Signal Interface
Series MAP

**Special features**
- process-controlled indicator with digital display
- precision 0.01 %
- scope of measurement range -9 999 ... + 40 000
- adaptation of potentiometric sensors
- adaptation of active sensors with standardized output signal
- up to 32 meas./s
- tare function
- max. 4 programmable limiting value comparators
- peak memory
- programming inhibit function
- communication via logic input and outputs
- Interface RS 232
- analogue output function with standardized signals
- integrated auxiliary power supply for active sensors
- CE mark

**Description**
The fully galvanically isolated microprocessor-controlled indicators permit the connection of all potentiometric sensors as well as sensors with standardized output signals. As a result of digital programming, measured values can be displayed and monitored on site irrespective of measurement length, angle or scaling range.

**Precision and reliability**
The outstanding precision of up to 0.01 % afforded by the measuring devices is achieved by the use of selected components which guarantee optimum temperature stability and interference immunity.

The sensors of these new measuring devices are fed by a highly constant voltage supply. The input and output voltage is continuously monitored by the processor and compared to reference data in the memory. This excludes the possibility of measurements being falsified by voltage and temperature fluctuations. In the design of the units, every conceivable aspect was taken into account to ensure effective EMC protection. The supply input, measurement input and RS 232 interface are all equipped with special interference suppressor filters.

**Value interrogation**
To further process a display value using a higher-level control system, it can be read out using logic outputs in BCD or HEX format.

**Custom tailored configuration**
Depending on requirements, there are four different configurations with additional options available, with even the basic version offering a comprehensive range of application possibilities.

**Tare function**
The tare function permits zeroing of the current display value at any optional position. All subsequent measurements indicate the differential to the stored measured value.

**Limiting values**
The limiting value comparators with adjustable switching function and hysteresis are freely programmable over the entire measurement range or within the scale.

**Peak memory**
The peak memory permits the currently displayed or limiting value to be frozen. In the upgraded version, it is additionally possible to display or freeze maximum, minimum and differential values (slave pointer function).

**Inhibit function**
This function safeguards the programmed data against unauthorized or unintentional editing. During programming, it is only possible to display the data.

**Interface function**
The interface function defines which peripheral unit is accessed by the RS 232 interface. The options are printer output, remote accessing or remote control via PC or PLC.

**Analogue output**
The optional analogue output permits the connection of external measurement, control or recording devices. Standardized output variables can be selected, whereby the start and end values can be freely programmed over the entire extent of the measured range.

**Application**
The panel-mounting indicator is used for the display and monitoring of linear and angular values, for example for position detection in grinding and sawing machines, running gear travel, metering strokes, valve and air flap positions, or for functions relating to test and inspection equipment construction, quality assurance and production control.
## Technical Data

### Type Designations

<table>
<thead>
<tr>
<th>Basic version</th>
<th>Upgraded version</th>
<th>Intelligent version</th>
<th>Full version</th>
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<tr>
<td>Type designations</td>
<td>MAP330</td>
<td>MAP340</td>
<td>MAP332</td>
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<tr>
<td>Scope of measurement range</td>
<td>-2,000...</td>
<td>-9,999...</td>
<td>-2,000...</td>
</tr>
<tr>
<td>Measurement rate /sec.</td>
<td>1...16</td>
<td>1...16</td>
<td>1...16</td>
</tr>
<tr>
<td>Auxiliary voltage</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Tare function</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Limiting values</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Peak memory</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Programming inhibit function</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Digital output BCD/Hex</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Interface RS232</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Analogue output</td>
<td>Option</td>
<td>Option</td>
<td>Option</td>
</tr>
<tr>
<td>Measurement input</td>
<td>Optional potentiometric or active input (current or voltage)</td>
<td>Supplementary option potentiometric and active input (current)</td>
<td>Potentiometric and active input (current and voltage)</td>
</tr>
</tbody>
</table>

### Voltage Supply

- Standard 230 VAC (optional feature 115 VAC or 24 VDC)
- **Note:** • = Included in delivery
- Other models on request

### Technical Data

- **Voltage supply:**
  - Standard 230 VAC, 50/60 Hz, 6 VA
  - 115 VAC, 50/60 Hz, 6 VA
  - 24 VDC, 0.5 A (20...30 VDC)

