



TERABEE

Follow-Me

Radio-frequency relative positioning system providing heading and distance to target, designed for mobile robots and platforms.

Key features

- Up to 60 meters range, based on Radio-Frequency Ultra Wide Band technology
- IP65-rated when back-panel mounted, IP65 for the remote control
- Interfaces: RS485 (Modbus RTU), USB 2.0 (CDC)
- Output data: distance and heading to target (remote control)

Application examples⁽¹⁾



Operator following



Human to machine positioning



Robot convoys

Connectors and indicators

Master beacon:

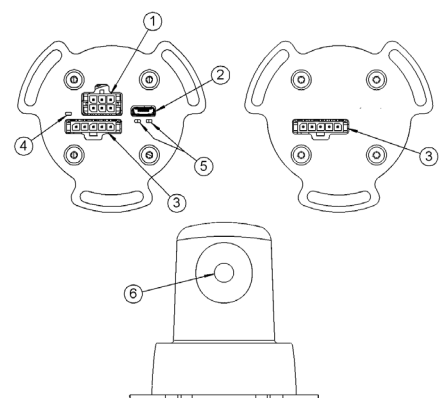
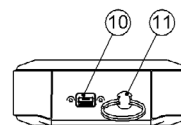
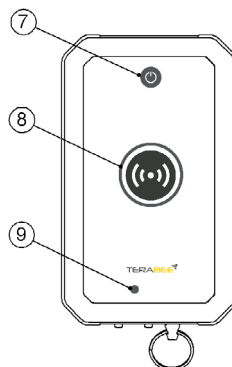
1. RS485 (Modbus RTU) Molex MicroFit 3.0 connector
2. USB 2.0 (CDC) micro USB connector
4. Device status LED
5. RS485 communication LED

Remote control:

7. Power indicator LED
8. Ranging indicator LED
9. Charging indicator LED
10. USB 2.0 (CDC) micro USB connector
11. Strap ring

Master and Slave beacons:

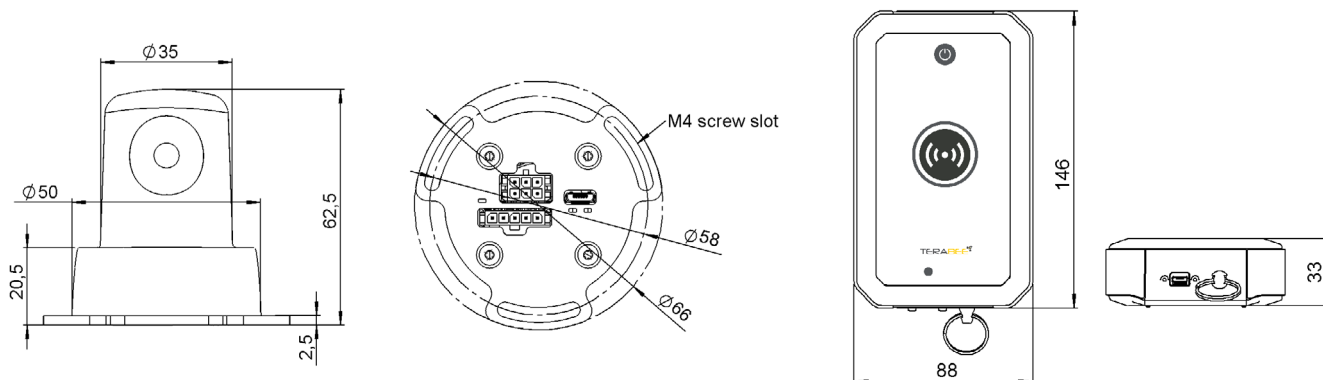
3. Connection between beacons Molex MicroFit 3.0 connector
6. Ranging indicator LED



