



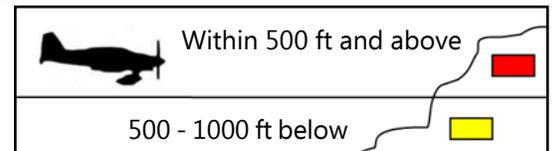
### 7.2 Terrain on HXR

Terrain that is within 1000 feet of the aircraft's altitude can be color coded on both the moving map and the PFD synthetic vision according to the chart at right. All terrain within 500 feet of the aircraft's altitude and above the aircraft is colored red for extreme caution.

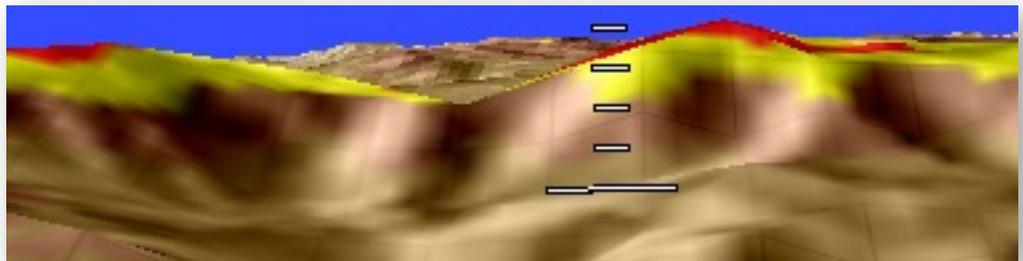
**NOTE:** When turned on, the Terrain warning will come on even when the aircraft is taking off and landing. Some passengers may find the red screen to be alarming.

#### To display Terrain color coding:

1. Press SCREEN > Map Options.
2. Press SHOW softkey until TERRAIN is highlighted.
3. Press HOME to return to the home softkeys.



*With the terrain warning coloring on the PFD, the pilot can quickly determine where the hazardous peaks are on his or her flight path.*



### 7.3 XM and ADS-B Weather

The HXR is capable of displaying several different types of weather information. TFRs and other FIS-B (ADS-B) features will be available in future software releases. To learn more about ADS-B and how it works with the HXR system, see the Appendix of this manual or the [GRT website's Compatible Equipment/ADS-B page](#).

#### Weather displayed on the HXR includes:

- NEXRAD radar
- Colored METAR symbols (full METARs visible on the Waypoint Details screen)
- TAFs (visible on the Waypoint Details screen)
- Winds Aloft (XM only)
- TFRs (XM only; ADS-B TFRs will be available in a future HXR software release.)

**NOTE:** The permanent SFRA around Washington, DC can be displayed on the map as airspace.

### NEXRAD Radar (Precipitation)

Regional NEXRAD radar is displayed on the GRT map screen when equipped with an operational ADS-B weather receiver and within range of ADS-B ground stations. XM weather can also be displayed when equipped with an XM receiver with a paid subscription.

Radar imagery can be displayed for the entire contiguous U.S. (CONUS) when equipped with XM. The HXr displays the regional 250 nm ADS-B radar picture only. Areas outside of ADS-B radar coverage are marked on the map with fine blue hatch-marks. The GRT system receives new weather information every 2.5 minutes and the radar refreshes every 5 minutes. A note on the left side of the map screen shows the age of the radar image in minutes.

A looping feature is not yet available for ADS-B radar imagery, but is currently in development. CONUS radar is not currently displayed due to limitations of the ADS-B system; refresh rate is slow and resolution is low. Both of these features may become available in later software releases.

NEXRAD colors are universal. The greens represent light to moderate precipitation. Yellows are moderate to heavy precipitation. Extremely heavy rain, snow, ice and hail are displayed red and pink. Light aircraft should avoid all areas of red and pink. The radar imagery does not distinguish between rain and snow.

#### To display radar on any map:

1. Press SCREEN > Map Options > SHOW
2. Highlight RADAR under SHOW heading.



*Left- Radar age and ADS-B traffic status notes on left edge of map margin. Right- Light to moderate rain signature with areas of embedded heavy rainfall shown as red pixels.*

