



USER GUIDE

G5 Replica Gauge

Operating instructions for the RHSimTech replica G5 attitude and HSI instrument — controls, display modes, baro setting, and AFCS integration.

RHSimTech Ltd

Rotherham, South Yorkshire, UK

Hand-built avionics for X-Plane & MSFS

SIMTECH G5

A replica G5 attitude and HSI indicator for X-Plane and MSFS. The G5 replicates the instrument's PFD and HSI display pages, baro setting, heading/altitude select, and AFCS mode annunciation.

SECTION 01

Controls

CONTROL	FUNCTION
Power button	Powers the unit on and off. Hold briefly to power off from an active state.
Encoder knob (rotate)	Adjusts the currently selected parameter — baro setting, selected heading, selected altitude, or course/OBS, depending on the active menu item.
Encoder knob (press)	Opens the menu when no menu is active. Confirms a selection or moves to the next menu item when the menu is open.
Encoder (hold)	Returns to the top of the menu from within a submenu item.

The encoder press doubles as a menu navigator: one press opens the menu if it is closed; subsequent presses step through the available items. The menu closes automatically after a few seconds of inactivity.

SECTION 02

Display Modes

The G5 operates in two display modes, matching the real instrument:

MODE	WHAT IT SHOWS
PFD	Primary Flight Display — artificial horizon, pitch and bank attitude, slip/skid ball, airspeed and altitude tapes, vertical speed indicator, and baro setting. This is the default mode.
HSI	Horizontal Situation Indicator — compass rose, GPS or VOR course needle, CDI deviation bar, bearing pointers, selected heading bug, and distance/groundspeed readouts.

The active mode is selected via the menu (see Section 4).

In GPS mode the HSI needle is driven by the active GPS leg. In NAV mode it follows the tuned VOR/ILS. The source switches automatically based on what the simulator reports as the active navigation source.

SECTION 03

Baro Setting

The altimeter baro reference is adjusted using the encoder knob while **Baro** is the active menu item. Turning the knob raises or lowers the baro setting in the increment appropriate for the current unit (hPa or inHg).

- The baro value is shown at the bottom of the altitude tape on the PFD page
- To toggle between **hPa** and **inHg**, select the Baro item in the menu and use the encoder to switch units
- The current baro setting is sent back to SimLink so it can be applied to the simulator's altimeter dataref

Standard pressure (STD): on the real G5, pressing the knob while in Baro mode sets standard pressure (1013.25 hPa / 29.92 inHg). The same behaviour is replicated here — the encoder press while Baro is active will set STD and display **STD** in place of the baro value.

SECTION 04

Menu

Press the encoder knob to open the menu. The available items mirror the certified G5 menu:

MENU ITEM	ENCODER ACTION
Back	Closes the menu
Heading	Rotate to set the selected heading bug on the HSI. The selected heading is sent to SimLink and the autopilot.
Altitude	Rotate to set the selected altitude. Sent to SimLink and the autopilot.
HSI	Rotate to switch between PFD and HSI display modes

Press the encoder again to step to the next item. The menu closes automatically after a period of inactivity. Holding the encoder from any item returns to the top of the menu.

SECTION 05

AFCS Mode Annunciation

The G5 displays a **flight director and autopilot mode annunciation bar** across the top of the PFD page, matching the real G5's AFCS integration. The bar shows:

- **Lateral mode** — the active autopilot lateral mode, e.g. HDG, NAV, GPS, ROLL, LVL
- **Vertical mode** — the active autopilot vertical mode, e.g. ALT, VS, IAS, GS, PTCH
- **AP / FD engaged state** — whether the autopilot or flight director is active

The AFCS bar is populated automatically from what SimLink reads from the simulator. No manual configuration is needed on the panel itself.

The modes displayed depend entirely on what the simulator and aircraft model report. The G5 replica reads the authoritative mode strings from SimLink and renders them as-is, so the annunciations will match those shown in the simulator's own autopilot display.

SECTION 06

Backlight

Display brightness is set automatically by SimLink, driven by the simulator's instrument lighting bus. The physical unit also includes a hardware brightness control input that feeds into the same chain. No manual brightness adjustment is available on the panel itself.

SECTION 07

Dual-Unit Setup (G5A and G5B)

Two G5 units can be run simultaneously — typically one in the pilot position and one in the copilot position, or one as PFD and one as HSI. Each unit has its own configuration file (`RHSimTechG5_A.json` and `RHSimTechG5_B.json`) and listens on its own UDP port.

Both units are driven by SimLink independently. If only one unit is present, the other configuration is simply unused.

On first launch the G5 application will ask you to select which monitor the display should appear on. This selection is saved to the configuration file and will be used on all subsequent launches.

