Modern two axis measuring head from the ODAC® laser measuring unit series. Highest accuracy, robustness, reliability and functionality distinguish all the laser measuring heads from ZUMBACH. Thanks to the compact design, the ODAC® 64XY measuring heads can be used in virtually every manufacturing process in the wire and cable industry, the plastics and rubber industry as well as the steel and metal industry. Known for precision, quality and ease of use the laser measuring heads from ZUMBACH are among the best of their class.

The technological basis considered for these measuring heads is always of the latest cutting edge technology, with laser diodes as light sources combined with intelligent and powerful measured-value processors which facilitate a simple and flexible integration. Our long-standing experience as a pioneer of in-line measuring technology, combined with high production figures result in a product with an excellent price-performance ratio.

Amongst the outstanding features are features such as single scan calibration (CSS), single scan monitoring and high data rate output of up to 300* data packages per second.

The measuring heads can be used with all line speeds. Vibrations during production have no noticeable influence on measurements.

Adaptive signal processing in the measuring units increase accuracy

All the measuring heads of the ODAC® series have adaptive signal processing (patent DE3111356), which makes subsequent regular re-calibrations superfluous. Only in instances of component exchange or compliance to calibration regulations ISO 9000/9001 etc. would re-calibration be required.

All the relevant parameters for accuracy are continuously monitored by the measuring system and automatically compensated. This is valid in particular also for possible long-term changes of the behaviour of the scanner motor or the measuring electronics.

* Depending on the measuring head model, the number of transmitted measured values as well as the baud rate of the interface.

Main Advantages

- Very high scan rate (measuring frequency)
  Standard: 2 x 1200/s, Version F: 2 x 2500/s
- High precision measurement
- High insensitivity to dirt and dust
- Easily removable splash guards (snap in/out)

Flexible communication integration

- RS (-232 /-422 /-485)
- DP (Profibus DP)
- EN (Ethernet TCP/IP)
- J (digital, for connection to USYS processors)
- PN (Profinet IO V2.3)
- EI (EtherNet/IP)
- M (digital, for connection to USYS processors)
System Overviews

ODAC® 64XY-EN-RS (serial interface)

The built-in processor allows the acquisition and monitoring 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 or Host are selectable according to choice. The service interface (Ethernet TCP/IP) is used for configuring the measuring system.

ODAC® 64XY-EN-DP (Profibus DP), -EN-PN (Profinet IO) or -EN-EI (EtherNet/IP)

The built-in processor allows the acquisition and monitoring of the measured values, as well as statistic functions, parameter selection and many other functions. These versions communicate via the integrated Profibus DP, Profinet IO or EtherNet/IP interface with a higher level system. These interfaces are designed for high speed data transfer at the sensor actuator level. At this level, controllers such as programmable logic controllers (or PLC’s) exchange data via a fast serial (Profibus DP) or Ethernet (Profinet IO) connection with their distributed peripherals such as drivers, valves or intelligent slaves like ODAC measuring heads from Zumbach.

ODAC® 64XY-EN (Ethernet)

The built-in processor allows the acquisition and monitoring 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 measured values and parameters are integrated and transferred using a selectable Zumbach protocol (ODAC or Host protocol) in standardized packages of the TCP/IP. TCP/IP allows the data transfer through existing networks such as LANs and others.

ODAC® 64XY-J with the corresponding external ZUMBACH processors
Accessories

**Description**

**Order Number**

**Adjus. device, DWW 1-ODAC64XYfix + 67.5°/-22.5°**  
DVW.101.910

For a continuous adjustment of the inclination of both measuring axes according to the horizontal and vertical. Adjustment range: +67.5°/-22.5°.  
Only for ODAC J versions.

**Floor stand ST1-DWV 1 (horizontal)**  
ST01.392.98000

**Floor stand ST1-DWV 1 45°**  
ST01.392.98010

Vertically adjustable.

Line height (H): 900...1200 mm  
(35.43...47.24 in.)

Only for ODAC J versions.

**Floor stand ST2-ODAC 64XY**  
ST02.104.76000

**Floor stand ST2-ODAC 64XY 45°**  
ST02.104.76010

Vertically adjustable.

Line height (H): 900...1200 mm  
(35.43...47.24 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.

**Guide VR64-ODAC64**  
ODAC.641.400

With steel rollers (V shape). Height adjustable. For measured object diameter up to 64 mm (2.52 in.).

**Guide VRG64-ODAC64 0-64mm**  
ODAC.641.410

With steel rollers (V shape) and counter roller. Continuously adjustable. For measured object diameter up to 64 mm (2.52 in.).

**Limiting socket VF64-ODAC64**  
ODAC.641.420

Used as a device to delimit the measuring field. It has no guiding function!

