Modern single axis measuring head from the ODAC® laser measuring unit series. Highest accuracy, robustness, reliability and functionality distinguish all the laser heads from ZUMBACH. The ODAC® 230 is manufactured with a modular design. It is available with a support rail or as individual emitter and receiver parts when a maximum of flexibility is required to install the head in any position. The measuring head can also be installed in constricted confines or several emitter/receiver pairs can be mounted in the same plane. ODAC® 230 models 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 333* data packages per second. The measuring heads can be used with all line speeds. Vibrations during production have no noticeable influence on measurements.

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

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 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.

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

**ODAC® 230EN-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.

**ODAC® 230EN-DP (Profibus DP), -EN-PN (Profinet IO) or -EN-EI (EtherNet/IP)**

The built-in processor allows the acquisition and filtering of the measured values, as well as statistic functions, parameter selection and many other functions. These versions communicate via the integrated Profibus DP or Profinet IO 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® 230EN-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.

**ODAC® 230-Jxx with the corresponding external ZUMBACH processors**

- WIREMASTER
- USYS 20
- USYS 200
- USYS IPC 1e
- USYS IPC 2e
**Accessories**

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>USYS 20 Rotary holder</td>
<td>USY.0002.910</td>
</tr>
<tr>
<td>USYS 20 Fixation set for wall mounting</td>
<td>USY.0002.920</td>
</tr>
<tr>
<td>(with pivot arm)</td>
<td></td>
</tr>
<tr>
<td>USYS 20 Fixation set for table top</td>
<td>USY.0002.930</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set of calibration standards</td>
<td>ODAC.9501.58300</td>
</tr>
<tr>
<td>Delivered in a protection box, comprising:</td>
<td></td>
</tr>
<tr>
<td>~ Calibration standard holder</td>
<td></td>
</tr>
<tr>
<td>~ Calibration standard ø2 and 140 mm</td>
<td></td>
</tr>
<tr>
<td>~ Certificate</td>
<td></td>
</tr>
<tr>
<td>Other calibration standards on request.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local display LOC 01</td>
<td>LOC.011.01000</td>
</tr>
<tr>
<td>Is mounted directly on the measuring head.</td>
<td></td>
</tr>
<tr>
<td>Requires connection cable no. ODAC.9167.0005</td>
<td></td>
</tr>
<tr>
<td>between LOC 01 and the measuring head.</td>
<td></td>
</tr>
<tr>
<td>Not for ODAC J versions.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal cable L2 Bus 1DR22 x 02R</td>
<td>A13 252 0150</td>
</tr>
<tr>
<td>For the connection between the Profibus DP</td>
<td></td>
</tr>
<tr>
<td>interface and the customer's data</td>
<td></td>
</tr>
<tr>
<td>acquisition system. Only for ODAC DP version.</td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions**

- **Mounting for vertical line**
  - Montage für Vertikallinie
  - Montage pour ligne verticale