- **Display:**
  - 5 digit LED-measured value display, 14 mm high
  - 1 digit LED programming unit display, 7 mm high

- **Scope of measurement range:**
  - MAP330/332: -2000...+2000
  - MAP340/342/344: -9999...+20000
  - MAP444: -9999...+40000

- **Precision:**
  - MAP330/332: 0.05 %, ±1 Digit
  - MAP340/342/344: 0.03 %, ±1 Digit
  - MAP444: 0.01 %, ±1 Digit

- **Measurement rate:**
  - Standard: 1/2/4/8/16 meas./s
  - MAP334: 1/2/4/8/16/32 meas./s

- **Temperature coefficient:**
  - 50 ppm/°C
  - 20°C/°C
  - MAP444: 20°C/°C

- **Control inputs:**
  - MAP330/340: 2 x 20-30 V typ. 5 mA
  - MAP332/342: 2 x 20-30 V typ. 5 mA
  - MAP344/444: 4 x 20-30 V typ. 5 mA

- **Comparator:**
  - 2-fold limiting value comparator
  - 4-fold limiting value comparator

- **Relay output:**
  - only in versions with limiting values
  - 2 x changeover contact 250V max./1A limiting value output

- **Optocoupler output:**
  - 4 x logic outputs max. 50 V/30 mA for limiting values or value interrogation

### Interface

- **Standard potentiometer or BCD output (0...10 V or 0...20 mA)**
- **Supplementary option potentiometric and active input (0...10 V or 0...20 mA)**
- **RS 232**

### Protection class

- IP00 at terminals, IP40 at front of housing to DIN 40050

### Analogue outputs

- **Resolution:** 0.05 %
- **Voltage output:** max. 400Ω
- **Current output:** min. 10 kΩ

### Ambient temperature

- 0...50° C

### Dimensions

- Housing: H48 x W96 x D135 mm
- H82 x W45 mm

### Terminal

- Screw-type, pluggable
1. Supply voltage AC (L) or DC (+)
2. Supply voltage AC (N) or DC (-)
3. Not assigned
4. Common terminal limiting values
5. Break contact output limiting value 1
6. Make contact output limiting value 1
7. Break contact output limiting value 2
8. Make contact output limiting value 2
9. Not assigned
10. Control input 4
11. Control input 3
12. Control input 2
13. Control input 1
14. Auxiliary supply output 24 V (+)
15. Auxiliary supply output 24 V (-)
21. Shielding RS 232
22. GND interface RS 232
23. TXD interface RS 232
24. RXD interface RS 232
25. Reference potential (+V inp.) for optocoupler outputs
26. Optocoupler outputs 4 (MSB)
27. Optocoupler outputs 3
28. Optocoupler outputs 2
29. Optocoupler outputs 1 (LSB)
31. Sensor terminal 3
32. Measurement input or DMS- (common terminal control inputs)
33. Sensor terminal 2 or DMS+
34. Measurement input voltage (e.g. 0...10 V DC)
35. Measurement input current (e.g. 0...20 mA DC)
36. Sensor terminal 1 or 0V
37. 0V
38. Analogue output
39. Shielding to measurement input and analogue output
Dimensions

Order designations

<table>
<thead>
<tr>
<th>Series</th>
<th>Type</th>
<th>Voltage supply</th>
<th>Analogue output</th>
<th>Measurement Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAP</td>
<td>330, 332, 340, 342</td>
<td>$1 = 230 \text{ VAC, } 50/60 \text{ Hz}$</td>
<td>$1 = 0 \ldots 10 \text{ VDC}$</td>
<td>PO = potentiometric</td>
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<tr>
<td></td>
<td>334, 344, 444</td>
<td>$2 = 110 \text{ VAC, } 50/60 \text{ Hz}$</td>
<td>$4 = 0 (4) \ldots 20 \text{ mA}$</td>
<td>IC = 0 (4) ... 20 mA</td>
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<td></td>
<td></td>
<td>$8 = 24 \text{ VDC}$</td>
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<td>IV = 0 ... 10 VDC</td>
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<td></td>
<td>PC = potentiometric or current</td>
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<td>VC = 0 ... 10 VDC or</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>0 (4) ... 20 mA</td>
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</tbody>
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