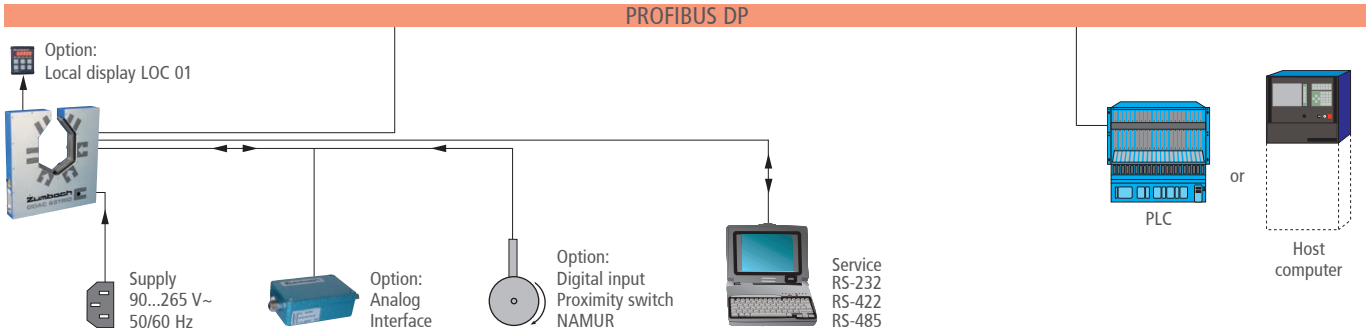
- 3 synchronized measurement axes on 1 single plane
- Ultra compact
- Reliable detection of out-of-round condition, regardless of the orientation of the product ovality
- Detects any deviation from roundness of oval and out-of-round with polygonal shape (multi-lobe)
- Special beam geometries available:
  - Narrow beam version for the:
    - contour measurement
    - detection of surface faults
    - measurement on very uneven surfaces
- Yields highly accurate mean value, regardless of the orientation of the product ovality
- Computes accurate values of circumference and cross section
  ► important for fittings of tubes and hoses
- Increased measurement accuracy and reliability
- Integrated fault detector offers 3 times higher detection certainty and sensitivity than 2-axis models
- Choice of interface: "J" standard for USYS, RS-232/-422/-485, PROFIBUS DP, ETHERNET, CAN-Bus (on request)
- Serial interfaces for service PC and local display LOC 01
- Port for analog interface (option) and proximity switch Namur (option)
- High dirt and dust tolerance
- Easily removable splash guards (snap in/snap out)
- Extensive program of accessories (page 3)

Version ODAC® 63TRIO-RS (serial interface)



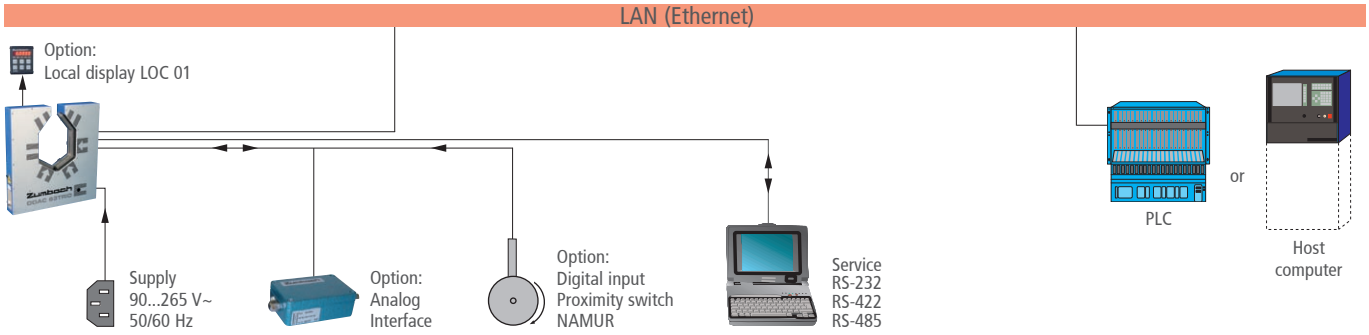
The built-in processor allows the acquisition and filtering of the measured values, as well as statistic functions, parameter selection and many other functions. The RS version communicates via the integrated RS interface with a higher level system, like USYS from Zumbach, host computer or PLC. The Zumbach protocols ODAC, ASCII or the network capable ANSI software protocols are selectable according to choice.

