



SIMARINE



RADAR TANK SENDER · STR1 & STR2

Welcome aboard. Let's get you **set up**.

Everything you need to mount, wire and configure your new radar tank sender — in about 15 minutes, no haul-out required.

150–2000_{mm}

Tank height range

±2%

Accuracy · ≈7 mm resolution

15_{min}

Typical install · peel, wire & pair

CONSUMER QUICK START GUIDE



WELCOME

Thanks for choosing Simarine

Your STR sender measures the level in your tank with radar — through the tank top, with no float arms, no probes and nothing touching the liquid. This guide walks you through the whole setup. Two models, one radar core:

STR1 — for any boat or van with analogue gauges

Outputs 0–190 Ω , 240–33 Ω and 0–5 V (all at once) plus Bluetooth. A drop-in upgrade for almost any existing gauge.

STR2 — for modern NMEA 2000 systems

Plugs into your NMEA 2000 backbone (PGN 127505, Fluid Level) so levels show on any compatible chartplotter or MFD, plus Bluetooth.

THE 5 STEPS AHEAD

1

Prepare

2

Stick on

3

Wire up

4

Pair app

5

Calibrate

FULL MANUALS & GUIDES (PDF)

PDF

STR1 MANUAL

Analogue model — full install & wiring reference

PDF

STR2 MANUAL

NMEA 2000 model — full install & network reference

PDF

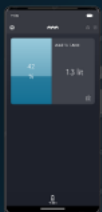
APP SETUP INSTRUCTIONS

Pairing, first setup & calibration, step by step

PDF

S5 ADAPTER QUICK GUIDE

Fitting the metal-tank adapter



Get the free Simarine Connect app

You'll set up and calibrate your sender from your phone over Bluetooth. Install it before you start.

[App Store — iPhone & iPad](#)[Google Play — Android](#)



SPECIFICATIONS

STR1 and STR2 at a glance

	STR1 – ANALOGUE	STR2 – NMEA 2000
MEASUREMENT		
PRINCIPLE	High-precision micro-radar (non-contact)	High-precision micro-radar (non-contact)
SUPPORTED TANK HEIGHT	150–2000 mm	150–2000 mm
RESOLUTION	≈ 7 mm	≈ 7 mm
ACCURACY	± 2 %	± 2 %
DEAD ZONE	≤ 10 mm from radar face	≤ 10 mm from radar face
SAMPLING FREQUENCY	1 Hz	1 Hz ≈ 0.5 Hz on the NMEA 2000 bus
TANKS & LIQUIDS		
LIQUIDS	Fresh · grey · waste water · fuel	Fresh · grey · waste water · fuel
TANK MATERIAL	Composite / GRP direct · metal via S5 adapter	Composite / GRP direct · metal via S5 adapter
MAX WALL THICKNESS	10 mm	10 mm
OUTPUTS & CONNECTIVITY		
ANALOGUE OUTPUTS	0–190 Ω · 240–33 Ω · 0–5 V all three available simultaneously	— <i>Not available</i>
NMEA 2000	— <i>Not available</i>	Native PGN 127505 (Fluid Level) M12 5-pin male · certification pending
BLUETOOTH APP	Simarine Connect (setup & monitoring)	Simarine Connect (setup & monitoring)
SIMARINE PICO	Yes via a PICO resistive or voltage tank input · no direct pairing	— <i>No</i>
ELECTRICAL, PHYSICAL & ORIGIN		
SUPPLY VOLTAGE	8–35 V DC	8–35 V DC
CURRENT DRAW	≈ 14–20 mA @ 12 V	≈ 14–20 mA @ 12 V
IP RATING	IP67	IP67
OPERATING TEMPERATURE	–20°C to 70°C	–20°C to 70°C
PROFILE HEIGHT	≈ 32.5 mm	≈ 32.5 mm
WARRANTY / ORIGIN	3 years · si Made in Slovenia	3 years · si Made in Slovenia



STEP 1-2 · PREPARE & STICK ON

Mounting the sender

The adhesive bonds hard and is meant to stay put — so choose the spot carefully and prep the surface well before you press it down.

1

CHOOSE THE SPOT

On top of the tank, ideally near the centre. The sender must sit perpendicular to the liquid with a clear, straight line of sight to the bottom. Keep clear of baffles, inlets and return jets.

