

KLN 90B GPS Readout

This gauge is a readout for the FS2000/FS2002 GPS. It displays the current navigation data from the built-in FS2000 GPS and provides GPS map display switching and GPS/NAV switching. The data formats displayed are based on the ones provided by the Bendix/King KLN 90B GPS. This gauge does not simulate a GPS, it only provides display and switching functions.

This gauge displays the data needed to navigate and fly using the built-in GPS in a realistic display without having to use the built-in GPS display except when changing GPS modes. The D-> button toggles the GPS moving map display on and off and the ENT button replaces the GPS/NAV switch normally used when using the GPS to drive the autopilot. Selecting the ENT button toggles the autopilot NAV source between NAV1 and GPS. When the GPS is the autopilot NAV source "GPS" is indicated in the lower right corner of the display.

The display contains four lines of data with the upper line displaying two XTK modes or an extended CDI scale when in the CDI mode. Lines 2 and 3 are divided into two data fields labeled 2L, 2R, 3L, and 3R. Line 4 is divided into three data fields labeled 4L, 4C and 4R.



CDI mode on upper line

<u>Line</u>	<u>Description</u>	<u>Example</u>
Line 1	Expanded CDI display using all of line 1 in CDI mode left digit specifies scale factor CDI ptr indicates Cross Track error.	5 (5 NM or 1 NM are available)
Line 2L	Bearing to Waypoint --	BRG 025 (degrees)
Line 3L	Ground Speed --	GS 129 KT (knots)
Line 4L	Waypoint ID --	-> RQZ (next waypoint)

Line 1R XTK information displayed in one of two modes.

<u>Mode</u>	<u>Information Displayed</u>
XTK --	XTK -1.7 NM distance off track in NM (- means track is to left of aircraft)
FLY TO--	FLY L 1.2 NM (L = left / R = right)

Line 2R	Distance to Waypoint --	DIS 13.1 NM (nautical miles)
Line 3R	Estimated Time to Wpt --	ETE 00:06:02 (hh:mm:ss)
Line 4C	Desired Track to Wpt --	DTK 032 (degrees)
Line 4R	Autopilot NAV/GPS source --	GPS or NAV

CDI mode symbology

	--	desired track
^	--	aircraft track (always in center)
+	--	each mark is 1 NM or 0.2 NM

Controls

In this version there are four active controls.

D-> button	--	toggles GPS display on and off
ENT button	--	toggles autopilot NAV source between GPS and NAV
CDI/XTK/FLY knob	--	selects XTK display modes
right CRSR button	--	toggles CDI mode sensitivity between 1.0 NM per mark and 0.2 NM per mark. (full scale deviation of +/- 5 NM and +/- 1 NM)

Assumptions

GPS window is defined for panel that gauge will be used with.

In panel.cfg the gps window uses standard ident of ident=GPS_PANEL.

The user knows how to install gauges in a panel.

NOTE : Since the actual control is performed by the built-in GPS, this gauge may be installed on a secondary window and the window may be closed except when checking the readings, although for realism it will be better to have this gauge installed on the main panel.

Installation

The master gauge is named cad_kln90bro and it contains two gauges. The gps readout gauge (gpsro), and a small gauge which is an addon for the Bendix/King KAP140 autopilot which implements the up/down buttons for additional realism (apupdn).

The GPS gauge is addressed in panel.cfg as cad_kln90bro!gpsro and the updown addon as cad_kln90bro!apupdn.

It is not necessary to use the updown addon, I just included it since FS2000 gauges are multiple gauges by design and I like having the updown buttons on the KAP140 autopilot.

Gauge Size	:	497x161
Minimum Recommended width	:	> 250
Gauge name	:	cad_kln90bro!gpsro

NAVIGATIONAL TERMS from Bendix/King KLN 90B manual

BRG - Bearing to waypoint (degrees)
DIS - Distance to waypoint (nm)
DTK - Desired Track (degrees)
GS - Groundspeed (nm/hr)
TK - Actual Track (degrees)
WPT - Waypoint
XTK - Cross Track Error Correction (nm) displayed as
"FLY L 2.3 nm" or "XTK -2.3 NM"
ETE - Estimated Time Enroute (hrs:min)
CDI - Coarse Deviation Indicator

NOTES

This is version 1.3 of this gauge and I will release an update if any more updates are required. Please send me an email if anything doesn't work as expected or if there is any questions. I am always open for suggestions if you have any ideas on improvements that can be made.

This gauge is a completely new work, although it is based upon ideas I got from the GPS integration method used by FSD International in their Commander 115 and information provided by Dai, Arne Bartels, and all the others which are so helpful at the FlightSim Panel Design Forum and the AvSim MSFS Aircraft and Panel Design Forum. No part of any other person's gauges is included in these gauges.

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