### NEXRAD Color Key for GRT EFIS Systems

Color	Precipitation Rate	in/hr	mm/hr	XM WX	ADS-B
Dark Green	Very Light	0.01-0.02	0.15-0.6	10-20 dBZ	5-20 dBZ
Medium Green	Light to Moderate	0.02-0.1	0.6-2.7	20-30 dBZ	20-30 dBZ
Yellow	Moderate	0.1-0.45	2.7-11.5	30-40 dBZ	30-40 dBZ
Medium Red	Moderate - Heavy	0.45-0.92	11.5-23.7	40-45 dBZ	40-45 dBZ
Bright Red	Heavy	0.92-1.9	23.7-48.6	45-50 dBZ	45-50 dBZ
Medium Magenta	Very Heavy / Small Hail	1.9-4.0	48.6-100	50-55 dBZ	50-55 dBZ
Bright Magenta	Extreme / Large Hail	>4.0	>100	dBZ > 55	dBZ > 55

### Textual Weather Reports- METARs and TAFs

The HXr displays **METARs** (Aviation Routine Weather Reports) in 3 ways:

- Airport symbols that are color-coded for general VFR, IFR or marginal conditions.
- Graphical symbols on the map with colored airport symbol, visibility, ceiling in hundreds of feet, and wind vector
- Full textual METAR report on the Waypoint Details page in either raw or translated form.

**TAFs** (Terminal Aerodrome Forecast) are displayed in textual form on the Waypoint Details page in either raw or translated form.

### Textual Weather Report Preferences

METARs and TAFs can be displayed in either Raw or Translated format. The difference is shown below:

#### Raw METAR text:

```
KGRR 011353Z 21008KT 5SM BR BKN005 OVC031 18/16 A2997 RMK AO2 SLP149  
T01830161
```

#### Translated METAR Text:

Weather Station: KGRR  
Observed 1353 UTC 01 October 2013  
Temperature: 18.3°C (65°F)  
Dewpoint: 16.1°C (61°F) [RH = 87%]  
Altimeter: 29.97 inches Hg (1015.0 mb)  
[Sea-level pressure: 1014.9 mb]  
Winds: from the SSW (210 degrees) at 9 MPH (8 knots; 4.2 m/s)  
Visibility: 5 miles (8 km)  
Ceiling: 500' AGL  
Clouds: broken 500 AGL, overcast 3100 AGL  
Weather: BR (mist)

#### To select raw or translated textual Weather reports:

1. Press MORE > Setup Menu > Moving Map.
2. Scroll to the **METAR Text** and **TAF Text** settings. Select Raw or Translated for each one.

## Waypoint Details Page - Weather Reports

**DETAILS**

KGRB - Elev 695' AUSTIN STRAUBEL INTL 0:27

06-24	7699 x 150 Hard	Lights
18-36	8200 x 150 Hard	Lights
12-30	*** UNUSABLE ***	

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Right hand traffic to 18  
 Fuel 100LL, Jet A, Oxygen  
 Lat: N44-29.08 Lon: W088-07.78  
 Mag Var: 2.0W  
 City: GREEN BAY, WISCONSIN  
 Weather Station: KGRB  
 Observed: 21:53 UTC on the 28th  
 Temperature: 16°C (60.8°F)  
 Dewpoint: 14°C (57.2°F) [RH=88%]  
 Altimeter: 29.89 (1012.2 mb)  
 Winds: 300 / 9 kts  
 Visibility: 5 miles  
 Ceiling: 3600' AGL  
 Clouds: broken 3600' AGL, overcast 4700' AGL  
 Weather: light rain, mist

Press TAF softkey to open TAF page

PUSH SYNC	SEL HDG	FREQ	➤	PLATE	TAF
-----------	---------	------	---	-------	-----

METAR text



TAF page showing either translated (shown) or raw TAF report.



**TAF**

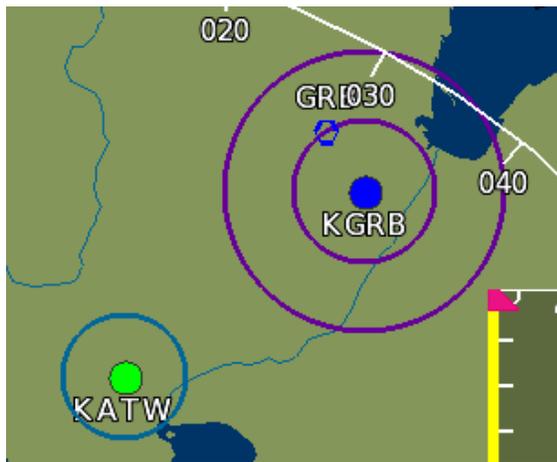
Weather Station: KEAU (142.7 nmi)  
 Issued: 17:21 UTC on the 28th  
 Overall Period: 18:00 on the 28th to 18:00 on the 29th

