Sonic Ranger ®
- For Range Finding & Detecting Obstacles

High reliability and Various types
Wide detectable range (2 ~ 5m)
Simple Applications

Feature
- Distance measurement up to 5m with pulse-echo
- Digital output using intergraded evaluation circuits
- Water and dust proof type(IP65)
- Easy & Simple application
- High reliability
- Wide operating temperature range(−40 ~ 85°C)

Applications
SensorTec co., ltd has combined piezoelectric and microprocessor technology to become one of world’s leading manufacturers of ultrasonic sensors. Sonic Ranger have been a reliable, cost effect answer for many applications.

- Robot
- Parking meter
- Distance meter
- Water or liquid level meter
- Intruder alarm
- Auto door
- Approach switch

Part numbering
STMA − [503 W T
1 2 3]

① : design serial number
② : terminal type
N : Normal type
W : Water proof type
③ : Output signal
T : Tx/Rx Transit Time
D : Calculated Distance
V : Analog Voltage(0 ~ 10 VDC)
### Specifications

<table>
<thead>
<tr>
<th>Part number</th>
<th>ST-503</th>
<th>ST-506</th>
<th>ST-507</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Frequency [KHz]</td>
<td>40</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Detectable Range [m]</td>
<td>0.3 ~ 2</td>
<td>0.3 ~ 5</td>
<td>0.25 ~ 2</td>
</tr>
<tr>
<td>Directivity [deg]</td>
<td>50 or 90</td>
<td>25</td>
<td>110(Horizontal)/50(Vertical)</td>
</tr>
<tr>
<td>Operating Temperature[℃]</td>
<td>-40 ~ 85</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Storage Temperature[℃]</td>
<td>-50 ~ 95</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Input Voltage [VDC]</td>
<td>9 ~ 16</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Consumption Current [mA]</td>
<td>30 max</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Output Signal Type</td>
<td>Time or Distance or Voltage</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Resolution [mm]</td>
<td>3</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Accuracy [%] @full scale</td>
<td>1 % max</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Dimension [mm]</td>
<td>Ø24 x 50L</td>
<td>←</td>
<td>Ø24 x 45L</td>
</tr>
<tr>
<td>Weight [g]</td>
<td>62</td>
<td>60</td>
<td>57</td>
</tr>
<tr>
<td>Cable Length &amp; Type</td>
<td>1m, 3P x AWG #24</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Degree of Protection</td>
<td>IP65</td>
<td>←</td>
<td>←</td>
</tr>
</tbody>
</table>

### Dimensions

**ST-503**

**ST-506**

**ST-507**

### Typical Application

**Note**

1. Ultrasonic velocity in air, $V=331.6 + 0.6t$ ($t=$Temperature in air)
2. Sensor module circuit delay time : 1.102[μs]
3. $T_{real} = T_{TRX}$ transit time data – 1.102[μs]
4. Distance [m]=$(V \times T)/2$