2

CLEAN IT

Use the included alcohol prep pad to thoroughly clean the mounting area. A flat, rigid, grease-free surface is essential for a good bond and a clear signal.

3

LET IT DRY

Allow the cleaned surface to dry completely before mounting — don't rush this step.

4

PEEL & PRESS

Peel the liner from the adhesive, place the sender flat and press firmly. It needs 24 h for full bond strength, but you can wire and configure straight away.

GOOD TO KNOW

- Plastic / GRP tanks: the radar reads straight through the lid.
- Metal tanks: bond the **S5 metal tank adapter** first — never directly to metal.
- Tank wall up to 10 mm thick is fine.
- Secure the cable so it can't tug or twist the sender.

AVOID

- Relocating the sender after it's stuck — bond strength drops sharply.
- Sloped or curved lids without a wedge/adapter to keep the beam vertical.
- Mounting over baffle walls or right at the tank edge.
- Powering the sender before wiring is complete.

**FOR METAL TANKS****THE S5 METAL-TANK ADAPTER**

Radar can't read through metal. For steel or aluminium tanks, bond the **S5 adapter** to the tank first, then stick the sender onto the adapter. Plastic and GRP tanks need no adapter — the radar reads straight through the lid.



STEP 3 · WIRE IT UP

Wiring instructions

Keep the sender unpowered until all connections are made. Fit an inline fuse near the power source and insulate any unused wires to prevent short circuits.

STR1 – ANALOGUE WIRE COLOURS

WIRE	CONNECTION	FUNCTION
 Red	8–35 V DC	Power source (+)
 Black	GND	Ground (–)
 Blue	COM	Common for outputs
 White	0–190 Ω	Resistive (European)
 Yellow	240–33 Ω	Resistive (American)
 Green	0–5 V	Voltage output

STR1 tips. All three analogue outputs work at the same time, so you can drive more than one gauge. Connect only the output your gauge expects, and insulate the others. Keep resistive runs (0–190 Ω / 240–33 Ω) short — long cable adds resistance and skews the reading. The internal GND and COM are galvanically isolated for stable, interference-free readings.

STR2 – NETWORK CONNECTION

STR2 – NMEA 2000

Connect the single **M12 5-pin male** connector to a free drop on your NMEA 2000 backbone. The sender is powered and read over the network — no separate power wiring needed.

- **One cable** — data and power share the bus
- **PGN 127505** — standard Fluid Level message
- Shows on any **compatible MFD** or chartplotter
- NMEA 2000 **certification pending**

BEFORE YOU POWER UP

- Double-check polarity: Red to +, Black to ground.
- Confirm an inline fuse is fitted per your system standards.
- All unused STR1 wires are individually insulated.



STEP 4-5 · PAIR & CALIBRATE

App configuration

Install the latest Simarine Connect app and enable Bluetooth. The sender must be in its final position and the tank empty (or the surface at least 150 mm below the sender) before you configure it.

1

SCAN & CONNECT

Open the app and tap **Scan for devices**, then select your sender. A configured sender asks for the passkey printed on its top.

2

SET UP THE TANK

Name the tank and enter its height, volume and type. Enable **Auto Height** to let the sender measure tank height for you, then tap Save.

3

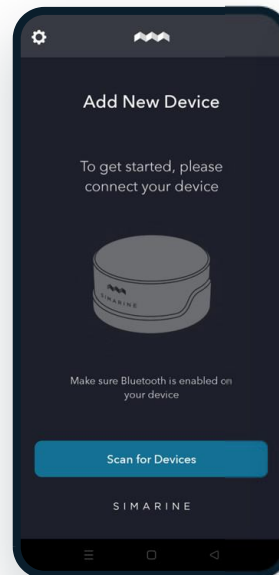
OPEN CALIBRATION

Tap the gear icon → **Device Calibration** → **Add Calibration Point**. Start with the empty point at the bottom of the tank.