Period	Wind (kts)	Vis (mi)	Ceil (AGL)	Clouds (AGL)
28 18:00	310°/6	>6	2600'	overcast 2600'
28 23:00	320°/6	>6	6000'	broken 6000'
29 04:00	0°	>6		scattered 6000'
29 15:00	220°/5	>6	5000'	broken 5000'

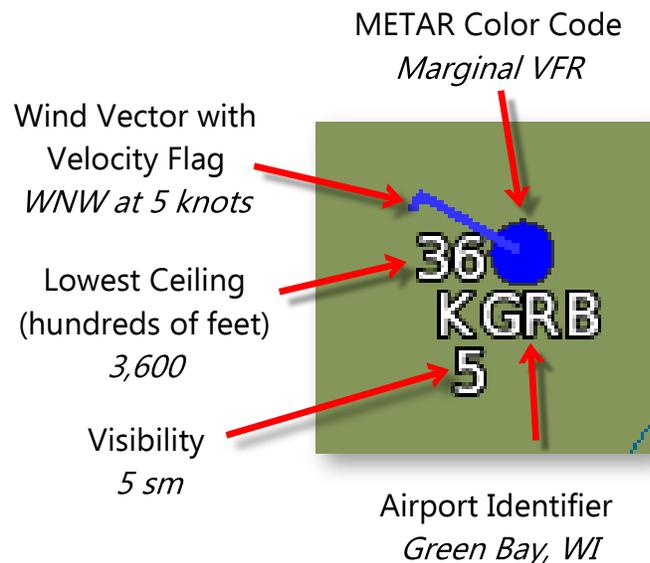
## To display METAR airport color coding:

1. Press MORE > Setup Menu > Moving Map.
2. Scroll to **Color Airports Using METARS** and select YES. SAVE settings to avoid having to repeat this step in the future.
3. Press SCREEN > Map Options > SHOW and highlight NONE. If other weather or terrain features are selected, METAR colors will not show.
4. Alternative: When the map screen is in North Up configuration, press SCREEN > Map Options > SHOW and highlight METAR. This displays the graphical METAR icon at each airport with a METAR report, as shown below right.

**METAR Airport Color Coding**



**Graphical METAR Icon (North-Up Only)**



## Metar Color Coding

	Category	Ceiling (feet AGL)	Visibility (sm)
	VFR	Greater than 3000	Greater than 5
	Marginal VFR	1000-3000	3-5
	IFR	Less than 1000	Less than 3
	Low IFR	Less than 500	Less than 1
	No METAR report	Unknown	Unknown

### 3.12 Traffic Display

Traffic can be displayed on the map if the aircraft is equipped with one of the following:

- Mode S transponder in a TIS (Traffic Information Service) service area (dependent upon ATC radar)
- 978 MHz or 1090 MHz ADS-B receiver AND a certified ADS-B transmitter\*
- ADS-B transceiver

**\*WARNING:** See the Appendix of this manual for information on the ADS-B system and required equipment. **Some traffic may display on the screen even if you are not broadcasting ADS-B Out; however, this is not a complete picture of all traffic around you.** See Equipment Supplements page of the GRT website for information about setup and installation of compatible ADS-B receivers and Mode S transponders. Setup options for these items may affect the way traffic displays on the screen.

**WARNING:** The traffic icon is intended to alert the pilot of a potential conflict and give a general idea of where the conflicting traffic is in space. Any artificial traffic presentation is subject to delays of data refresh rates. Never rely solely on the EFIS traffic presentation for traffic avoidance- Always look out the window to see-and-avoid.

#### Traffic Target Icon

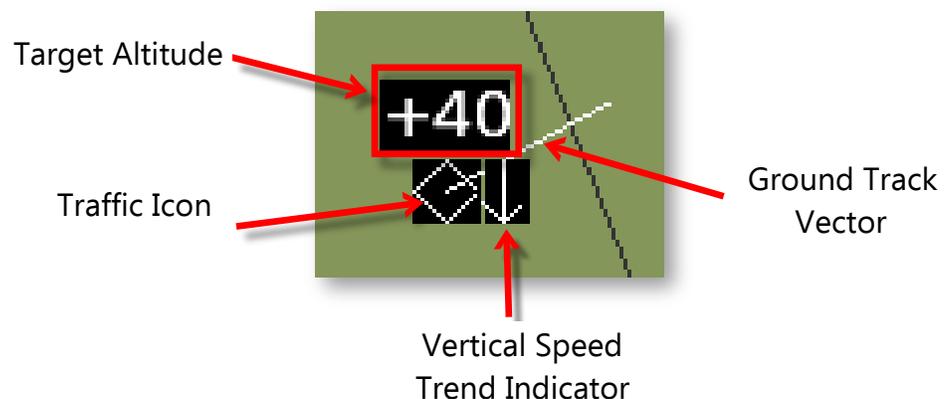
The GRT traffic icon is simple and made up of four parts:

**Target Altitude-** Altitude in hundreds of feet relative to your aircraft; 1,200 feet above you in the example below. A (+) means the target is above you, a (-) means it is below you.

