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IFD- μ NET PLUS



BEYOND THE HORIZON

USER AND INSTALLATION MANUAL

DICHIARAZIONE DI LIMITAZIONE DI RESPONSABILITÀ E AVVERTENZE

Le informazioni visualizzate dagli strumenti IFD-NET/IFDmicroNET non sono certificate per l'utilizzo VFR e IFR.

Gli strumenti IFD-NET/IFDmicroNET sono intesi come un aiuto alla navigazione VFR e non sono sostituti di strumenti certificati.

Tutte le informazioni di volo critiche sono presentate per riferimento e devono essere verificate dal comandante/pilota.

Gli strumenti IFD-NET/IFDmicroNET non sono un sostituto per gli strumenti di bordo.

Il comandante/pilota si assume la totale responsabilità e si assume i rischi associati con l'uso di questo dispositivo e rimane l'unico responsabile per il volo in condizioni di sicurezza.

M.A.V. SRL declina ogni responsabilità derivante da un uso improprio del dispositivo, in modo che possa violare il volo e le regole di navigazione, i regolamenti e la sicurezza.

DISCLAIMER & WARNINGS

The information displayed by the IFD-NET/IFDmicroNET is not certified for use for VFR or IFR flights.

The IFD-NET/IFDmicroNET is meant as an aid to VFR navigation and is not a substitute for certified EFIS.

All critical flight information is presented for reference only and must be verified by the commander/pilot in command.

The IFD-NET/IFDmicroNET is not a substitute for on-board instruments.

The commander/pilot in command assumes total responsibility and risk associated with the use of this device and remains solely responsible for flying in safe conditions.

M.A.V. SRL disclaims any liability deriving from an improper use of the device, in a way that may violate the flight and navigation rules, regulations and safety.

FEATURES

- 57mm diameter installation shape
- Very bright screen, sunlight visible, up to 1000 cd/m².
- Low power consumption down to 2.3W (200mA @ 12Vdc).
- 3 button interface.
- High integration level with all sensors embedded (NOTE: PLUS only)
- Multi-environment software with simple switch through single button press
- Several functions in color/ graphic display:
 - Artificial horizon
 - Anemometer (IAS)
 - Altimeter with settable REF Pressure
 - Variometer (VSI)
 - 3D Magnetic compass
 - Database coverage: Europe
 - Wind vector
 - Slip indicator
 - G-Meter with peak recording
 - GPS navigation in ADF and HSI modes
 - Direct navigation to more than 8000 POIs

ELECTRICAL AND MECHANICAL SPECIFICATION

- Main power 10 - 30Vdc 200mA with internal filter and peak transient protection.
- Functional temperature range -20°C to 80°C 90% Rh no condensation status.
- 64,8mm x 64,5mm x 74,6mm (width, height, depth), weight 350g
- 2 x 1/8 NPT Pitot and Static pneumatic connectors.
- SMA female connector for GPS passive antenna.
- Standard 9 SUB-D female connector for power and BUS connection.

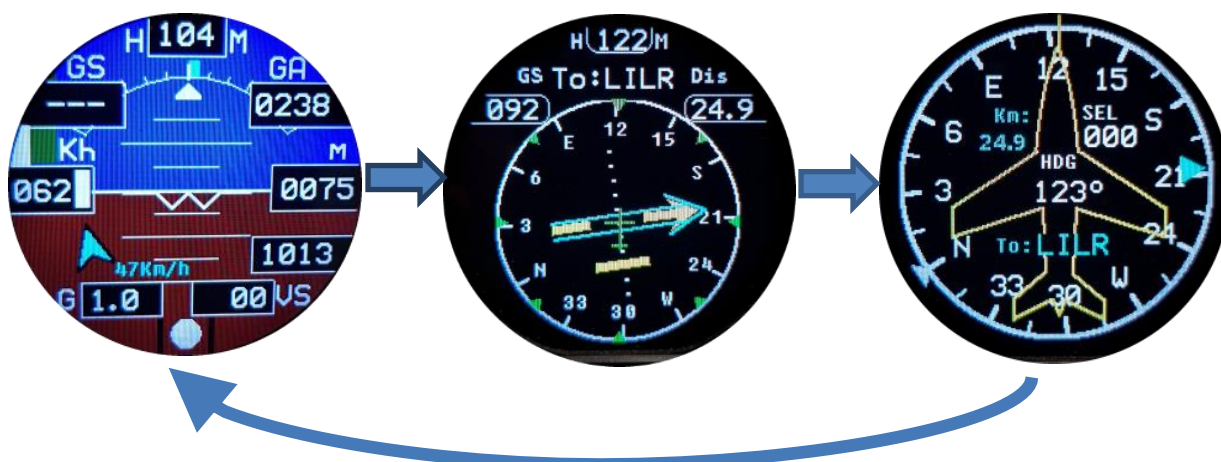
BASIC FUNCTIONS

Switch between the main pages (environments) by pressing **the central button** (short-press):