SECTION 08

Startup Behaviour

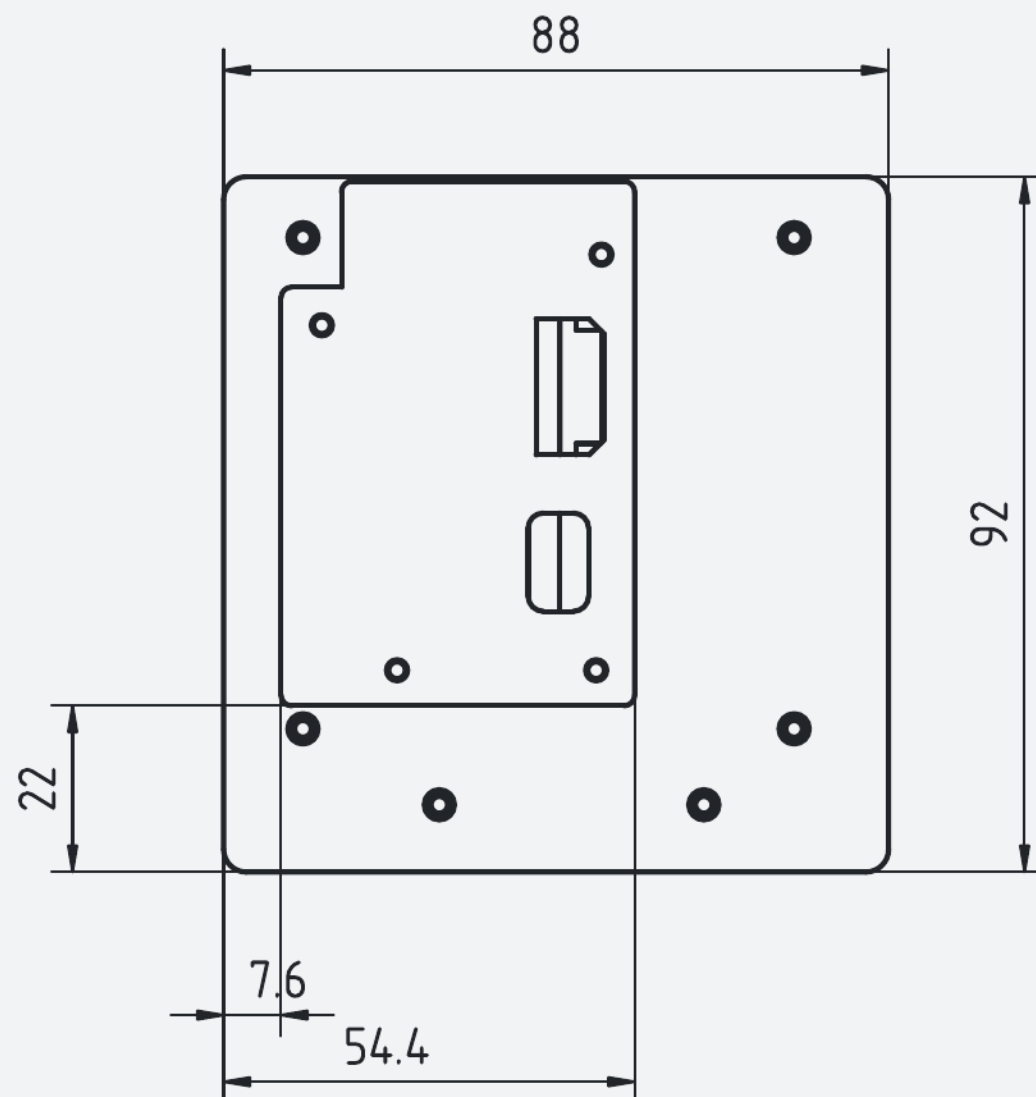
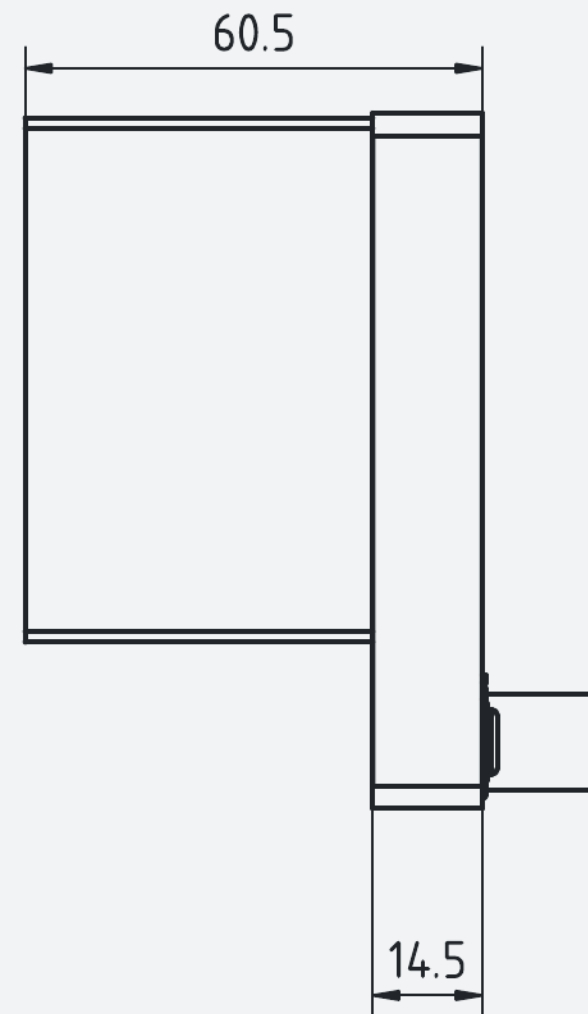
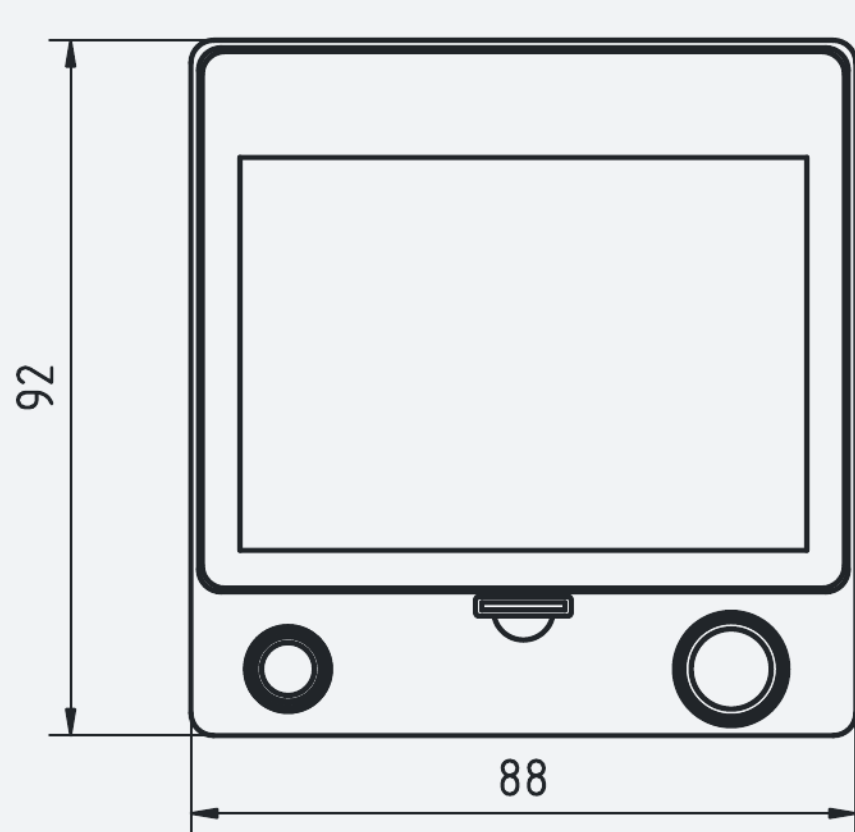
1. Connect the unit to your PC via USB and ensure the display panel is connected and recognised by Windows.
 2. Start SimLink, then start the G5 application (or SimLink will start it automatically if configured to do so).
 3. The display will power on and show the attitude indicator. If SimLink is not yet connected, the display will show a no-data state until the connection is established.
 4. Press the power button to power the display off at any time. Press it again to power on.
-

Troubleshooting Quick Reference

SYMPTOM	LIKELY CAUSE
Display blank after power on	Check USB connection and that the display panel is recognised by Windows
Attitude not moving with aircraft	SimLink not connected, or the G5 application is not running
Baro setting not changing in the sim	SimLink not receiving the feedback packet — check UDP port configuration
HSI shows no needle	No active navigation source in the simulator — tune a NAV or activate a GPS leg
AFCS bar blank or shows wrong modes	The aircraft model may not expose autopilot mode strings — this is an aircraft limitation, not a G5 fault
Display appears on wrong monitor	Delete <code>RHSimTechG5_A.json</code> or <code>_B.json</code> to re-run the monitor picker on next launch

Covers the current SimTech G5 build.

© RHSimTech Ltd · Rotherham, South Yorkshire, UK



RHSimTech HAND-CRAFTED FLIGHT SIMULATOR HARDWARE		TITLE G5	
DRAWING No. RHS-000	SCALE 1:1	SHEET 1 / 1	REV A
DRAWN BY R. HULME	DATE 2026-07-03	DIMENSIONS IN mm DO NOT SCALE FROM PRINT	