- **Dimensions**

```
<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODAC 230xx.DT175</td>
<td>1000</td>
<td>350</td>
<td>610</td>
<td>175</td>
</tr>
<tr>
<td>ODAC 230xx.DT250</td>
<td>1150</td>
<td>500</td>
<td>750</td>
<td>250</td>
</tr>
<tr>
<td>ODAC 230xx.DT375</td>
<td>1300</td>
<td>750</td>
<td>1030</td>
<td>375</td>
</tr>
<tr>
<td>ODAC 230xx.DT500</td>
<td>1650</td>
<td>1000</td>
<td>1280</td>
<td>500</td>
</tr>
</tbody>
</table>

* Measuring distance
C = Version with rail

Dimensions in mm (inch)```
## Technical Data

### Measurement

<table>
<thead>
<tr>
<th>Model(s)</th>
<th>ODAC 230J</th>
<th>ODAC 230EN-xx</th>
<th>ODAC 230J/P</th>
<th>ODAC 230EN-xx/P</th>
<th>ODAC 230JN</th>
<th>ODAC 230EN-xxN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>Standard</td>
<td>Profile measurement</td>
<td>Narrow Beam</td>
<td>Same with synchronization input</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measuring field M[i]</td>
<td>230 mm (9.05 in.)</td>
<td>230 mm (9.05 in.)</td>
<td>230 mm (9.05 in.)</td>
<td>see J/IP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. object ø</td>
<td>0.75 mm (0.03 in.)</td>
<td>1.5 mm (0.06 in.)</td>
<td>0.75 mm (0.03 in.)</td>
<td>see J/IP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scanning frequency</td>
<td>Standard</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Scanning speed</td>
<td></td>
<td>473 m/s (1552 ft/s); F version: 546 m/s (1794 ft/s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width of laser beam</td>
<td></td>
<td>5 mm (0.2 in.)</td>
<td>5 mm (0.2 in.)</td>
<td>1 mm (0.004 in.)</td>
<td>see J/IP</td>
<td></td>
</tr>
</tbody>
</table>

### Repeatability (δ) at measuring distance D ' and averaging time (s)

- 1.2 µm (0.1 s) (0.00047 in.)
- 0.6 µm (0.1 s) (0.00024 in.)
- 1.5 µm (0.1 s) (0.00059 in.)
- 0.8 µm (1.0 s) (0.00030 in.)
- 1.8 µm (0.1 s) (0.00071 in.)
- 0.9 µm (1.0 s) (0.00035 in.)
- 2.1 µm (0.1 s) (0.00084 in.)
- 1.1 µm (1.0 s) (0.00041 in.)
- 1.7 µm (0.1 s) (0.00067 in.)
- 0.8 µm (1.0 s) (0.00030 in.)
- 2.1 µm (0.1 s) (0.00084 in.)
- 1.1 µm (1.0 s) (0.00042 in.)
- 2.5 µm (0.1 s) (0.00101 in.)
- 1.3 µm (1.0 s) (0.00050 in.)
- 3.0 µm (0.1 s) (0.00117 in.)
- 1.5 µm (1.0 s) (0.00058 in.)

### Centric measurement error at measuring distance D ':

- 175 mm (6.89 in.) ± 5 µm (0.00020 in.)
- 375 mm (14.76 in.) ± 5 µm (0.00020 in.)
- 500 mm (19.68 in.) ± 9 µm (0.00036 in.)

### Measurement error within the measuring zone:

2 x value of the centric measurement error (ODAC 230xxP: 4 x value of the centric measurement error)

### Measuring zone (width x height):

- 110 x 218 mm (4.33 x 8.58 in.)
- 220 x 218 mm (8.66 x 8.58 in.)
- 110 x 218 mm (4.33 x 8.58 in.)

### Resolution:

- 0.1 µm (40×)

### Light source:

- VLD (Visible Laser diode) 650 nm, class 2

### Ambient temperature:

Operating: 0...45 °C (32...113 °F), Transport / Storage: -20...50 °C (-4...122 °F)

### Power supply:

- 100...240 VAC
- 20 VA

### Operation conditions / Miscellaneous

### Ordering Information

When ordering, please specify the following:

1. Models: ODAC 230J, JSx or ODAC 230EN-xxS, DPx, ENx, PNx, Exx
2. Connection cable: a. The connection between ODAC 230EN-RS and the higher level system is to be provided by the customer (via serial interface).
   b. For ODAC 230EN-DP, the connection to a higher level system is made with the signal cable A13 252 010.
   c. For the ODAC 230EN-EVx-PN/EI version, the connection from the measurement head to the customer's Ethernet port can be made with a standard RJ45 Patch cable.

### All units, which are equipped with lasers, were designed to meet the regulations CDHR (USA), IEC/EN 60825-1:2014, DIN/VDE 0837.

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[i]: The measuring object is the smallest practical value on the last digit of the display.

[ii]: The measured borders of the object must be within this measuring zone. The centre of this measuring zone is at the "measuring distance D" as well as in the middle of the "measuring field M".

[iii]: System resolution is the smallest practicable on the last digit of the display.

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

[v]: Measured in the measuring plane, including lateral jitter of the scans.

[vi]: Narrow Beam (N) versions are recommended in case of products with very uneven surfaces,

[vii]: Without rail: specify the measuring distance D and the processor.

[viii]: With rail: Length of the connection cable between processor and the processor.

[ix]: Only J interfaces to Zumbach processors: WIREMASTER, USYS 20, USYS 200, USYS IPC 1e, USYS IPC 2e, CI 1J/EN-RS, DPx, ENx, EI, Data rate max. 63/s.

[x]: Interfaces via Synchrobox CI 2JS/1J to the ZUMBACH processors.

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**Switzerland (H.Q.): ZUMBACH Electronic AG, P.O. Box, CH-2552 Orpund, Phone +41(0)32 356 04 00, Fax +41(0)32 356 04 30, E-Mail: sales@zumbach.com**

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www.zumbach.com

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