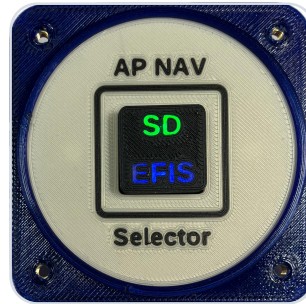


SD-Link SD-ProPilot-E & SD-Intelli-Switch (EXPERIMENTAL)



SD-ProPilot-E (Inline Adapter)



SD-Intelli-Switch (optional)

IMPORTANT

This product is in beta/prototype status and is intended for experimental applications. Installation and operation are at the user's own risk and must comply with the regulations applicable to the aircraft.

1 Product Overview

The **SD-ProPilot-E** is a plug-and-play inline adapter for the *TRIO ProPilot*. It is inserted into the existing serial connection *EFIS* → *ProPilot* and provides the navigation data source for the autopilot from either:

- EFIS (default: transparent pass-through mode), or
- SkyDemon (or compatible apps) via an internal BLE 5.1 module.

1.1 Basic Principle

The adapter acts as a switch between two navigation data sources (*EFIS* and *SkyDemon*) and ensures that the *ProPilot* is always supplied by a valid source:

- **Default state (pass-through mode):** EFIS data is forwarded unchanged to the ProPilot.
- **SD available:** As soon as valid SD NMEA data is present, switching to *SD* → *ProPilot* is possible (depending on the operating mode).
- **Fallback:** In case of SD data loss or connection failure, the system reverts to EFIS after approx. 2 s.

1.2 Optional: SD-Intelli-Switch

An **SD-Intelli-Switch** can be connected via a connector on the bottom of the adapter. It provides:

- A button for manually switching the source,
- Status indication for both sources *SD* and *EFIS* via LEDs.

2 Quick Start

2.1 Prerequisites

- **Autopilot:** TRIO ProPilot with active *Serial/NAV Input* (RS-232, installation-dependent).
- **EFIS:** Provides NMEA-0183 navigation data to the ProPilot (existing installation).
- **Tablet/App:** SkyDemon (or compatible app) with NMEA output capability.

2.2 Quick Start in 6 Steps

- ① Avionics **off** (Master/Avionics switch).
- ② Disconnect the *EFIS* → *ProPilot* connection and insert the [SD-ProPilot-E](#) as an inline adapter.
- ③ Secure the cable assembly (strain relief, chafe protection, adequate bend radius).
- ④ Turn avionics on and verify: **EFIS should still control the ProPilot** (baseline test).
- ⑤ Enable Bluetooth on the tablet and pair/connect with [SD-ProPilot-E](#).
- ⑥ In SkyDemon, **enable NMEA output**. Expected result:
 - SD source becomes available (SD LED on [SD-Intelli-Switch](#) turns **blue** or adapter SD status changes accordingly).
 - With SD source active: SD LED turns **green** and ProPilot follows SkyDemon NAV.
 - On SD failure (disconnect/invalid): automatic fallback to EFIS within approx. 2 s.

NOTE

If an [SD-Intelli-Switch](#) is installed, the source can be switched at any time by pressing the button: **active source = green, available but not active = blue**.

3 Compatibility (Beta)

- **Autopilot:** *TRIO ProPilot* (Serial NAV input RS-232)
- **Protocol:** *NMEA-0183 v2.00+* (typically *9600 baud*, installation-dependent)
- **Tablet/App:** *SkyDemon* (and compatible apps with NMEA output)

NOTE

In communication with *TRIO*, it was confirmed that the *ProPilot* expects an *RS-232* data stream at the *Serial Input* (pin assignment is installation/IOC-dependent).

4 Installation

4.1 Mechanical / Electrical Installation (Overview)

- ① Turn off avionics.
- ② Disconnect the existing *EFIS* → *ProPilot* connection.
- ③ Insert the **SD-ProPilot-E** as an inline adapter.
- ④ Secure the cables mechanically (strain relief, chafe protection).
- ⑤ Optional: Connect the **SD-Intelli-Switch** to the bottom connector and mount it in the cockpit.