PFD: Attitude and basic flight data

ADF: Navigation ADF/HIS

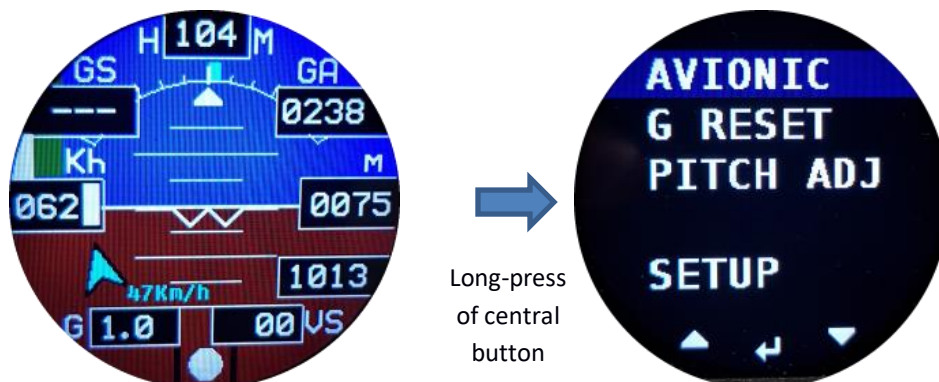
HDG: Gyrocompass with navigation



NOTE: The actual screen sequence depends on which pages you have enabled in the configuration

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Each of the environments (pages) has an "Environment menu", which can be accessed **pressing and holding the central button** (long-press, about 1 sec):



WORKING WITH MENUS

Once a menu is displayed on the screen:

- Click right or left buttons to highlight the desired menu item
- Click central button to confirm the selection

If the highlighted item is an adjustable parameter:

- The parameter turns green
- Click right or left buttons to adjust the value
- Click central button to confirm the change
- The parameter turns white again

Menus usually have an EXIT item at the top or at the bottom.



EFIS PLUS AND EFIS SLAVE

The EFIS SLAVE has no internal sensors and is meant to be connected to another IFD-NET (EFIS, MAP, PLUS) or an Avionic module through the MAV avionic bus.

All software functions are the same in the SLAVE and PLUS variants; the only practical difference is that the SLAVE instrument gets all the data feeds externally and as such does not need any calibration.

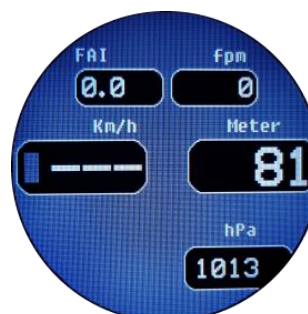
HOW TO PROCEED?

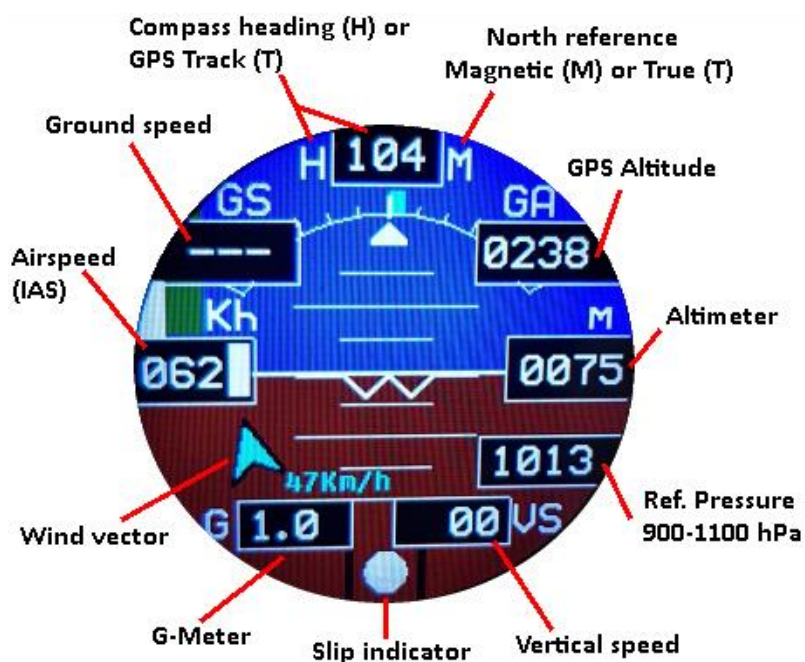
1. Follow the INSTALLATION GUIDE (starting from page 17).
The EFIS SLAVE will only need electrical power and data bus connection.
2. Perform the ARTIFICIAL HORIZON CALIBRATION {page 21}
(PLUS version only)
3. If desired perform the MAGNETIC COMPASS CALIBRATION (page 22)
4. Go through the SETUP menu (page 15) to configure the instrument as desired
5. Discover the available functions described in the following pages

AVAILABLE PAGES

You can choose to display **up to 9 pages** on your IFD-microNET instrument; the table below provides an overview, and the following sections of the manual describe each page (environment) in detail.

To enable or disable each page enter the **SETUP** menu (described further down) and then open the **PAGES** menu.

PFD – Primary flight display**NAV** – Navigation/HSI**HDG** - Gyro heading indicator**ALTI** – Analog altimeter**VSI** – Vertical speed indicator**IAS** – Airspeed indicator**MFD** – Barometric overview**GMT**: G-Meter**NRST** Nearest aerodromes and points

PFD PAGE (PRIMARY FLIGHT DISPLAY)**NOTES:**

North Reference is always Magnetic (M) in this version

Out-of-range or otherwise unavailable values are displayed as dashes

(" - - - ")

A fault is indicated with "X", e.g. XXXX

In case a fault indication appears permanently, try to power-cycle the unit. If the problem persists the instrument may need maintenance.

The Primary Flight Display (PFD) contains avionic data mainly concerning aircraft attitude and speed. In order to maximize screen clarity it is possible to configure which parameters to display through the setup menu.

