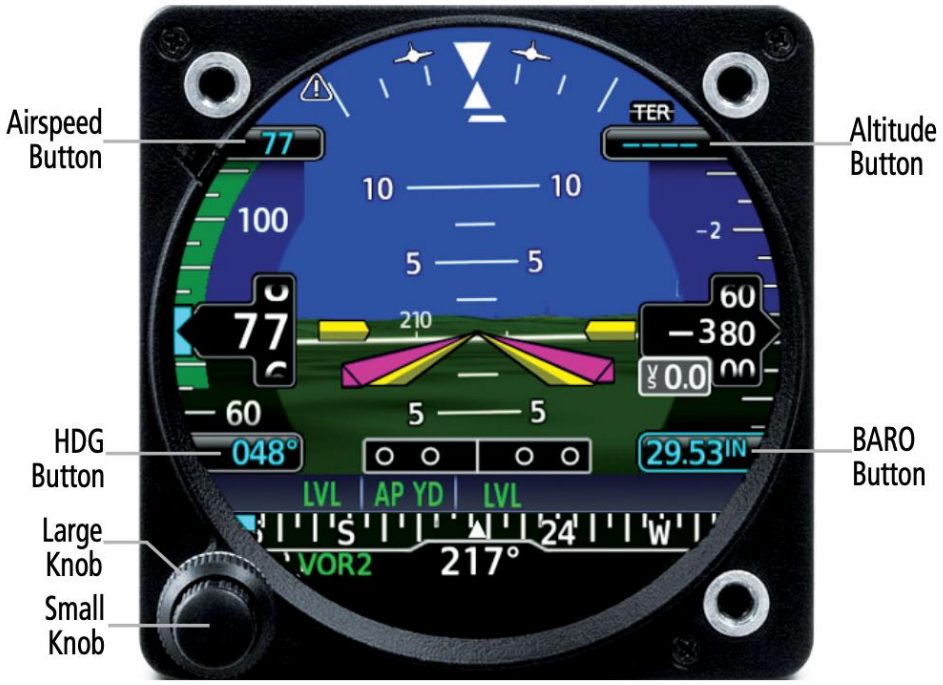
Short Summary New Avionics in VH-OKY

GI275 ADI (Primary ADI Configuration)

The MFI features a 3.125" circular capacitive touchscreen and a Large and Small Knob in the lower left corner. The Small Knob can be pushed. All operations are done with the knobs or touchscreen. The touchscreen can be operated with bare fingers or gloves made for capacitive touchscreens.



GI 275 Controls ('ADI' Page)

Since configured as Primary ADI there is only one Screen available (Large knob can't change screens)

All Buttons/Fields mentioned in above pic) **except BARO** can also be set by the GFC500 control panel knobs (easier since dedicated knobs for each function on the GFC500 control panel. For using GI275ADI touch the desired field/Button and the small knob will be allocated

Set BARO:

Small Knob is by default allocated to BARO Button/Field – twist Small Knob to set BARO

Alternative; touch BARO Button/Field to get Small Knob allocated to BARO then twist Small Knob to set BARO.

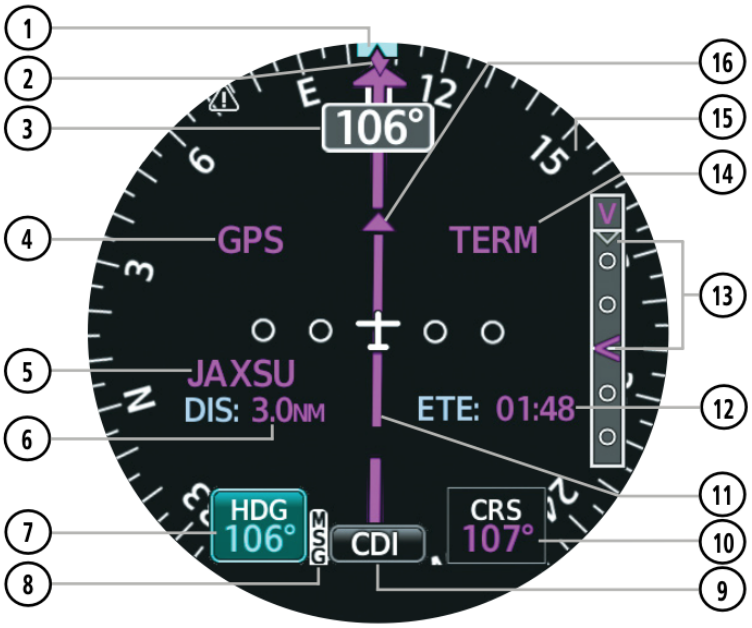
Note: if you push the BARO button (or field) it will set STD BARO (1013 hPa) long hold open menu.