NOTE

Connector types and pinout are installation-dependent and will be documented in the final manual in section 8 **Pinout**.

4.2 Bluetooth Setup (SkyDemon)

IMPORTANT

Do not pair the SD-Link in the Bluetooth settings

The SD-Link adapter is a Bluetooth Low Energy (BLE) device. BLE devices are not paired via the Bluetooth settings of your tablet or phone like regular Bluetooth devices such as headsets or speakers.

Therefore, please do not open the Bluetooth settings of iOS, Android or Windows to search for or pair the SD-Link there.

The connection to the SD-Link is set up exclusively within the navigation app itself, e.g. in SkyDemon, Sky-Map, VFRnav, EasyVFR or another supported app. Pairing at operating-system level is not required and can even prevent the connection.

Regular Bluetooth devices such as headsets, intercoms or speakers can still be used in parallel. They are paired via the operating system as usual. The SD-Link, however, is addressed directly by the navigation app.

If the SD-Link has already been paired in the Bluetooth settings: Please remove the SD-Link completely from the Bluetooth device list of your tablet or phone. Do not pair it again via the operating system afterwards; instead, set it up again exclusively within the navigation app.

REMEMBER

**Do not pair the SD-Link in the operating system.
Always set up the SD-Link directly in the navigation app.**

- ① Enable Bluetooth on the tablet.
- ② Set up the **SD-ProPilot-E** directly in *SkyDemon* (*Connectivity* -> *Add Bluetooth Device*) – do **not** pair it in the operating system's Bluetooth menu.
- ③ In *SkyDemon*, **enable NMEA output**.
- ④ Check the status using the LEDs (see section 5).

4.3 Checklist: Installation (Before Powering On)

- Avionics switched off.

- Inline connectors properly mated and mechanically secured/locked.
- Cable assembly secured with strain relief (no stress on connectors).
- Chafe protection at edges/pass-throughs, adequate bend radius.
- [SD-Intelli-Switch](#) (optional) correctly connected and securely mounted in the cockpit.

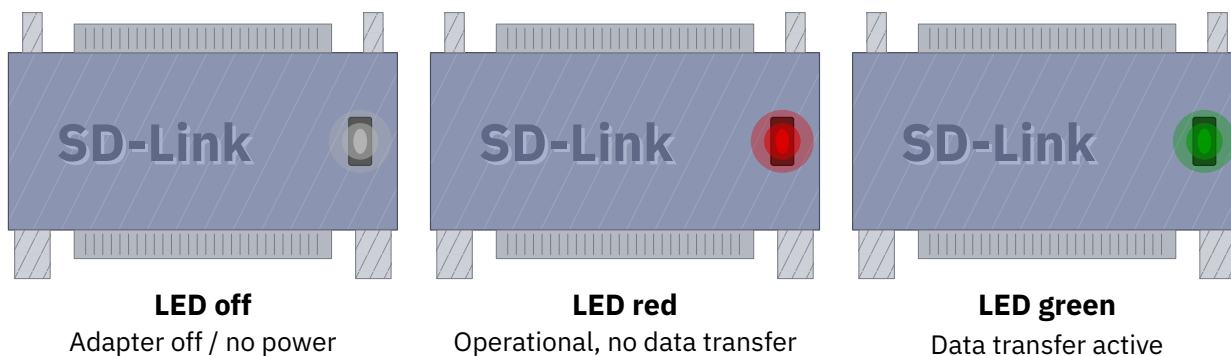
4.4 Checklist: Ground Functional Test

- **Baseline:** Without tablet connection, EFIS remains active (EFIS → ProPilot).
- **SD available:** Tablet connected, NMEA output active ⇒ SD becomes **available** (SD LED blue).
- **SD active:** Switch to SD (button or SkyDemon NMEA on) ⇒ SD LED **green**.
- **Fallback:** SkyDemon NMEA off / tablet disconnect ⇒ revert to EFIS within approx. 2 s (EFIS LED green).