Click right or left button to set the reference pressure (for example, QNH or QFE).

In case the temperature is too low for reliable operation, the PFD displays a yellow message **"WARMING UP"**. The takeoff should be delayed until this warning disappears. Similarly, the instrument shows a yellow message **"HIGH TEMP"** when the temperature measured internally is above 75°C.

When navigation is active the PFD displays the basic indications to maintain the aircraft on course. See below the paragraph **"NAV PAGE (NAVIGATION)"**.

PFD MENU

EXIT - Returns to the PFD screen.

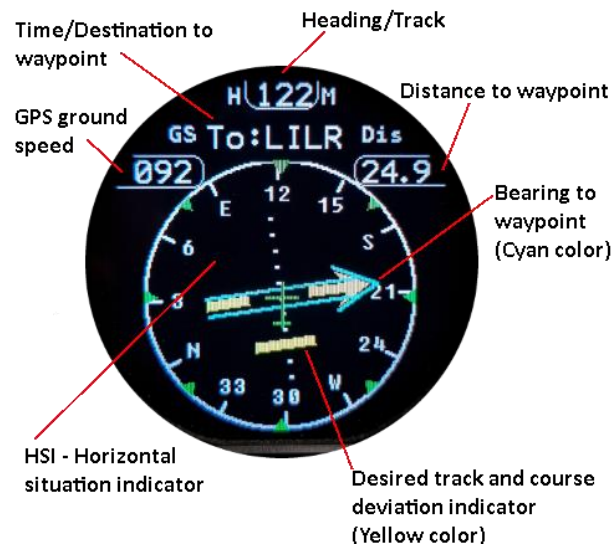
G RESET - Displays the minimum and maximum recorded G values.
Press central button on this item to reset the min/max G values to +1.0G

PITCH ADJ - Resets the attitude indicator to indicate ZERO PITCH and ZERO BANK in the current conditions. The slip indicator is also centered.
The indicated bank must be within +/- 7 degrees, indicated pitch must be within +/- 30 degrees (otherwise the setting is ignored)

SETUP - Opens the setup menu, described below in detail.



NAV PAGE (NAVIGATION)



This environment assists the navigation toward a navigation point, or any geographical position selected on the map.

When there is no active navigation (no destination selected) this page behaves as a gyro-compass.

As soon as a GO-TO destination is selected, several additional elements are displayed:

- The bearing pointer (Cyan color), which points directly at the destination
- The HSI arrow (Yellow color), which indicates the initial track from origin to destination (**Desired Track**)
- The Course Deviation Indicator (**CDI**), which shows the lateral offset from the original track
When the CDI moves to the right, the aircraft is LEFT of the original track, and the pilot has to turn RIGHT to re-intercept the original route.
- Time to destination (hours : minutes)
- Distance to destination

Hints:

If you want to fly DIRECTLY to the waypoint right now, you have turn the aircraft in the direction of the BEARING POINTER (Cyan color)

If you want to fly EXACTLY the ORIGINAL TRACK (from origin to destination) then you have to keep the CDI centered. Once the CDI indicates no deviation, fly the direction indicated by the HSI arrow (Yellow color)

NAVIGATION INFORMATION ON THE PFD PAGE

When navigating to a waypoint it is possible to maintain the aircraft on track while the PFD page is active.

The indication and color coding is similar to the NAV page:

		The aircraft has to turn right to fly directly to the destination (cyan pointer is to the right). The original track is slightly to our right (yellow CDI indicator)
		The aircraft is flying toward the destination (cyan pointer is almost centered). At the same time, we are still the left of the original track (yellow CDI is to our right)

NAV MENU**EXIT**

Returns to the NAV screen.

FIND POI >> - Allows searching for navigation points by identification.

STOP NAV - Cancels the direct navigation to a point.

The bearing pointer disappears and navigation data is not shown anymore (time and distance to destination).

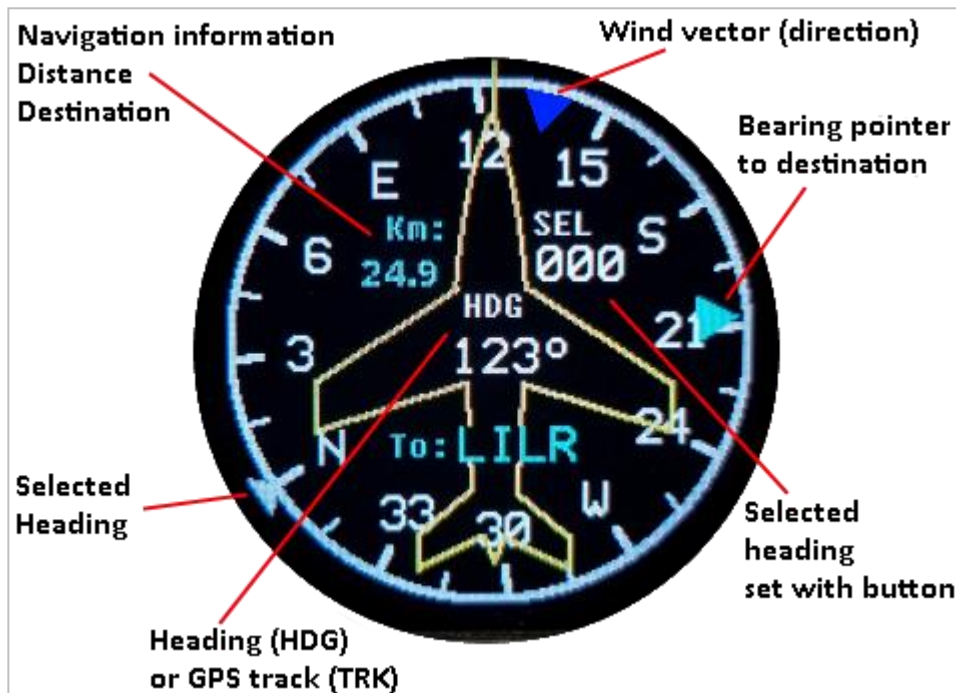
UPDATE DTK – Recalculates the desired track (DTK) to the waypoint, from current position

This is used to re-establish a direct track to the waypoint from the actual aircraft position, in case it is not desired to re-intercept the original track from origin to destination.