Technical Specifications

| | |
|---|---|
| Part Number | TB-FMS-RS485 |
| Performance | |
| Ranging technology | Ultra-wideband |
| Output distance range ⁽²⁾ | 0.5m up to 60 m |
| Output heading range ⁽²⁾⁽⁴⁾ | -50° ... +50° |
| Output distance resolution | 1 mm |
| Output heading resolution | 1° |
| Accuracy ⁽²⁾ | Distance: ±25 cm Heading: ±19° |
| Repeatability ⁽²⁾⁽³⁾ | Distance: ±5 cm Heading: ±10° |
| Radiofrequency | UWB, Channel 5: Band 6240 to 6739.9 Mhz Center frequency 6489.6 Mhz |
| Access time to measurements | 20 ms |
| Electronics | |
| Supply voltage V_{IN} | RS485: 10 - 30 $\pm 5\%$ V DC USB: 5V DC |
| Power consumption | RS485, max. @ 24V DC: 50 mA USB, max. @ 5V DC: 300 mA |
| Remote battery life | >20h |
| Initialization time | Approx. 5 s |
| Communication Interfaces - master beacon | |
| RS485 (Modbus RTU) | RS485 (half-duplex, 19.2 Kbps by default, possibility to configure baud rate and parity) |
| USB 2.0 (CDC) | Serial interface |
| Enclosures | |
| Dimensions of remote control | 146 mm x 88 mm x 33 mm |
| Dimensions of beacon | Ø66 mm x 62.5 mm |
| Weight of remote control | Approx. 255 g |
| Weight of beacon | Approx. 45 g |
| Enclosure rating | Beacons: IP65 (when back-panel mounted) Remote control: IP65 |
| Housing material | Main body: ABS (remote and beacons) Bottom lid (beacons): Aluminium |
| Type of connection | RS485: Molex MicroFit 3.0 6-pin male connector, USB: micro USB male connector |
| Ambient temperature operation (at $V_{IN} = 24$ V) | Beacons: -10°C to 70°C Remote control: -10°C to 60°C |
| Mounting | Curved slots for M4 screws |
| Conformity | |
| Reference standard (certifications on-going) ⁽⁵⁾ | CE, FCC, IP65, RoHS, Vibration & Shock |

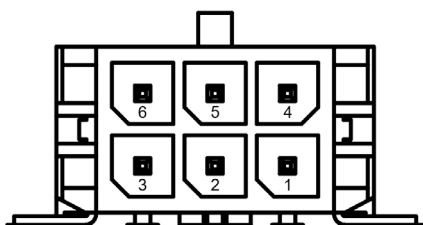
Dimensions



Connectors pinout

Connector P/N: 0430450610

Mating connector P/N: 0430250600

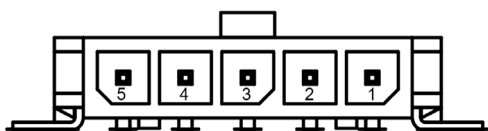


RS485 connector

| | | |
|---|------------|--------------------------------|
| 1 | Shield | Shield |
| 2 | Tx/Rx+ (A) | RS485 differential line |
| 3 | Tx/Rx- (B) | RS485 differential line |
| 4 | GND | Ground (power supply and data) |
| 5 | GND | Ground (power supply and data) |
| 6 | 10-30V | 10-30V DC power supply |

Connector P/N: 0436500513

Mating connector P/N: 0436450500



Master to slave beacons connector

| Master connector | Slave beacon connector |
|------------------|------------------------|
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |

Have any questions? Contact us today!

- (1) Before integrating Follow-Me in your system, make sure that a risk assessment is carried out and that appropriate safety measures are implemented (e.g. anti-collision system, personnel training, etc.).
- (2) Specifications are derived from tests in controlled conditions. Note that any variation in radiofrequency signal characteristics (e.g. caused by multipath effect or antenna orientation) can affect the system's performance. Accuracy and repeatability have been measured with a 1m span between master and slave beacons. The minimum range was measured with a 0.76m span between master and slave beacons. Accuracy may decrease when the remote control is close to the beacons, far from the beacons, or when the span between the beacons is small. All parts of the system were placed in one horizontal plane (at the same height) for the testing and validation measurements.
- (3) Evaluated as one standard deviation over multiple measurements.
- (4) For the moment, the system cannot self-identify which is the front or rear of the robot it is installed on. Please take this into consideration in your application.
- (5) Refer to the conformity certificate in the User Manual for details.