**Limiting socket VF60-ODAC64 45°**  
ODAC.641.430

This limiting socket is used when the measuring head is installed on a floor stand with a 45° inclination. Used as a device to delimit the measuring field. It has no guiding function!

**Guide FRG60B/20-ODAC64**  
ODAC.641.440

With adjustable counter rollers for precise guiding of flat products. Maximum product dimensions: width 60 mm (2.36 in.), height 20 mm (.79 in.).

**Set of calibration standards**  
ODAC.950.90000

Delivered in a protection box, comprising:

- Calibration standard holder
- Calibration standard ø 2 mm
- Calibration standard ø 50 mm
- Certificate

Other calibration standards on request.

**Heat shield HS-ODAC64XY-Front**  
ODAC.641.930

Protects the front side of the measuring head from heat radiation.

**Heat shield HS-ODAC64XY-Back**  
ODAC.641.920

Protects the back side of the measuring head from heat radiation.

**Air curtain LV-ODAC64XY**  
ODAC.641.900

This air curtain, supplied with compressed air, is used instead of the standard installed splash guards. The air curtain protects the measuring windows from contamination through steam and other "floating" particles. Not suitable for water splashes. ➤ Suitable maintenance kit see below.

**Maintenance kit**  
A34 200 0050

Cleans and keeps the compressed air free of dirt. Features: Filter regulators, submicrofilter, manometer, pressure difference display, automatic condensate emptying and wall fixture.

**Local display LOC 01**  
LOC.011.0100

Is mounted directly on the measuring head. Requires connection cable # ODAC.9167.00005 between LOC 01 and the measuring head. Not for ODAC J versions.

**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 ODAC DP versions.

**Analogue interface AI 4-ODAC**  
ODAC.000.100

Interface with 4 analogue and 5 digital outputs. Direct connection of the digital input (proximity switch). Not for ODAC J versions.

**Connector**  
A10 125 0070

Counter connector for digital input "I/F". Connection of a proximity switch. It is not required if the analogue interface AI 4-ODAC is used already. Not for ODAC J versions.

**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.)

**Accessories**

**Description**

**Order Number**

**Mountable support for ST2**  
ST02.060.190

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

**Swivel floor stand ST6-ODAC 64XY**  
ST06.144.64000

Vertically adjustable.

Line height (H): 880...1180 mm (34.65...46.46 in.)  
Swivel angle: 90° (upward)

**Guide VRG64-ODAC64 0-64mm**  
ODAC.641.410

With steel rollers (V shape) and counter roller. Continuously adjustable. For measured object diameter up to 64 mm (2.52 in.).

**Limiting socket VF60-ODAC64 45°**  
ODAC.641.430

This limiting socket is used when the measuring head is installed on a floor stand with a 45° inclination. Used as a device to delimit the measuring field. It has no guiding function!

**Guide FRG60B/20-ODAC64**  
ODAC.641.440

With adjustable counter rollers for precise guiding of flat products. Maximum product dimensions: width 60 mm (2.36 in.), height 20 mm (.79 in.).

**Maintenance kit**  
A34 200 0050

Cleans and keeps the compressed air free of dirt. Features: Filter regulators, submicrofilter, manometer, pressure difference display, automatic condensate emptying and wall fixture.

**Local display LOC 01**  
LOC.011.0100

Is mounted directly on the measuring head. Requires connection cable # ODAC.9167.00005 between LOC 01 and the measuring head. Not for ODAC J versions.

**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 ODAC DP versions.

**Analogue interface AI 4-ODAC**  
ODAC.000.100

Interface with 4 analogue and 5 digital outputs. Direct connection of the digital input (proximity switch). Not for ODAC J versions.

**Connector**  
A10 125 0070

Counter connector for digital input "I/F". Connection of a proximity switch. It is not required if the analogue interface AI 4-ODAC is used already. Not for ODAC J versions.