This function has exactly the same effect as setting a new GO-TO to the same destination.

SETUP - Opens the setup menu, described below in detail.

GYROCOMPASS PAGE



NOTE: when the compass is not calibrated the instrument displays three dashes (" - - ") instead of the numeric heading. You can either enable the GPS track (set HDG TYPE "AUTO" in SETUP) or **calibrate the magnetic compass** as described below.

A fault is indicated with "XXX". In case a fault indication appears permanently, try to power-cycle the unit. If the problem persists the instrument may need maintenance.

GYROCOMPASS MENU

Press and hold the knob for about one second to access the menu.

EXIT - Returns to the Gyrocompass screen.

FIND POI >> - Allows searching for navigation points by identification (see paragraph "FIND POI" FUNCTION below)

STOP NAV - Cancels the navigation to a point.

The bearing pointer disappears and navigation data is not shown anymore.

UPDATE DTK - Recalculates the desired track (DTK) to the waypoint, from current position

SETUP - Opens the setup menu, described below in detail.



“NEAREST” PAGE

This page shows the closest aerodromes and navigation points according to the current GPS position.

Diagram illustrating the 'NEAREST' page layout with labels pointing to specific data fields:

- Ground speed
- Heading (HD) or GPS track (TK)
- GPS position
- GPS altitude (AMSL)
- Radio frequency
- Nearest navigation points (Scroll with the rotary knob)
 - Identifier
 - Name
- Type of navigation point

AP	Airport
AF	Ultralight airfield
HP	Helipoint
VO	VOR
VD	VOR/DME
DM	DME
TA	TACAN
VT	VORTAC
N	NDB
ND	NDB-DME
L	Locator NDB
MK	Marker
VR	VFR reporting point
UA	User-defined Aerodrome
UW	User-defined Waypoint

NOTE: All distances, altitudes and speeds are shown in the measurement units chosen in the SETUP menu (see below)

Press right or left button to scroll through the list of nearest points.

When a point is highlighted, pressing the central button to opens a menu which allows to view more details.

NOTE: For come back to navigate between the main pages, click left until than the highlight will disappear.

Scroll Up (right click) to view more detail about point such as elevation, airstrip orientation, longest airstrip, radio frequency, coordinates, distance from actual position and direction.

Scroll down (left click) to highlight “SET GO-TO” option and click central button to activate the navigation.

Scroll down again to highlight “EXIT” option and click central button to go back to the previous page.



"NEAREST" MENU

EXIT - Returns to the NEAREST screen.

NRST TYPE - Selects which point types are shown in the NEAREST page

AP	Airport
AF	Ultralight airfield
HP	Heliport
VO	VOR
VD	VOR/DME
DM	DME
TA	TACAN
VT	VORTAC
N	NDB
ND	NDB-DME
L	Locator NDB
MK	Marker
VR	VFR reporting point
UA	User-defined Aerodrome
UW	User-defined Waypoint

NOTE: UA and UW are not used.



FIND POI >> - Allows searching for navigation points by identification (see paragraph "FIND POI" FUNCTION below)

SETUP - Opens the setup menu, described below in detail.

"FIND POI" FUNCTION

The navigation database contains more than 8000 points of interest, which are available for search and navigation.

Once the FIND POI command is activated, a black window appears on the screen with a "Search: " prompt on top.

Enter the search text, one character at a time:

- Click right/left to scroll through the alphabet and numbers
- Click central to confirm each single character
- Use "<" to delete the character entered previously.
- Use "*" to exit from search.

As soon as a character or more have been entered, the search results appear instantly under the "Search" prompt.

When enough characters have been entered, just press the central button without selecting any character.

The cursor will move to the list of search results and the click right/left is then used to select the desired navigation point.

Push central button again to confirm the selection of a result from the list.

An info page will appear with the following structure:

- EXIT
- SET-GOTO
- Point info (type,elevation,QFU,freq,ecc...).
- Direction and distance



NOTE: The search results are ordered by identifier.

FIND POI - EXAMPLE

We want to navigate to Rome Urbe airport (ICAO code: LIRU).

- From the NAV environment, press and hold down the central button for about one second.
- Select "FIND POI >>" and push it (short press).
- Use the right/left button to scroll through the alphabet, up to "L" (the first character of the ICAO code), push the central button.
- Repeat until the text "Search: LIRU" is shown.
- Click center button to highlight result and click again.
- Scroll down by click left to "Set GO-TO" and push it
- The NAV screen will appear, and a cyan line will show the direct navigation to the destination.
- Navigation data is shown:
 - Identification of destination point/ Time to destination: "To: LIRU" / "HH:MM"
 - Distance to destination
 - The bearing pointer and HSI navigation are shown on the gyro compass.