GI275 HSI (Primary HSI Configuration)

HSI (HORIZONTAL SITUATION INDICATOR) PAGE FEATURES

NOTE: *Some or all HSI annunciations may appear in the four quadrants of the HSI depending on the external navigator(s) configured (e.g. SL30 NAV/COM Transceiver and/or the GTN or GNS Series Units).*

NOTE: *When the Navigation Source is VOR/LOC, the distance shown is GPS derived distance to the database location of the displayed VOR or localizer antenna (#6 in the image below).*



1. Selected Heading Bug
2. Current Track
3. Current Heading
4. Navigation Source
5. Active Waypoint
6. Distance to Waypoint
7. Selected Heading
8. Message on External Navigator
9. **CDI** Source Button
10. Active Course
11. Deviation Bar
12. Estimated Time Enroute (ETE) to Waypoint
13. Vertical Guidance
14. External Navigator Phase of Flight
15. Compass Rose
16. To/From Indicator

By turning Large Knob you can display following screens: ADI/HSI/HSI Map

Menus can be opened by push and hold the small knob or swiping up on the screen

CDI Navigation Source Selection (GPS, VOR, LOC, or VLOC)
From the 'HSI', or 'HSI Map' Page, touch the “CDI” Button (9) on the screen to cycle through each CDI source.
Or:
From any page, open the menu and select System > CDI Source.
Select the desired CDI source.

OBS Mode

Select OBS from GTN65Xi/GNX375 and set the course on the GI275 “HSI” or “HSI Map” page (Tap “CRS” field and use small knob)

Traffic
The 'HSI Map' Page can display traffic information. Traffic may or may not be shown depending on the other aircraft's location and equipment
Enabling/disabling the display of traffic:
1) From the 'HSI Map' Page, open the menu and select Options > Map Options.
2) Select the Traffic Button to enable/disable the display of traffic on the map.

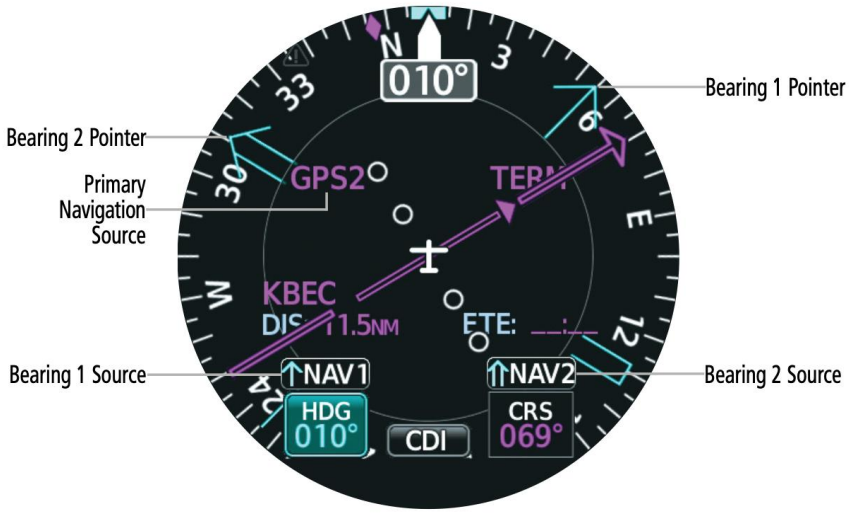
Displaying Outside Air Temperature:
1) From the 'ADI' or 'HSI' Page, open the menu and select ADI or HSI Options > Misc. Field.
2) Select the preferred temperature option, ISA, OAT, or TAT.
3) Select the button to toggle Temperature.