Version ODAC® 63TRIO-DP (PROFIBUS DP)



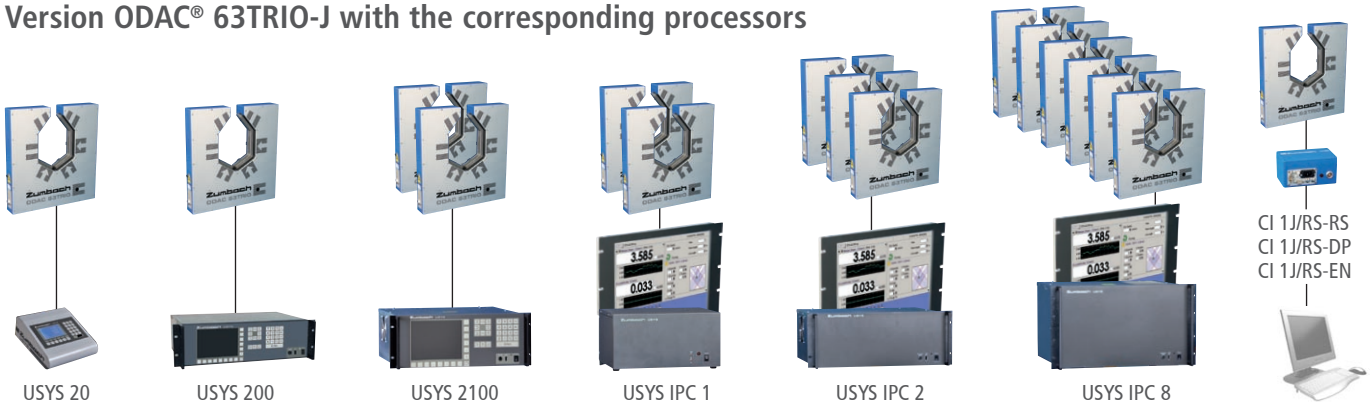
The built-in processor allows the acquisition and filtering of the measured values, as well as statistic functions, parameter selection and many other functions. The DP version communicates via the integrated PROFIBUS DP interface with a higher level system. PROFIBUS DP is designed for high speed data transfer at the sensor actuator level. At this level, controllers such as programmable logic controllers (PLCs) exchange data via a fast serial link with their distributed peripherals such as drivers, valves or intelligent slaves like ODAC measuring heads from Zumbach.

Version ODAC® 63TRIO-EN (Ethernet)



The built-in processor allows the acquisition and filtering of the measured values, as well as statistic functions, parameter selection and many other functions. The EN version communicates via the integrated EN interface with a higher level system. The selectable Zumbach protocols (ODAC or ASCII) are integrated and transmitted in the well known TCP/IP protocol. TCP/IP allows the data transfer through existing networks such as LANs and others.

Version ODAC® 63TRIO-J with the corresponding processors

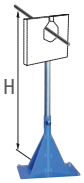


Accessories

Description — **Order Number**

Stand ST2-ODAC 63TRIO — ST02.103.75750
Vertically adjustable stands.

Line Height (H): 900…1200 mm (35.43...47.25 in.)



Mountable support for ST2 — ST02.060.190
Lateral support, including rotary holder (USY.0002.910) for table top version of the USYS 20 processor.

Leveling feet mounting set — ST02.001.1030
For ST2 and ST6 stands. To be mounted on the existing base plate of the stand.

Limiting socket VF63-ODAC63 — ODAC.631.420
The limiting socket is only a device to delimit the measuring field.
It has no guiding function.

Set of calibration standards — ODAC.9500.89000
Set of calibration standards supplied in a case, composed of:
- Calibration standard holder
- Calibration standard ø 2 mm and ø 50 mm
- Certificate

Other calibration standards on request.

Signal cable L2 Bus 1DR22 x 02R — A13 252 0150
For the connection between the PROFIBUS DP interface and the customer's data acquisition system. Only for DP versions.

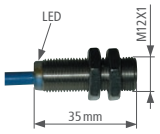
Signal cable 5 m (16.4 ft.) — A09 500 1083
For the connection between the EN measuring head version (connector RJ45 IP20) and the customer's data acquisition system (connector RJ45).

Analogue interface AI 4-ODAC — ODAC.000.100
Interface with 4 analogue and 5 digital outputs. Direct connection of the digital input (proximity switch). Only for RS, DP and EN versions.