**Traffic Icon Body-** Diamond-shaped icon representing the last known position of the target aircraft

**Vertical Speed Trend Indicator-** A simple arrow that points up if the target is ascending more than 500 fpm, points down if the target is descending more than 500 fpm, or disappears if the target altitude is steady or less than 500 fpm.

**Ground Track Vector-** Line radiating from the body that represents the direction of motion of the target aircraft.



### Traffic Inset

On most HOME screens, traffic can be displayed in a Traffic Inset. It gives a simple, clutter-free top-down view with your aircraft in the center of the range rings and the relative location of traffic targets detected by the on-board traffic receiver. When a traffic target is detected within 2 nm of your location, the inset header turns red and displays a Traffic Alert. To display and/or set the range of the Traffic Inset:

1. Press INSET > Traffic
2. Press 2, 6 or 12 (nm) to select one as the map radius.

### Automatic Traffic Alert Window

The Traffic Alert Window is in the form of an Inset window. It can be set up to appear automatically on all of the Home screens, including Map and PFD, whenever a traffic target is detected within 2 miles of your aircraft. When the Traffic Alert window appears automatically, it will replace the right-hand inset. It disappears when the traffic target is outside the 2 nm range.

#### To make the Traffic Alert Window turn on automatically:

3. Press MORE > Setup Menu > Moving Map.
4. Scroll to **Traffic Alert Window** and select ON.

### Traffic Altitude Filter

In high-density traffic areas, the traffic screen can get crowded. Many aircraft are too far above or below you to be a threat, so you can exclude them from the display. To choose the altitude range for your traffic display:

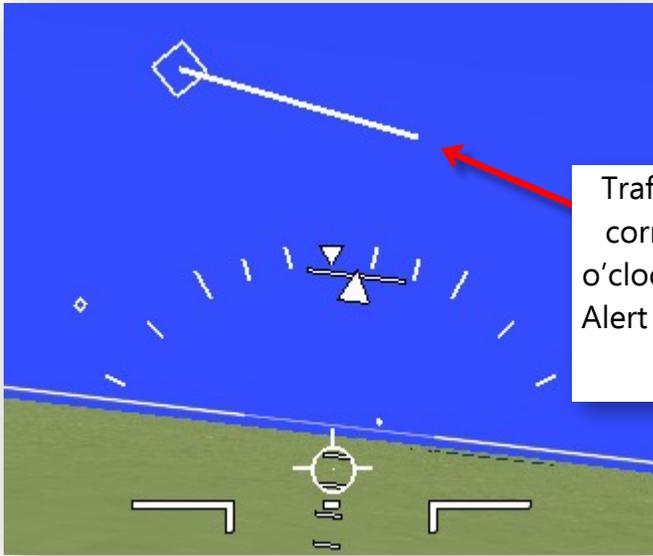
1. Press MORE > Set Menu > Moving Map
2. Scroll to **Traffic Altitude Filter** and select a traffic range. For example, selecting +/- 2000 will display all traffic targets within 2,000 feet above and below your aircraft and within the visible map range.