5 Status Indicators

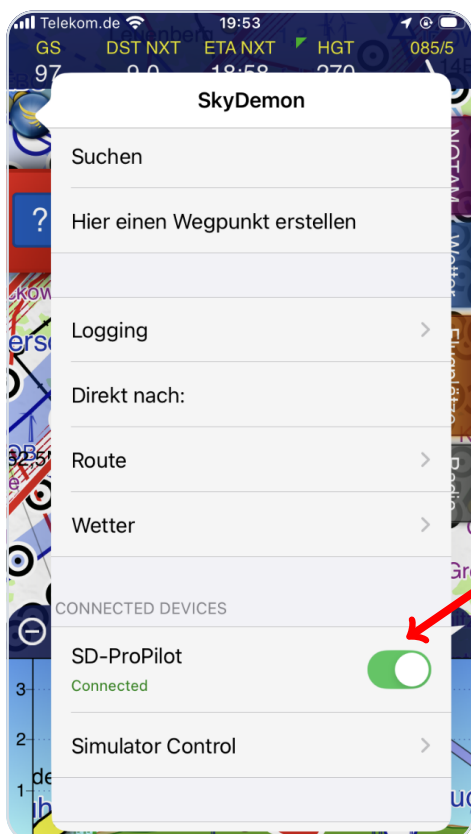
5.1 Diagnostic LED on the SD-ProPilot-E (Inside the Adapter Housing)

The tri-colour LED inside the adapter housing is intended for diagnostic purposes only. It is visible from outside but not designed as a cockpit display.



LED Indicator	Status	Meaning
●	Off	Adapter powered off or no power supply.
●●●	Flashing	Adapter operational, but no mobile device connected.
●	Steady	Mobile device connected, but no valid navigation data received.
●	Steady	Valid navigation data is being sent to the <i>ProPilot</i> (<i>EFIS</i> disconnected).

5.1.1 Switching via SkyDemon



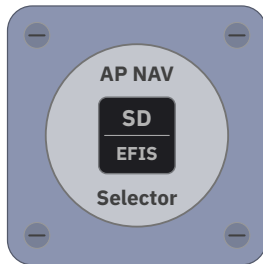
NOTE

As soon as valid *SD* data is available, the adapter uses it immediately. The connection to the mobile device remains active; only the NMEA output in *SkyDemon* is toggled on or off. This effectively switches the source for the *ProPilot* between *SD* (NMEA active) and *EFIS* (NMEA in *SkyDemon* disabled).

NMEA output in SkyDemon can be enabled or disabled here

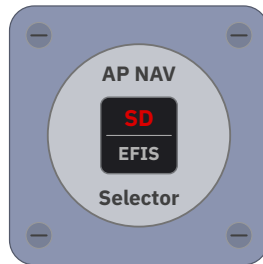
5.2 SD-Intelli-Switch

5.2.1 LED “SD” (Top)



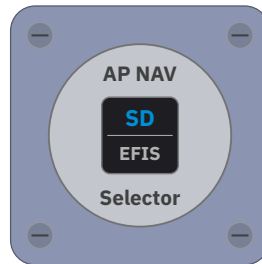
Off

No SD data / no connection



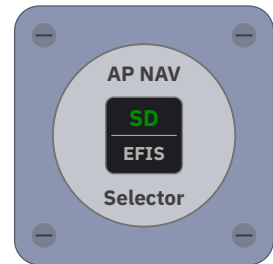
Red (steady)

Mobile device connected, but no SD data



Blue (steady)

SD data available, but not active

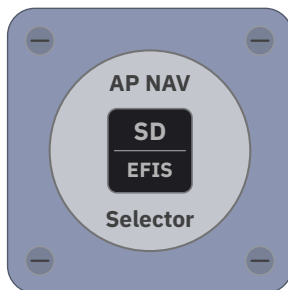


Green (steady)

SD data active (EFIS disconnected)

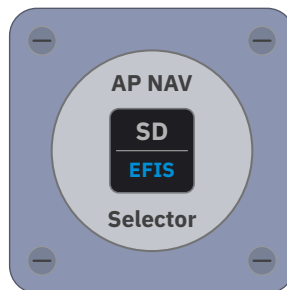
Indicator	Connected	Data Available	Active	Meaning
SD	×	×	×	No mobile device connected
SD	✓	×	×	Mobile device connected, but no valid SD/NMEA data received.
SD	✓	✓	×	Valid SD data is available, but the source is not active (ProPilot is currently fed by EFIS).
SD	✓	✓	✓	SD is active: SD data is being sent to the ProPilot (EFIS disconnected).