ALTI – ANALOG ALTITUDE

The 3-pointers altimeter (on the right) mimics the appearance of the typical mechanical altimeter that you may find on small single engine aircraft (e.g. Cessna 172).

**IAS – ANALOG AIRSPEED**

The airspeed gauge is drawn with its colored arcs according to the V-speeds configured in the SETUP menu, IAS ARC.

There is a digital flight hour meter at the top of the instrument, which can be reset in the SETUP menu, "TIMER Reset". Only the time in the air is actually counted (airspeed > 40 km/h).

**VSI – VERTICAL SPEED INDICATOR**

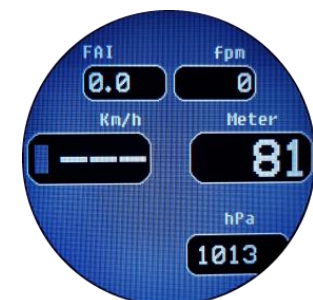
This is a typical vertical speed indicator you may find on a small General Aviation aircraft.

**MFD – OVERVIEW OF BAROMETRIC PARAMETERS**

This page is similar to the PFD but only shows the main flight parameters without any attitude indication.

It is possible, in the setup "Color MFD", to choose the background color (16 colors available).

FAI is the Frontal Acceleration calculated using Indicated Airspeed.



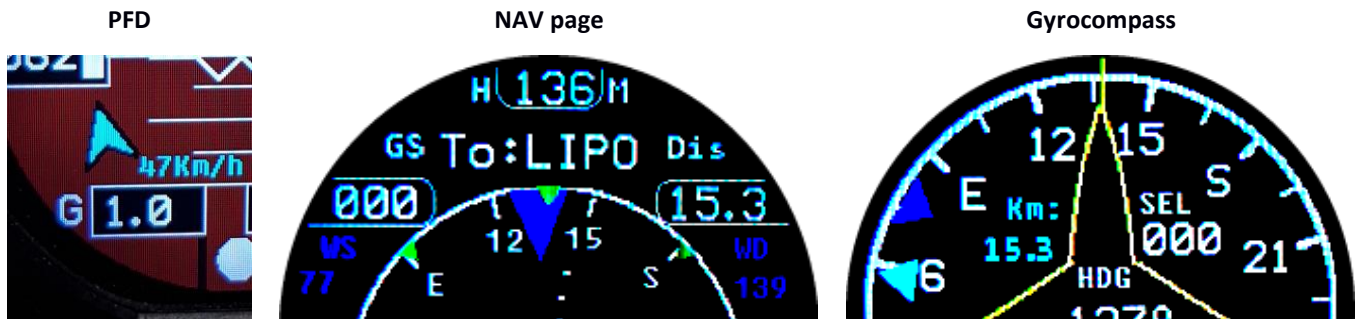
WIND VECTOR

The EFIS can estimate the actual wind speed and direction during flight.

The display of the Wind Vector can be activated or deactivated via: **SETUP - WIND VECT** (ON or OFF).

The wind speed is shown in the same measurement unit as the airspeed and ground speed indications.

Shown below is an example of wind speed (magnetic reference):



LIMITATIONS

- The Wind Vector appears only if the magnetic compass is calibrated.
- The instrument does not have an air temperature sensor to derive the TAS (True Air Speed). Thus the wind calculation can become inaccurate if the air temperature at altitude deviates significantly from ISA conditions (Standard Atmosphere)
- The accuracy of the wind vector is also heavily influenced by the accuracy of the compass calibration. Especially if the compass has been calibrated only on the ground, the wind calculation will degrade when the aircraft is not flying level.
- In "Gyrocompass" page it's shown only wind direction

SETUP MENU

EXIT

Exits the SETUP menu

START PAGE AUX - Determines which page appears when the instrument is powered up. For example:

- PFD (default) - Primary Flight Display in horizon mode

- AUX – Auxiliary pages

PAGES - (sub-menu): Configures which pages are active. See “AVAILABLE PAGES” on page 5.

BRIGHTNESS [5 .. 30] (Step by 5)

Adjusts the brightness of the screen; the selected backlight intensity is maintained on next power up.

PFD LAYOUT [FUL, CLR, AH]

FUL (default) - PFD shows all available air and GPS data

CLR - PFD shows Airspeed, Baro Altitude, Heading and slip indicator

AH - PFD shows just heading and slip indicator

AUX FUNC. select the page you want to view on startup (if **START PAGE AUX** is set on **AUX**)

HDG TYPE [AUTO, GPS, MAG]

Heading source: AUTO - Use MAG when not moving, GPS otherwise

GPS - Use GPS track only

MAG - Use magnetometer only

WIND VECT [ON, OFF]

Activates or deactivates the calculation of the WIND VECTOR

UoM ALT [m, ft]

Selects the measurement unit for altitude.

UoM IAS [Kph, Kts]

Selects the measurement unit for the airspeed and GPS ground speed.

UoM VSI [m/s, ft/m]

Sets the measurement unit for vertical speed.

UoM PRESS [hPa, inHg]

Selects the measurement unit for the reference pressure (e.g. QNH) on the PFD

UoM DIST [Km, Nautical Miles]

Selects the measurement unit for the distance.

ROLL TILT: by activating this function the installer can adjust for the exact roll installation error. Please refer to the section “**ARTIFICIAL HORIZON CALIBRATION**” for more details.