### Traffic on the PFD: Synthetic Vision

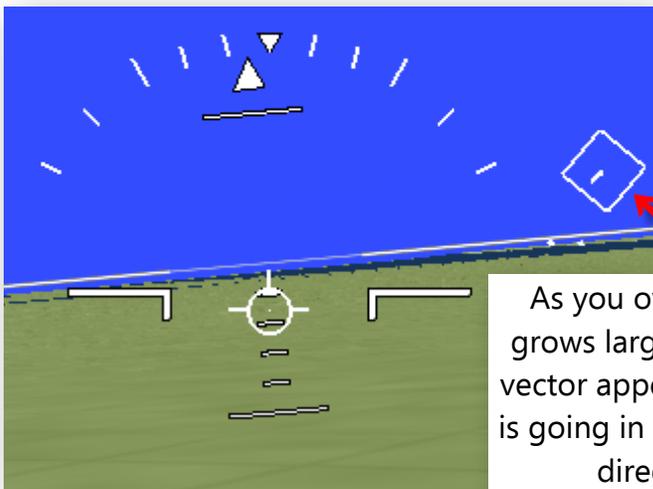
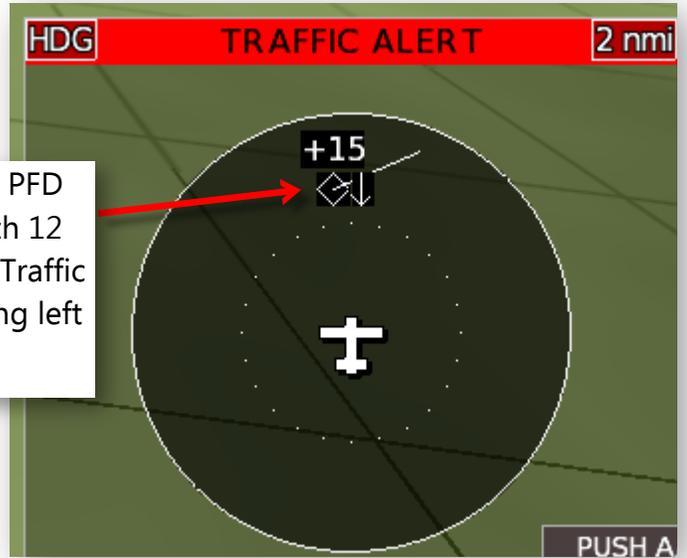
Traffic targets picked up by ADS-B or TIS can be displayed "in space" on the PFD to mimic the view out the windshield. Just like the map icon, the traffic vector line points in the direction of motion, but instead of a 2-dimensional presentation, the PFD traffic icon has a simulated 3-dimensional look.

#### To display traffic on the PFD:

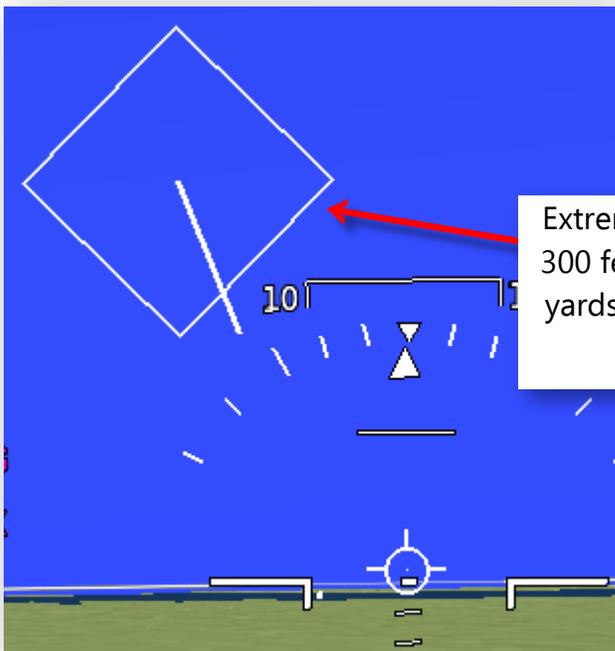
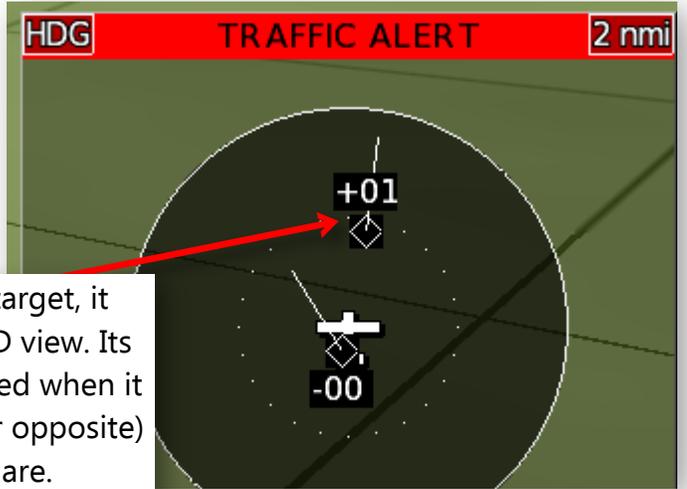
1. Press MORE > Set Menu > Primary Flight Display
2. Scroll to **Traffic In View** and select ON.



Traffic target on PFD corresponds with 12 o'clock target on Traffic Alert Inset, crossing left to right.



As you overtake the target, it grows larger in the PFD view. Its vector appears shortened when it is going in the same (or opposite) direction as you are.



Extreme conflict: Target is 300 feet above and within yards of you, flying in the same direction.

