The LT3 uses pulsed time-of-flight technology to achieve unsurpassed performance. The laser pulses one million times per second. The microprocessor records the time required for each pulse to travel to the retro-reflective target and back to the sensor. Every millisecond, it averages one thousand pulse times and outputs a value from the microprocessor.

The sensor’s long range enables it to detect very small features or parts, even when it is mounted well back from the hazards of a process.

The retro-reflective models can accurately position cranes and other equipment up to 50 m away – with accuracy within a few millimetres. The bright visible spot makes it easy to set up and align.

The LT3 laser sensor is not affected by wind, temperature or pressure changes.
LT3 Series – Retro Mode
Long-Range Laser Distance Sensor

Wave length
Visible red
Typical beam diameter
Laser protection class
(IEC 60825, EN 60825)

Sensing range
Minimum window size
Range

Adjustment
Digital response speed
Window limits
(on sensor or remote TEACH)
Analogue output slope
Npn/pnp select

Supply
Supply voltage
Ripple V_{pe}
No load current
Delay upon power up
Remote TEACH input

Protection
reverse polarity
transient voltages
short-circuit

Outputs
Digital
Analogue
Current output load
Voltage output load

Material
Housing
Lens (window)
Protection class
(IEC 60529, EN 60529)
Temperature range
Temperature drift
Cable

Connector
Indicator LEDs
Green
Yellow
Red

Yellow (speed)
Analogue/Digital models:
Red/green TEACH
Output 1
Output 2
Digital-only models:
Yellow TEACH
Output 1 and 2

Wiring and Accessories
See page 3

Dimensions [mm]
• Cable

• Connector

See page 3
## LT3 Series
### Long-Range Laser Distance Sensor
Resolution/repeatability in mm versus distance in m

<table>
<thead>
<tr>
<th>Resolution/repeatability in mm</th>
<th>Max. range [m] with Reflector</th>
<th>Output function</th>
<th>Analogue output</th>
<th>Connection</th>
<th>Type</th>
<th>Ident number</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,5...50</td>
<td>0,5...50</td>
<td>pnp</td>
<td>4...20 mA</td>
<td>cable</td>
<td>LT3PILV</td>
<td>30 672 79</td>
</tr>
<tr>
<td>0,5...50</td>
<td>0,5...50</td>
<td>pnp</td>
<td>4...20 mA</td>
<td>connector</td>
<td>LT3PILVQ</td>
<td>30 672 80</td>
</tr>
<tr>
<td>0,5...50</td>
<td>0,5...50</td>
<td>npn</td>
<td>4...20 mA</td>
<td>cable</td>
<td>LT3NILV</td>
<td>30 672 82</td>
</tr>
<tr>
<td>0,5...50</td>
<td>0,5...50</td>
<td>npn</td>
<td>4...20 mA</td>
<td>connector</td>
<td>LT3NILVQ</td>
<td>30 672 83</td>
</tr>
<tr>
<td>0,5...50</td>
<td>0,5...50</td>
<td>pnp</td>
<td>0...10 VDC</td>
<td>connector</td>
<td>LT3PULV</td>
<td>30 672 73</td>
</tr>
<tr>
<td>0,5...50</td>
<td>0,5...50</td>
<td>npn</td>
<td>0...10 VDC</td>
<td>cable</td>
<td>LT3PULVQ</td>
<td>30 672 74</td>
</tr>
<tr>
<td>0,5...50</td>
<td>0,5...50</td>
<td>npn</td>
<td>0...10 VDC</td>
<td>connector</td>
<td>LT3NULV</td>
<td>30 672 76</td>
</tr>
<tr>
<td>0,5...50</td>
<td>0,5...50</td>
<td>npn</td>
<td>0...10 VDC</td>
<td>cable</td>
<td>LT3NULVQ</td>
<td>30 672 77</td>
</tr>
<tr>
<td>Slow</td>
<td>0,5...50</td>
<td>pnp</td>
<td>–</td>
<td>connector</td>
<td>LT3BDLV</td>
<td>30 673 80</td>
</tr>
<tr>
<td>Medium</td>
<td>0,5...50</td>
<td>pnp</td>
<td>–</td>
<td>connector</td>
<td>LT3BDLVQ</td>
<td>30 673 81</td>
</tr>
</tbody>
</table>