Cable connector — A10 125 0070
Counter connector for digital input "Port 4". Connection of a proximity switch. It is not required if the analogue interface AI 4-ODAC is used already. Only for RS, DP and EN versions.

Local display LOC 01 — LOC.011.01000
Is mounted directly on the measuring head. Only for RS and DP and EN versions. Requires connection cable # ODAC.9167.00005 between LOC 01 and the measuring head.

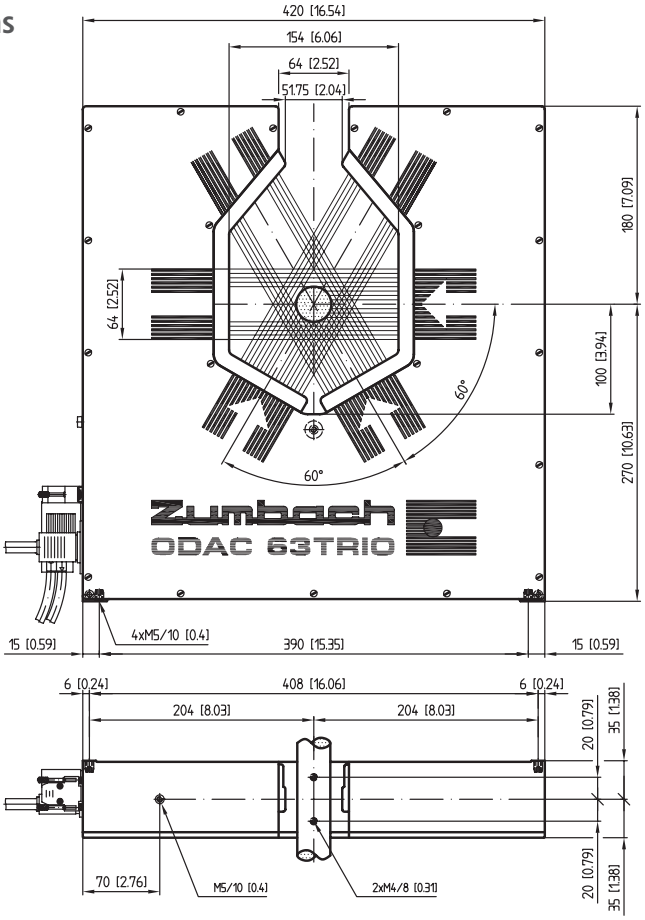
Proximity switch — A16 100 0110
The proximity switch is used for the length detection.
Main data:
- Standard: EN 60947-5-6 (NAMUR, NC)
- Switching distance max. 2 mm (.08 in.), flush mounting
- Ambient temperature: -25...100° C (-13...212° F)
- Protection: IP 67, Connection: PVC cable 2 m (6.5 ft.)

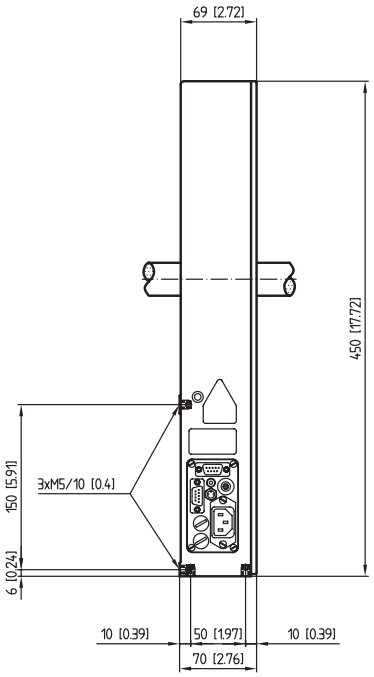


Line speed sensor WG2-2-1 — WG2.501.20210
Alternative to the above mentioned proximity switch. Only for RS, DP and EN versions.

Tacho voltage interface TI-069 — TI.069.69000
Alternative to the above mentioned proximity switch. Only for RS, DP and EN versions.