5.2.2 LED “EFIS” (Bottom)



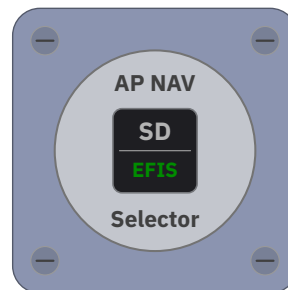
Off

No EFIS data / no connection



Blue (steady)

EFIS data available, but not active



Green (steady)

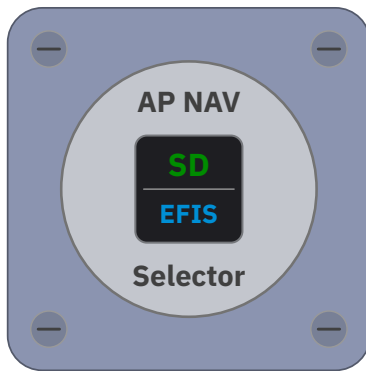
EFIS data active (to ProPilot)

Status indicators of the “EFIS” LED on the SD-Intelli-Switch (bottom).

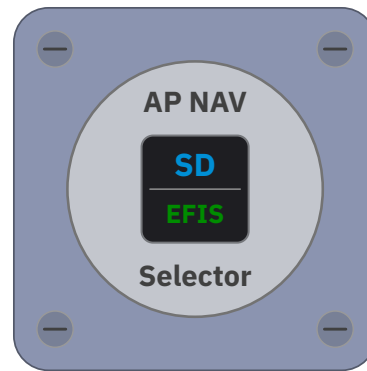
Indicator	Connected	Data Available	Active	Meaning
EFIS	×	×	×	No EFIS data available.
EFIS	✓	✓	×	Valid EFIS data is available, but not active.
EFIS	✓	✓	✓	EFIS is active: EFIS data is being sent to the ProPilot.

5.2.3 Switching via Button

Pressing the button switches to the other source, provided it is available. The active source is shown in **green**, the alternative (if available) in **blue**.

**SD active**

SD is active (**SD green**), EFIS is available (**EFIS blue**).

**EFIS active**

EFIS is active (**EFIS green**), SD is available (**SD blue**).

The LEDs indicate the following:

- **Available** (blue): Data is present, but the source is not active.
- **Active** (green): Data from this source is being sent to the *ProPilot*.
- **No data / error** (red or off): No valid data or no connection.

NOTE

If only two colours are to be used on the panel long-term, an alternative mapping will be described in the final manual (e.g. green = active, flashing = error, off = not available).

6 Operating Modes

6.1 Automatic Mode (without SD-Intelli-Switch)

- Default: EFIS → ProPilot (transparent).
- As soon as SD data is valid: automatic switch to SD → ProPilot.
- Fallback: on SD data loss/disconnect/invalid > 2 s revert to EFIS.

6.2 Manual Mode (with SD-Intelli-Switch)

- Source can be actively selected via the button.
- LEDs indicate availability/status of the sources.

7 Troubleshooting

7.1 How to Proceed

- ① **Check baseline:** Without tablet connection, EFIS must control the ProPilot as usual.
- ② **Check connection:** Tablet paired/connected? SkyDemon NMEA output active?
- ③ **Check source/LEDs:** On the [SD-Intelli-Switch](#): **active source = green, available = blue, error/no data = red/off**.

7.2 Case A: SD LED on the SD-Intelli-Switch is off

Symptom: SD LED off.

Probable causes: Tablet not connected or no SD data path available.

Quick test:

- Bluetooth enabled on the tablet?
- Is [SD-ProPilot-E](#) connected in the Bluetooth menu?

Remedy:

- Reconnect/re-pair the tablet.
- Briefly power-cycle the adapter (avionics off/on).

7.3 Case B: SD LED is red (Tablet connected, but no SD data)

Symptom: SD LED red.

Cause: Connection established, but no valid NMEA data from the app.