PITCH TILT: by activating this function the installer can adjust for the exact pitch installation error. Please refer to the section “**ARTIFICIAL HORIZON CALIBRATION**” for more details.

PRESS TRIM

Adjusts the reference pressure offset (in hPa - ideally should remain 0.0)

May be used to match the IFD-uNET with another onboard altimeter.



IAS Vs0

Stall speed, full flaps

IAS Vs1

Stall speed, clean

IAS Vfe

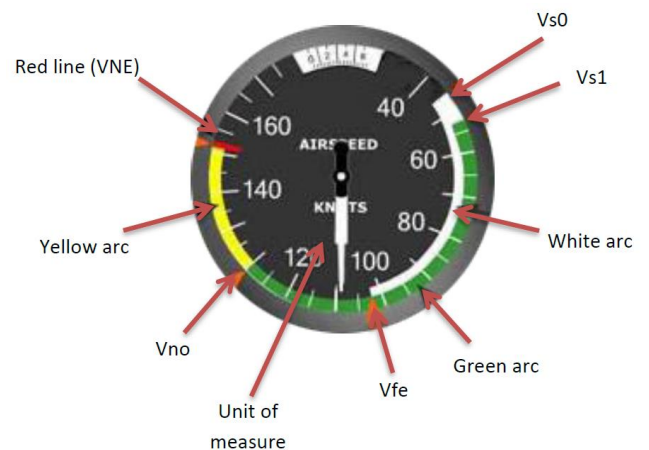
Maximum speed with flaps extended

IAS Vno

Airspeed at start of the yellow arc

IAS Vne

Red line, "never exceed" speed



These values and color ranges are displayed on the speed ribbon on the PFD. Refer to your aircraft manual in order to set all V-speeds accurately.

GM Pred

G-meter red arc limit for positive acceleration.

GM Pyel

G-meter yellow arc limit for positive acceleration.

GM Pgrn

G-meter green arc limit for positive acceleration.

GM Ngrn

G-meter green arc limit for negative acceleration.

GM Nyel

G-meter yellow arc limit for negative acceleration.

GM Nred

G-meter red arc limit for negative acceleration.

TIMER RES

Resets the hour-meter shown on the airspeed gauge (IAS page)

COLOR MFD

Selects background color for MFD page (16 colors available).

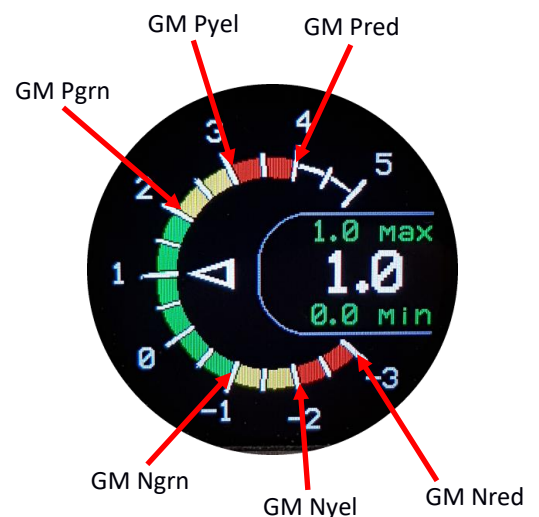
COMPASS >> see "MAGNETIC COMPASS CALIBRATION"

LOGIN -> (Only for factory usage)

CALIB. -> (Only for factory usage)

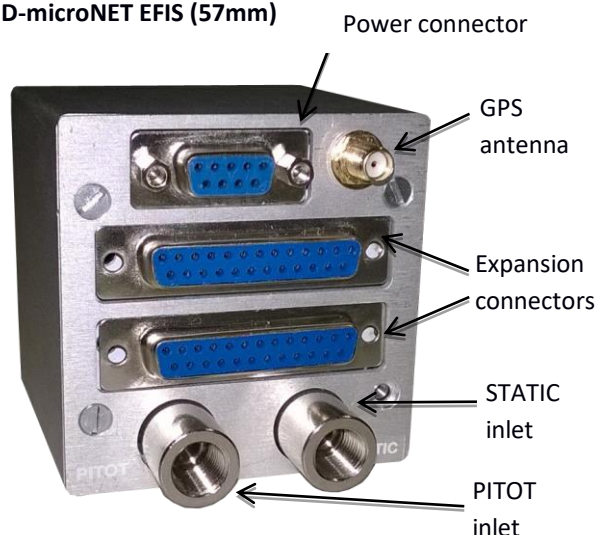
SW xxxxxx

Indicates the software release, e.g. "SW 160718"



REAR CONNECTORS VIEW AND DESCRIPTION

IFD-microNET EFIS (57mm)



The power connector is the only electrical connection needed. The details about this connector are explained in the next section **"POWERING AND EXPANSION BUS"**. The expansion connectors are not used in IFD-microNET EFIS BASE or PLUS models. Pneumatic inlets, STATIC and PITOT pressures, are provided by two nickel-plated brass 1/8 NPT female plugs. **Use adequate adapters with rubber O-rings and do not turn hoses with too much force to avoid damage to internal parts of the unit.** GPS connector antenna accepts any SMA male standard connector and several types of GPS band antenna. Please observe the right policy during the selection of the antenna position on your aircraft. Contact the vendor to obtain more information on this point.