Displaying Wind:
1) From the 'ADI' or 'HSI' Page, open the menu and select ADI or HSI Options > Misc. Field
2) Scroll down and select the preferred wind format.

Bearing Pointers

Two bearing pointers and associated information can be displayed on the 'HSI' Page for NAV (VOR, Localizer) and GPS sources. The bearing pointers are cyan and are single-line (Bearing Pointer 1) or double-line (Bearing Pointer 2). Pointer symbols are shown above the HDG and CRS Buttons to indicate the navigation source. The bearing pointers never override the deviation indicator and are visually separated from the deviation indicator by a gray ring shown when the bearing pointers are selected.

Enabling/disabling the bearing pointer(s) and changing sources:
1. From the 'HSI' Page, open the menu.
2. Select the HSI Options Button.
3. Select Bearing 1 and/or Bearing 2 to toggle the visibility of the bearing pointers.
4. Select GPS1 or NAV under Bearing 1 or GPS2 under Bearing 2.



'HSI' Page - Bearing Pointers

Bluetooth connection to mobile devices

1.Place your mobile device in pairing mode.
2. On the ADI, open the menu and select System > Wireless.
3. Scroll down and select “Pair a Device”. On the 'Pair Device' Screen, the ADI will display its Bluetooth name and prompt the pilot to "Please remain on this page while pairing your Bluetooth device."
4. Once the ADI receives the pairing request from the mobile device, a pairing message will prompt the pilot. Press the Pair Button. After the connection is established, the mobile device will show “Status Connected”

Findings:
-Connection can only be done from GI275.
-Tested AVplan on iPad and did not get any connection
-Tested Garmin Pilot on iPad and did get connection
-Not tested OzRunways & ForeFlight
-The number of Bluetooth connections in the library is limited (Wi-Fi is not available)

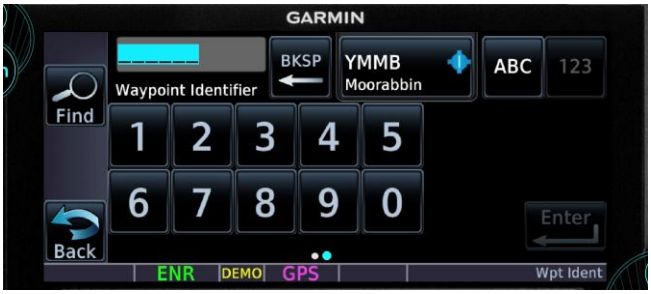
GI275 GPS receiver

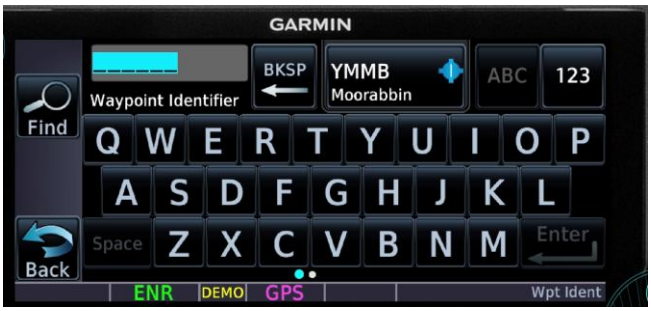
The GI275 has a built in VFR GPS receiver. In case GI275 lose GPS signal from both GTN65Xi and GNX375 the internal GPS will be activated for navigation on GI275 HSI. Open menu and select “Direct to” option for navigation.

GTN650Xi

Touch Screen controls

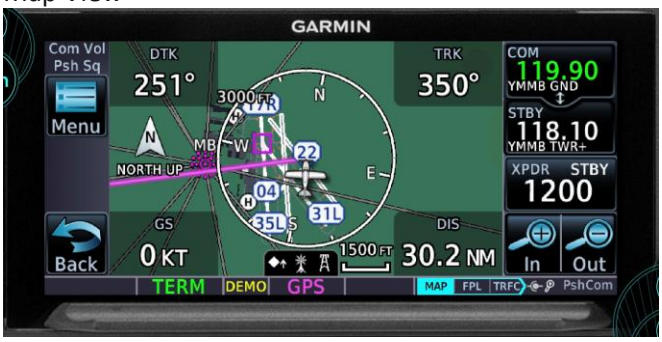
You control the GTN by touching the appropriate window, button, icon, label, or letters and numbers on the keypad. The specific controls that appear depend on the selections that you make.