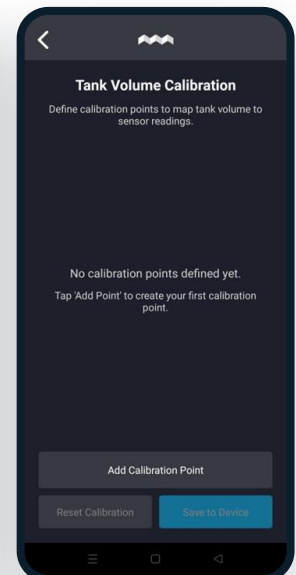
4

ADD POINTS & SAVE

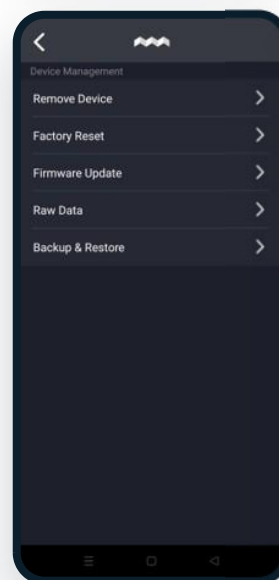
For each point enter the actual volume, then tap **Use Current Sensor Value** (or type the distance). Add at least 2 points — up to 100 for irregular tanks. Filling in fixed steps (e.g. every 10 L) is easiest.



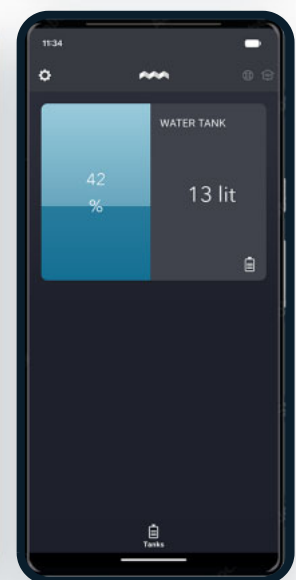
PAIR



CALIBRATE



MANAGE



MONITOR



RED BLINKING — not yet calibrated. Finish initial setup first.



GREEN BLINKING — calibrated and running. You're done.

STR2 only: set the tank instance, fluid type and capacity for the NMEA 2000 network right in the app — these options appear automatically once you connect to an STR2. To reconfigure any sender from scratch, use **Device Management** → **Factory Reset** and repeat the steps above.



HELP

Frequently asked questions

Which model should I pick?

Choose **STR1** for analogue gauges (0–190 Ω / 240–33 Ω / 0–5 V) or local app monitoring — the most cost-effective option. Choose **STR2** if you run an NMEA 2000 network.

My gauge reads wrong or backwards.

Make sure the connected output matches your gauge (0–190 Ω / 240–33 Ω / 0–5 V). Re-run calibration if you changed ranges, and power-cycle the gauge.

What tanks does it work with?

Plastic or fibreglass (GRP) tanks measure straight through a flat, rigid lid. For metal tanks, bond the **S5 metal tank adapter**. Supported height is 150–2000 mm, wall up to 10 mm.

The reading is unstable.

Check for a stable 8–35 V DC supply and solid ground, confirm the sender is flat and firmly bonded with no trapped water, and add cable strain relief. Repeat setup if needed.

Does foam or sloshing fool it?

No. Slosh filtering is built in for stable readings, and the STR radar algorithm is designed to see through foam — so foamy grey and waste tanks still read reliably.

No reading at all.

Verify the 8–35 V DC supply and the ground/COM wiring. Confirm the LED blinks and the app can detect the device.

Is there a dead zone near the top?

Only a tiny one — 10 mm or less from the radar face, so you can read almost to the brim. For accurate auto tank-height detection, the tank should be empty during setup (or the liquid at least 150 mm below the sender).

Is STR2 NMEA 2000 certified?

STR2 sends the standard Fluid Level PGN 127505 and is currently in the certification phase. Some Garmin models show 127505 for fuel only — check your display.

Can I calibrate an odd-shaped tank?

Absolutely. Add up to 100 calibration points (volume + captured distance). You can edit, add or export points later in the app.

What's the warranty?

Both STR1 and STR2 come with a full **3-year warranty**, and they're designed and made in Slovenia, EU.

What do the LED colours mean?

Red blinking = not yet calibrated. **Green blinking** = calibrated and working normally.

Still stuck?

Our team is happy to help — email support@simarine.net or visit simarine.net/support before you order or install.



Enjoy the **peace of mind.**

Your tank levels are now just a glance away — on your gauge, your chartplotter or your phone. Safe travels.

Order & info

simarine.net

Support

support@simarine.net

Warranty

3 years

Designed & made in Slovenia SI · © Simarine