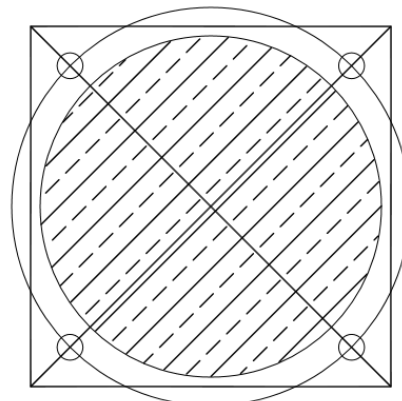
INSTALLATION GUIDE

The IFD-microNET PLUS has a standard 57mm aeronautical shape.

This means the installer should observe the standard way in order to obtain a correct installation on the unit. Refer to the hole templates below in case your aircraft doesn't have 57mm hole already prepared.

The screws on the four holes shall be tightened with appropriate torque, in a way to keep the instrument fixed and not introduce any vibration which would decrease the accuracy of the gyro sensors.

Use the provided 4mm MA black screws (length 10mm) to fix the instrument to the panel. Do not over-tighten the screws in order to avoid damage to the IFD-uNET chassis. Use a medium thread locker to ensure screws will not come off due to vibrations.



2 1/4 (57mm) Instrument Hole

1. Draw a 2.375" X 2.375" Square
2. Scribe 2 diagonal line corner to corner
3. Using the center of the lines, scribe a 2.625" diameter circle.
4. At the intersection of the diagonals and the 2.625 dia circle drill 4 holes to clear #8 screw (.170" dia.)
5. Using the center of the diagonal lines cut a hole with a hole saw 2.250" dia.

GPS ANTENNA

In the figures below there are two different types of GPS antenna. These are terminated by a SMA MALE standard connector.



There are some precise rules to observe on how to install GPS antenna:

- Choose between magnetic or adhesive type in order to obtain a perfect coupling between the parts, antenna and aircraft.
- Choose a location where no electromagnetic noise is present.
- GPS antenna must not be covered by metallic or conductive shields. Keep in account that carbon fiber is a conductive material and may reduce the sensitivity of the antenna.
- GPS antenna cable must not pass near electromagnetic noise generators like radio, transponder or ELT.

Please refer to safety aeronautical rules in order to make a reliable antennas installation. Consider all the radio frequency based installed equipment needs in order to avoid electromagnetic conflicts.

SELECTING AN APPROPRIATE INSTALLATION POSITION

IFD-uNET EFIS/PLUS is a multi-sensor system based on a variety of sophisticated transducers. Every sensor has a sensitive element, which measure a different physical quantity. For this reason, the embedded three axis magnetometer must be as far as possible from strong magnetic fields, as much as the three axis accelerometer could be located in a zone not directly subjected to resonant unwanted vibrations of the body of the plane. Some rules must be observed in order to select an appropriate installation position:

- Mobile headset, phone or other electronic equipment may generate unwanted magnetic fields that interact with magnetometer sensor at the base of the embedded digital compass; This results, firstly, in an incorrect value of the magnetic heading, and then, in an erroneous calculation/estimation of the wind direction and speed. Metallic objects (especially ferromagnetic) can disturb the normal functionality of the magnetic compass. We suggest to use a hand-held compass to verify the magnetic disturbance in the area selected for installation. If the needle shows relevant changes or unstable indication, the location is not suitable for installation. Make sure to perform this test with all on-board electronic devices switched ON.
- GPS unit is embedded in the body of the instrument IFD-microNET PLUS. For this reason, a high level of electromagnetic radiations may cause a degradation of its sensitivity and performance. Choose an install position not so close to radio-frequency emitter units like radios, ELTs or transponders. Pay attention in antennas position also in order not to compromise the proper operation of all the aircraft instruments.
- As the unit contains GYROSCOPE and ACCELEROMETER sensors, we recommend to install the instrument as much aligned as possible with the aircraft axes. A maximum tilt of 5 degrees in roll and pitch should be respected. It is possible to compensate for this directly and easily when the aircraft is in a level attitude using the PITCH ADJ function.
- Choose a position not affected by residual and unwanted vibration. The instrument uses a sophisticated algorithm to determine the real gravity vector from the total sensed acceleration. Too much resonant vibration can further complicate the computation resulting in reduced performance of this compensation.
- The pitot-static system contributes to the attitude calculation (it determines the frontal acceleration) and also for this reason must be in good condition and without leaks. No high pressures are involved in this

circuit but, when selecting the install position, leave enough space on the rear of the instrument to allow the rubber pipes to flow without too tight bends.

- Avoid installing the equipment near hot surfaces. A good idea could be to ventilate the rear of the cockpit in order to protect instruments from overheating during exposure of the aircraft to direct sunlight.

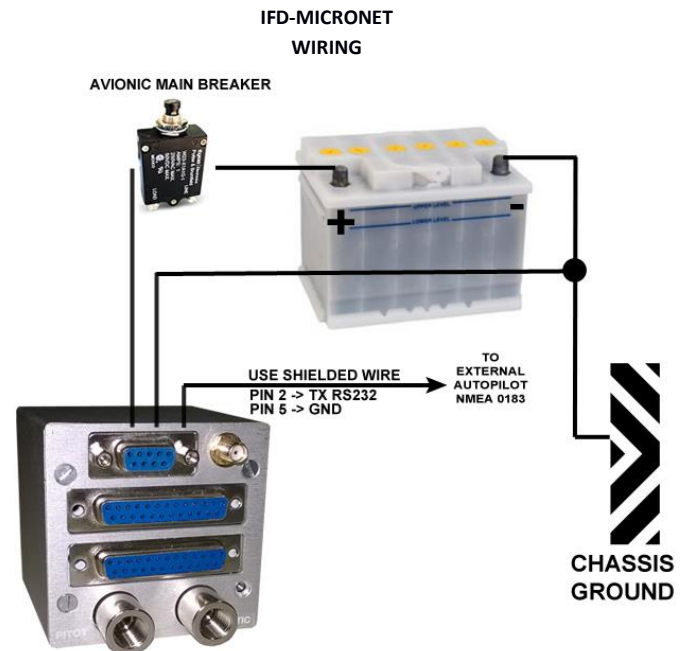
There is plenty of documentation available that explains how to correctly install avionic instruments. Please refer to technical literature for more information.