### Wiring
- **pnп, 2 digital outputs**
- **npн, 2 digital outputs**
- **pnп, analogue output**
- **npн, analogue output**

(a) Load 1; (b) load 2; (c) output select; (d) laser control: beam enabled, connect to +5...24 VDC; 150 ms (slow), 60 ms (medium) or 51 ms (fast) delay upon enable when sensor is powered; (e) TEACH; (f) shield

### Accessories [dimensions in mm]

<table>
<thead>
<tr>
<th>Brackets</th>
<th>Connector</th>
<th>Reflectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMBLT31 30 685 05</td>
<td>WAK8-2/P00 80 070 25</td>
<td>BRT-TVHG-8x10P 30 691 19</td>
</tr>
<tr>
<td>SMBLT32 30 692 36</td>
<td>straight type, 8-pin</td>
<td>size 203 x 254 mm (included)</td>
</tr>
</tbody>
</table>

### Diagrams
- LT3 Series diagram
- Wiring diagrams
- Accessories diagrams
**LT3 Series – Retro Mode**

**Long-Range Laser Distance Sensor**

**Indicator LEDs: analogue and digital outputs**

- A Signal LED
- B Response speed indicators
- C Analogue TEACH LED
- D Analogue output programming push button
- E POWER ON/OFF LED
- F Output LED
- G Response speed push button
- H Digital TEACH LED
- I Digital (switched) output programming push button

**Indicator LEDs: two digital outputs**

- A Signal LED
- B Response speed indicators
- C Digital output 1 TEACH LED
- D Digital output 1 programming push button
- E POWER ON/OFF LED
- F Output LED
- G Response speed push button
- H Digital output 2 TEACH LED
- I Digital output 2 programming push button

<table>
<thead>
<tr>
<th>Digital output response time</th>
<th>Digital output hysteresis</th>
<th>Analogue voltage output response time (-3 dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast</td>
<td>1 ms ON and OFF</td>
<td>20 mm</td>
</tr>
<tr>
<td>Medium</td>
<td>10 ms ON and OFF</td>
<td>10 mm</td>
</tr>
<tr>
<td>Slow</td>
<td>100 ms ON and OFF</td>
<td>6 mm</td>
</tr>
</tbody>
</table>

**Linearity**

± 60 mm throughout sensing range. Application note: allow 30-minute warm-up for optimal performance.

**Applications:**

**Two-axis crane position**

**Objective:** To verify the position of an overhead bridge crane, in two axes.

**Sensor models:** Two LT3 retro-reflective-mode sensors with analogue/digital outputs and included retro-reflective targets.

**Operation:** The sensors are mounted facing their retro-reflective targets, which are mounted on two mobile components of a bridge crane. One component moves back and forth, the other moves from side to side. As the crane maneuvers the roll of sheet stock, the two sensors monitor the distance to their respective reflectors, enabling a PLC to continuously track the crane’s exact position.

**Storage and retrieval system positioning**

**Objective:** To locate the position of an automated storage/retrieval system.

**Sensor models:** LT3 retro-reflective-mode sensor with analogue/digital outputs and included retro-reflective target.

**Operation:** A measurement technique is required to accurately locate the position of the vertical lift unit of an automated storage/retrieval system as it moves back and forth on its path. The distance of the unit can range up to 50 m. The included retro-reflective target is mounted on the facing edge of the unit.

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**IMPORTANT SAFETY WARNING!** These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can result in either an energised or de-energised output condition. These products should not be used as sensing devices for personnel safety.