Quick test:

- SkyDemon: **NMEA output enabled?**
- Does the app have GPS reception/fix (position/track visible)?

Remedy:

- Enable NMEA output in SkyDemon (disable/re-enable if necessary).
- Check location/GPS permissions.

- Restart the app.

7.4 Case C: SD LED is blue (SD data available, but not active)

Symptom: SD LED blue. EFIS LED is green.

Cause: SD data is available, but EFIS is currently active.

Quick test:

- Press the button and check whether SD switches to green.

Remedy:

- Manually switch to SD (button).
- If switching is not possible: check the inline connection/connector to the ProPilot.

7.5 Case D: SD LED is green, but ProPilot does not respond

Symptom: SD is active (SD LED green), but ProPilot does not follow.

Probable causes: Incorrect serial parameters, wrong input on ProPilot, wiring/pinout issue.

Quick test:

- ProPilot configuration: Serial/NAV Input active?
- Baud rate/format matching the installation (typically 9600 baud, 8N1)?

Remedy:

- Check ProPilot serial input settings per the TRIO manual.
- Check pinout/signal direction per section 8.

7.6 Case E: EFIS LED on the SD-Intelli-Switch is off

Symptom: EFIS LED off.

Cause: No EFIS data available or line interrupted.

Quick test:

- EFIS powered on and providing NAV data?
- Baseline test without adapter possible (if permitted)?

Remedy:

- Check EFIS output/serial port configuration.
- Check inline connectors/cable assembly.

7.7 Support: Information That Helps

- ProPilot model/serial input configuration
- EFIS model and serial output (baud rate/port)
- Tablet/OS, SkyDemon version
- LED status: SD (top) and EFIS (bottom) + adapter LED
- Photo of the inline connection/installation

8 Connection / Pinout

IMPORTANT

The specific pin assignment is installation- and connector-dependent. The following tables are the **documentation structure** and will be populated with the definitive pins in the final document.

8.1 Inline Adapter: EFIS ↔ ProPilot

Signal principle: The adapter sits in the serial connection between EFIS (data source) and ProPilot (receiver).

Signal	Direction	Description
TX_EFIS	EFIS → ProPilot	Serial NMEA data stream from the EFIS.
RX_EFIS (optional)	ProPilot → EFIS	Only if used in the installation (typically not required).
TX_SD	Tablet/App → ProPilot	Serial NMEA data stream from the app (via adapter).
GND	–	Signal ground (installation-dependent).
V+ (optional)	Aircraft power → Adapter	Power supply, if not purely passive in the inline path.

NOTE

RS-232 levels (±) vs. TTL is **critical**. The adapter is designed for the TRIO ProPilot **RS-232** Serial Input (to be confirmed and documented in the final version).

8.2 SD-Intelli-Switch Connection

Function: Source switching + display via two LEDs (SD top, EFIS bottom).

Pin/Signal	Type	Description
V_SW	Power	Power supply for the switch module (voltage/fusing in the final document).
GND_SW	Ground	Ground for switch/LEDs/button.
BTN	Input	Button signal for switching the source.
LED_SD	Output	Control of the SD LED (top): status/colour per section 5.
LED_EFIS	Output	Control of the EFIS LED (bottom): status/colour per section 5.

8.3 View References

- Pinout diagram: **View from connector side** (clearly labelled).
- Pinout diagram: **View from cable/solder side** (if applicable).

9 Document Information

Field	Value
Product	SD-ProPilot-E / SD-Intelli-Switch
Document type	Installation and User Manual
Version	V 0.4 (Draft)
Date	18.02.2026
Valid for	
Hardware revision:	_____
Firmware version:	_____

9.1 Revision History

Version	Date	Author	Changes
0.3	18.02.2026	SD-Link	Draft: Basic structure, LEDs, installation, troubleshooting, pinout structure

9.2 Scope of Delivery

- [SD-ProPilot-E](#) inline adapter
- Optional: [SD-Intelli-Switch](#) (button + 2 status LEDs: SD/EFIS)
- Optional: Mounting hardware / cables (depending on product variant)

10 Contact

For problems, questions, suggestions, or positive feedback, please contact:

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