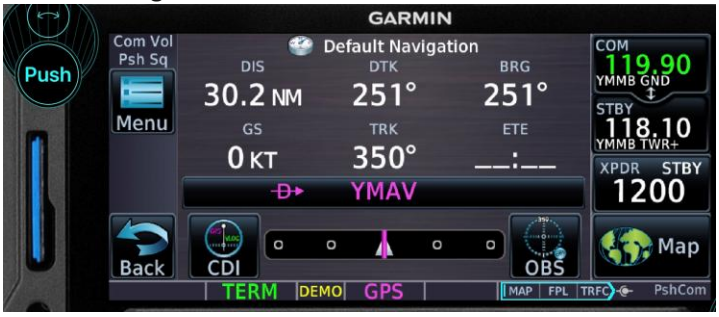


Most pages have a “Menu” button in the upper left corner for further selections

Map View

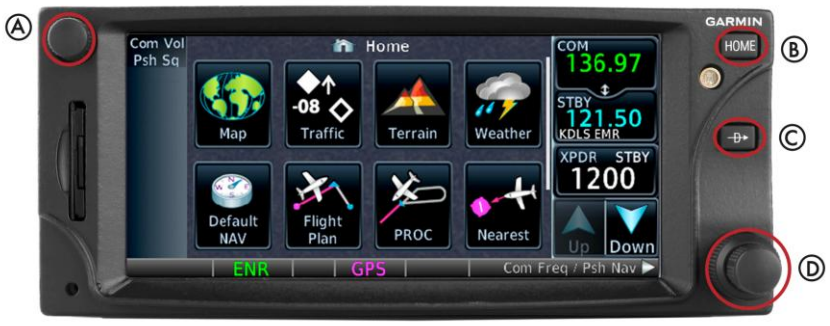


Default Navigation view



Using GTN650Xi physical controls (real buttons and knobs)

It's usually easiest to use the touch screen to manage inputs. However, you can also tune frequencies, enter waypoint names, and perform other functions with the knobs and buttons on the bezel.
These physical controls include:
A. The Volume/Squelch knob in the upper-left corner.
B. The Home button in the upper-right corner.
C. The Direct-To button on the right side.
D. The Large and Small concentric knobs in the lower-right corner. (Similar to GNS430 and G1000)



Load and activate a visual approach

There are three methods to load and activate a visual approach:

A. When you are within 10 NM of the destination airport, the Visual button appears in the lower-left corner of the Map.

1. To activate a visual approach, TOUCH the Visual button.
2. In the Activate Visual Approach window, TOUCH the name of the visual approach you want to fly.
3. In the Visual Approach Only window, confirm the information about the approach, and then TOUCH Load.

B. On the Map, TOUCH an airport to which you want to fly a visual approach.

1. At the bottom of the display, TOUCH the Visual button.
2. In the Activate Visual Approach window, TOUCH the name of the visual approach you want to fly.
3. In the Visual Approach Only window, confirm the information about the approach, and then TOUCH Load.

C. Load a visual approach from the Procedures page associated with an airport.

1. On the Active Flight Plan page or the Waypoint Info-Airport page, TOUCH Load PROC or PROC.
2. From the list of procedures, TOUCH the name of the visual approach to the runway you want use.
3. TOUCH Load Approach or Load APPR & Activate.

Flying Holds

The GTN supports charted holds that are part of procedures, such as charted SIDs, STARs, and Approaches. You can also create a custom hold at any waypoint in the navigation database. You can treat a hold like any other waypoint in the active flight plan. You can proceed direct-to a hold, activate a leg from a hold to another waypoint, and delete a hold, just as you could with any other waypoint.

