

## LiDAR Configurations



Velodyne Puck (VLP-16)



Velodyne HDL-32E



Quanergy M8 (Core)



Velodyne Puck (32MR)



Quanergy M8 (Ultra)



Teledyne Optech CL-360

## Velodyne Puck (VLP-16)

### Tactical-Range LiDAR Unit

- Effective range: < 75 m
- Range accuracy:  $\pm 3$  cm
- Scan rate: 5-20 Hz
- Returns: 2
- Weight: 830 g
- Wavelength: 903 nm
- **Notes:**
  - Most cost-effective unit for both Geo-MMS LiDAR and Point&Pixel
  - Variations include 'Lite' and 'Hi-Res'
  - VLP-16 Lite weights 240 g less (590 g)
  - VLP-16 Hi-Res has narrower vertical FOV and thus improved vertical resolution

## Velodyne Puck (32MR)

### Mid-Range LiDAR Unit

- Effective range: < 120 m
- Range accuracy:  $\pm 3$  cm
- Scan rate: 5-20 Hz
- Returns: 2
- Weight: 925 g
- Wavelength: 903 nm
- **Notes:**
  - Channels: 32 beams
  - 600,000 points/second (per return)
  - Horizontal FOV / Resolution:  $360^\circ / 0.1-0.4^\circ$
  - Vertical FOV / Resolution:  $40^\circ / 0.1-0.4^\circ$

## Velodyne HDL-32E

### Tactical-Range LiDAR Unit

- Effective range: < 75 m
- Range accuracy:  $\pm 2$  cm
- Scan rate: 5-20 Hz
- Returns: 2
- Weight: 1,000 g
- Wavelength: 903 nm
- **Notes:**
  - Highest grade unit for tactical-range projects
  - 700,000 points/second (per return)

## Quanergy M8 (Ultra)

### Mid-Range LiDAR Unit

- Maximum range: Up to 200 m
- Range accuracy:  $\pm 3$ cm
- Scan rate: 5-20 Hz
- Returns: 3
- Weight: 900 g
- Wavelength: 905 nm
- **Notes:**
  - M8 comes in three variations: Core, Plus and Ultra
  - Core has a maximum range of < 100 m
  - Plus has a maximum range of < 150 m
  - Ultra has a maximum range of up to 200 m
  - 420,000 points/second (per return)

## Quanergy M8 (Core)

### Tactical-Range LiDAR Unit

- Maximum range: < 100 m
- Range accuracy:  $\pm 3$  cm
- Scan rate: 5-20 Hz
- Returns: 3
- Weight: 900g
- Wavelength: 905 nm
- **Notes:**
  - M8 comes in three variations: Core, Plus and Ultra
  - Core has a maximum range of < 100 m
  - Plus has a maximum range of < 150 m
  - Ultra has a maximum range of up to 200 m
  - 420,000 points/second (per return)

## Teledyne Optech CL-360

### Long-Range LiDAR Unit

- Effective range: 300 m – 775 m
- Range accuracy:  $\pm 1$  cm
- Scan rate: 50-250 Hz
- Returns: Up to 4
- Weight: 3,500 g
- Wavelength: 1,550 nm
- **Notes:**
  - Highest grade UAV LiDAR unit available
  - Horizontal FOV / Resolution:  $360^\circ / 12\mu\text{rad}$
  - Dimensions: 310(L) $\times$ 160(W) $\times$ 116(H) mm