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### Technical Data

<table>
<thead>
<tr>
<th>Model ODAC 64XY-</th>
<th>EN-RS</th>
<th>EN-DP</th>
<th>EN-EN</th>
<th>EN-PN</th>
<th>EN-EI</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measurement</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Measuring field M</td>
<td>64 x 64 mm (2.52 x 2.52 in.)</td>
<td></td>
<td></td>
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<tr>
<td>Min. object ø</td>
<td>0.25 mm (0.01 in.)</td>
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<td></td>
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<tr>
<td>Scanning frequency</td>
<td>2 x 1200 scans/s (standard); F version: 2 x 2500 scans/s</td>
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<tr>
<td>Scanning speed</td>
<td>207.5 m/s (680.8 ft./s) (standard); F version: 432.3 m/s (1418.3 ft./s)</td>
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<tr>
<td>Width of laser beam</td>
<td>3.5 mm (.14 in.) (standard); xxN-F version; 0.5 mm (.02 in.)</td>
<td></td>
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<tr>
<td>Repeatability (3σ)</td>
<td>0.6 µm (.000024 in.) (Averaging time 0.1 s)</td>
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<tr>
<td>Measurement error</td>
<td>± 2 µm (.00008 in.)</td>
<td></td>
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<tr>
<td>Resolution</td>
<td>± 0.25 µm (.00001 in.) (Averaging time 1 s)</td>
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<tr>
<td>Light source</td>
<td>VLD (Visible Laser Diode) class II</td>
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</tr>
</tbody>
</table>

| **Interfaces / Connections** |       |       |       |       |       |   |
| Interface Service | Ethernet TCP/IP, RJ45 10/100BaseT, galvanically isolated | Only J interfaces to Zumbach processors: WIREMASTER, USYS 20, USYS 200, USYS IPC 1e, USYS IPC 2e, CI 1J/EN-RS/-DP/-EN/-PN/-EI |       |       |       |   |
| Interface Host | RS-232/-422/-485, D-sub. connectors | Profibus DP (RS-485), D-sub. connectors | Ethernet TCP/IP, RJ45, 10/100BaseT, galvanically isolated | Profinet IO, 2 x RJ45, 10/100BaseT, galvanically isolated | EtherNet/IP, 2 x RJ45, 10/100BaseT, galvanically isolated |       |
| Data rate max. standard | 300/s | 80/s | 200/s | 60/s | 200/s | 179/s |
| Data rate max. F version | 230/s | 125/s | 125/s |       |       |   |
| Interface LOC | Only for Zumbach local display LOC 01 |       |       |       |       |   |
| Interface I/F | Can be used for the connection of a remote interface (e.g. AI 4-ODAC) or as digital input for length detector (e.g. proximity switch according to EN 60947-5-6, NAMUR) |       |       |       |       |   |

| **Indicator of contamin. windows** | Flashing LED on the measuring head |       |       |       |       |   |
| **LED Host interface** | Indicates link and traffic |       |       |       |       |   |
| **LED Service interface** | Indicates link and traffic |       |       |       |       |   |
| **Indicates link, traffic, system error and bus error** |       |       |       |       |       |   |
| **Indicates link, traffic, module status and network status** |       |       |       |       |       |   |

| **Energy supply** |       |       |       |       |       |   |
| Power supply | 100...240 VAC |       |       |       |       |   |
| Operating range | typically 85...265 VAC |       |       |       |       |   |
| Mains frequency | 47...63 Hz |       |       |       |       |   |
| Power output | 20 VA |       |       |       |       |   |

| **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...3000 m (0...9843 ft.) over sea level |       |       |       |       |   |
| Type of protection | Case IP 65, connection plate IP 40 |       |       |       |       |   |
| Weight | 7.6 kg (16.76 lbs) |       |       |       |       |   |

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1) M stands for measuring field height. In practice, the largest object diameter corresponds to Measuring Field Height minus instability of position.
2) System resolution is the smallest practical value on the last digit of the display.
3) Measured in the measuring plane, incl. lateral Jitter of the scans.
4) Maximum power of the laser can be read on the warning label.
5) Maximum power of the laser can be read on the warning label.
6) The xxN-F 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.

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**Ordering Information**

When ordering, please specify the following:

1. **Measuring head models:** ODAC 64XY-EN-RS/-DP/-EN/-PN/-EI, ODAC 64XY-J
2. **Connection cable**
   - The connection between ODAC 64XY-EN-RS and the higher level system is to be provided by the customer (via serial interface).
   - For the ODAC 64XY-EN-DP versions, the connection to a higher level system is made with the signal cable # A13 252 0150.
   - For the ODAC 64XY-EN/-PN/-EI versions, the connection from the measuring head to the customer’s Ethernet port, must be provided by the customer.
   - Length of the connection cable between ODAC 64XY-J 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 64XY-J: WIREMASTER, USYS 20, USYS 200, USYS IPC 1e, USYS IPC 2e, CI 1J/EN-RS, CI 1J/EN-DP, CI 1J/EN-EN, CI 1J/EN-PN, CI 1J/EN-EI. Please ask for corresponding data sheets.

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Worldwide customer service and sales offices

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All units, which are equipped with lasers, were designed to meet the regulations CDRH (USA), IEC/EN 60825-1:2014 and DIN / VDE 0837. They hold the warning and explanatory labels prescribed by CDRH or IEC/EN 60825-1:2014.