Flight plans

Logic is similar to Garmin GNS430W and G1000
(Cross feed Between GTN650Xi and GNX375 need further checking/verification)

Approaches

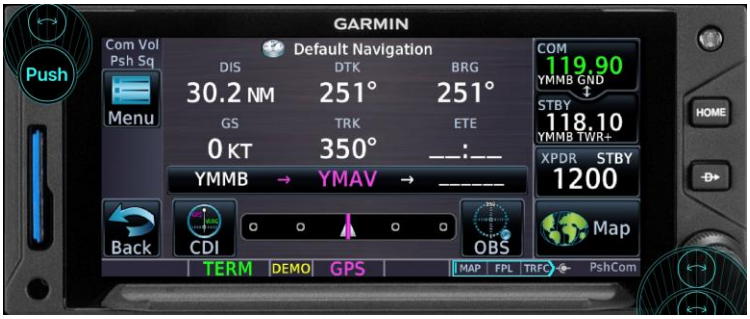
"+V" (Vertical Guidance) available for GPS approaches

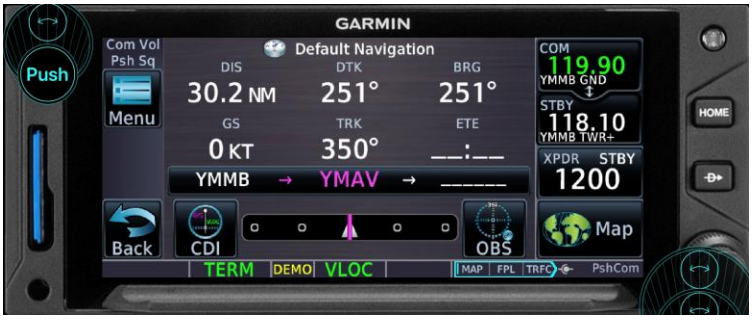
RAIM

Home -> Utilities -> RAIM Prediction

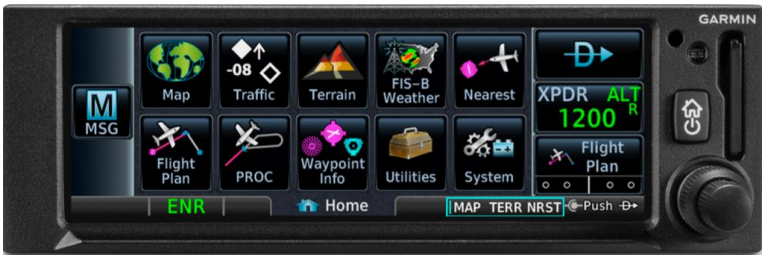
Observations:

Change of "CDI" source on "Default Navigation" page do not change CDI source on GI275 HSI – Need to be manually changed on the GI275 HSI by tapping "CDI" field in the bottom center of screen