Dimensions





Dimensions in mm (inch)

Technical Data

Measurement				
Model(s)	**ODAC 63TRIO-RS/-RSN-F**	**ODAC 63TRIO-DP/-DPN-F**	**ODAC 63TRIO-EN/-ENN-F**	**ODAC 63TRIO-J/-JN-F**
Measuring field M [1]	64 x 64 x 64 mm (2.52 x 2.52 x 2.52 in.)			
Min. object ø	0.25 mm (.01 in.)			
Scanning frequency	3 x 600 scans/s (standard); F version: 3 x 1500 scans/s			
Scanning speed	173 m/s (567.6 ft./s) (standard); F version: 432.5 m/s (1418.9 ft./s)			
Width of laser beam [5] [6]	Standard: 3.5 mm (.14 in.); Version xxN-F: 0.5 mm (.02 in.)			
Repeatability [2]	± 0.6 µm (.00002 in.) (Averaging time 0.2 s) ± 0.3 µm (.00001 in.) (Averaging time 1 s)			
Linearity	± 2 µm (.00002 in.) ± 0.1‰			
Resolution [3]	0.1 µm (.000005 in.)			
Light source [4]	VLD (Visible Laser Diode) class II			

Interfaces / Connections				
Interface "Port 1" (Service)	RS-232/-422/-485 D-sub. connector 9 p./m			Only J interfaces to Zumbach processors: USYS 20, USYS 200, USYS 2100, IPC 1, IPC 2, IPC 8, CI 1J/RS-RS/-DP/-EN
Interface "Port 2" (Host)	RS-232/-422/-485 D-sub. connectors 9p./m electrically isolated	PROFIBUS DP, RS-485 D-sub. connector 9p./f, electrically isolated	Ethernet 10/100BaseT RJ45 / IP 20 electrically isolated	
Interface "Port 3" (LOC 01)	Only for Zumbach local display LOC 01			
Interface "Port 4" (Interface)	Can be used for the connection of a remote interface (e.g. AI 4-ODAC) or as digital input (proximity switch according to EN 60947-5-6, NAMUR).			
Indicator of contamin. windows	Flashing LED on the measuring head (relay output 48V / 0.5 A as option)			
LED "status"	Indicates data traffic on port 2 (Host)			–
Power supply	90...265 VAC, 48...62 Hz, approx. 20 VA			supplied by the processor unit (24V)

Operation conditions / Miscellaneous	
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...2500 m (0...8200 ft.) over sea level
Type of protection	Case IP 65, connection plate IP 40
Weight	9.8 kg (21.6 lbs)

• Technical specifications are subject to change without notice

[1] M stands for measuring field height. In practice, the largest object diameter corresponds to Measuring Field Height minus instability of position.

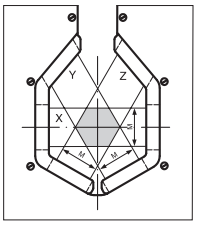
[2] Values within ± 3 Sigma (99.7%)/U_{95}.

[3] System resolution is the smallest practical value on the last digit of the display.

[4] Maximum power of the laser can be read on the warning label.

[5] Measured in the measuring plane, incl. lateral Jitter of the scans.

[6] The xx**N** versions (Narrow beam) is recommended in case of products with very uneven surfaces, for the contour measurement and detection of surface defects, such as lumps and neckdowns.



All units, which are equipped with lasers, were designed to meet the regulations CDRH (USA), BS 4803, EN 60825-1:2007, DIN / FDE 0837 and SEV TP 76 / 1A-D. They hold the warning and explanatory labels prescribed by EN 60825-1:2007.

Ordering Information

When ordering, please specify the following:

1 **Measuring head models: ODAC 63TRIO-RS/-RSN-F / ODAC 63TRIO-DP/-DPN-F / ODAC 63TRIO-EN/-ENN-F / ODAC 63TRIO-J/-JN-F**

2 **Connection cable**

2a The connection between **ODAC 63TRIO-RS/-RSN-F** and the higher level system is to be provided by the customer (via serial interface).

2b For **ODAC 63TRIO-DP/-DPN-F,** the connection to a higher level system is made with the signal cable # A13 252 0150.

2c For the **ODAC 63TRIO-EN/-ENN-F** version, the connection from the measuring head to the customer's ETHERNET port, must be provided by the customer.

2d **Length** of the connection cable between **ODAC 63TRIO-J/-JN-F** and the processor. Available lengths: 1, 2, 5, 10, 15, 20, 25 and 30 m (3.3, 6.6, 16.4, 32.8, 49.2, 65.6, 82 and 98.5 ft.). Longer cables on request.

3 **Processor model** (Data acquisition system), only for **ODAC 63TRIO-J/-JN-F:** USYS 20, USYS 200, USYS 2100, USYS IPC 1, USYS IPC 2, USYS IPC 8, CI 1J/RS-RS, CI 1J/RS-DP, CI 1J/RS-EN. ► Ask for corresponding data sheets.

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