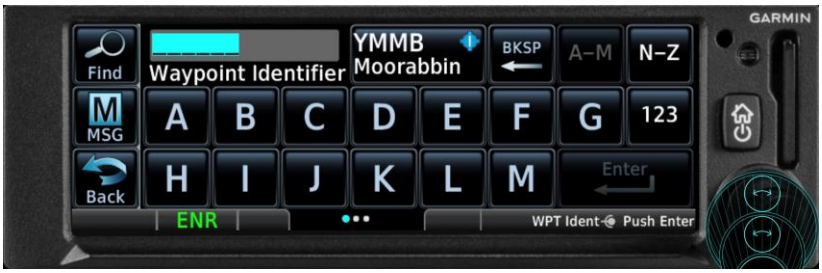


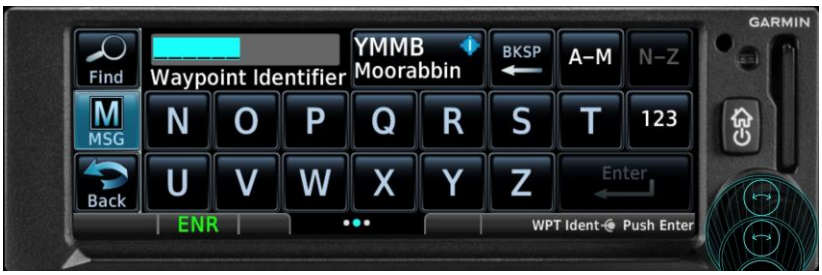
GNX375



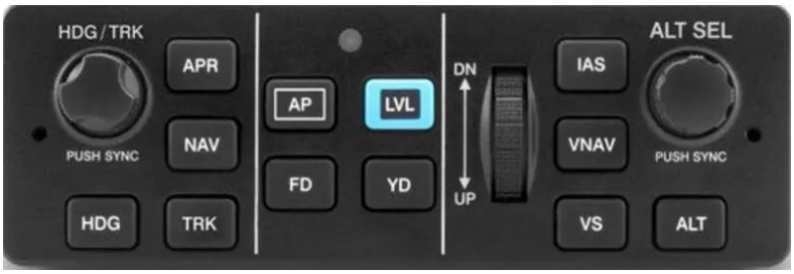
GNX375 logic is similar to GTN650Xi with a few important differences;

- Do not have “Default Navigation” page
- The screen is smaller so Alfa keyboard for inputs is divided into two screens (with selector at the top right)
- Navigation info is shown in lower right part of the screen “Flight Plan” and on GI275 HSI as GPS2





GFC500 Autopilot



Do NOT START by pressing "AP" button. Begin by setting Heading bug on present heading (use AP "HDG/TRK" knob to set present heading) then press "HDG" and "ALT" buttons. Selecting these modes will activate Flight Director (FD) command bar (Magenta Chevron) in GI275AI and also show the AP modes selected in green in the AP bar in the lower part of GI275AI. Only if the FD command bar suggest the desired flight path, then engage the autopilot by pressing the "AP" button and monitor closely.

DO NOT overpower the Autopilot by forcing the Yoke – disconnect instead (The trim will operate in the direction opposing the overpower force, which will result in large out-of-trim forces)

There are four ways to **Disengage the Autopilot**:

1. Press the **Red Button on the yoke**
2. Press **Electric trim Switch (on yoke) up or down**
3. Press "**AP" button on the Autopilot controller**
4. Pull Autopilot **Circuit Breaker** – see circuit breaker panel in copilot side

"**LVL**" button when pressed will bring the aircraft to straight and level flight from any upset situation.

"TO/GA" button (in panel above Throttle) engage FD in pitch up & wings level

GI 275 AFCS STATUS BOX

The AFCS status box displays autopilot (AP) and flight director (FD) mode annunciations on the ADI Page.

Autopilot (AP) status is displayed middle of the GI 275 Autopilot Status Box. Lateral modes are displayed on the left, and vertical modes are displayed on the right. Armed modes are displayed in white and active in green.

Electronic Stability & Protection (ESP)

The ESP function provides a soft barrier to keep the aircraft within the desired operating envelope when the autopilot is not engaged. When the AFCS senses the aircraft is near the defined operating limit in pitch attitude, roll attitude, high airspeed, or low airspeed, the ESP function will automatically engage one or more servos to nudge it back to the nominal operating envelope. While ESP utilizes the same sensors, processors, and actuators as the AFCS autopilot, it is a separate,

mutually exclusive function. ESP can be easily overpowered by the pilot and can be disabled using the AP DISC / TRIM INT Button.

For further details of Autopilot functions following YouTube is recommended:
https://www.youtube.com/watch?v=jLB14taE_tY

Stand-By Battery

The aircraft is equipped with a Stand by battery that will supply power to the GTN650Xi in case power is lost on the avionics Bus.
The Battery stand by switch shall be turned on after Avionics Master has been turned on after start up and turned off before Avionics Master is turned off before shut down.

When Stand By battery is supplying power to the GTN650Xi the blue light in the panel located above the Altimeter is illuminated

COM1 can only be used via Pilot side Headset jacks when power is supplied by the stand-by battery (since no power to the Audio Panel)

References

Garmin POH Manuals can be downloaded from;

https://support.garmin.com/en-AU/aviation/gl/manuals/

Third Party Manual for GTN650Xi:

GTN650Xi "**A Pilot Friendly Manual**" – PDF copy can be bought and downloaded (price USD 39.00)
Scenario based manual 39 pages

https://pilotworkshop.com/products/gps-manuals/

Apps for training from Apple App store (free)

"Garmin GTN Xi Trainer" App for GTN650Xi

"Garmin GPS Trainer" App for GNX375