POWERING AND EXPANSION BUS

The electrical connection of the PLUS models is very simple. As all of the sensors are inside the metal housing, the only electrical connection it needs is the main power line (10 to 28Vdc using an aeronautical safety breaker) and an optional connection to the expansion BUS. Please contact vendor in order to find out more details on the expansion accessories designed for this unit.

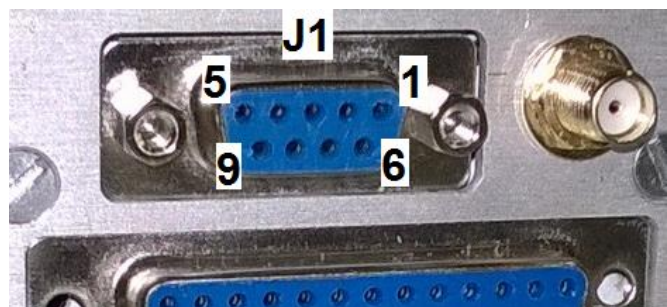
On the right is a simple wiring diagram for electrical connection of the IFD-microNET.

Use wires with a cross section not less than 1.5 square millimeters. Keep connections as short as possible.



IFD-microNET J1 connector pins

1. Main power supply (accepts voltages 10 - 28Vdc).
2. (TX output) pole of RS232 BUS. [NOT USED]
3. (RX input) pole of RS232 BUS. [NOT USED]
4. (A) pole of RS485 BUS.
5. Ground. Connect to Ground chassis of aircraft or to negative pole of electric circuit.
6. Main power supply (accepts tension between 10 to 28Vdc).
7. Not connected. Leave unplugged.
8. Ground. Connect to Ground chassis of aircraft or to negative pole of electric circuit.
9. (B) pole of RS485 BUS.

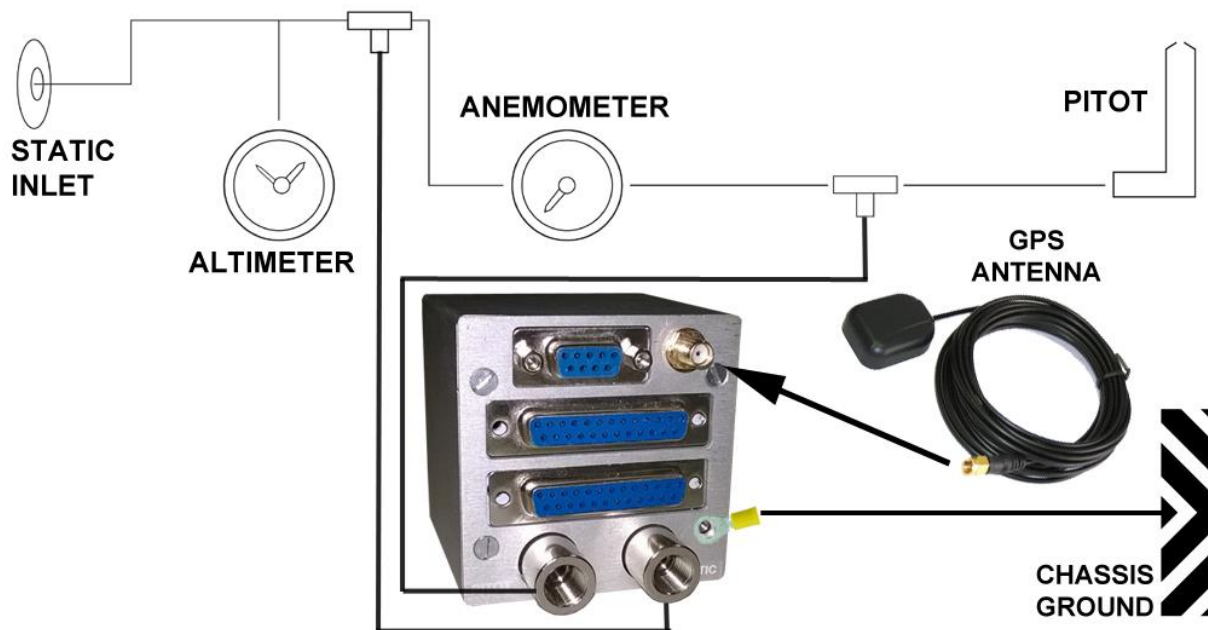


Pins 1 and 6 must be connected both to the positive pole of aircraft electric circuit. Pins 5 and 8 must be connected both to negative pole of aircraft electric circuit.

A good idea would be to connect one of four screws on the rear of the instrument directly to the metal ground chassis of the aircraft by a dedicated "faston terminal" and by a black cable with 2.5 square millimeters section. This practice may decrease radio frequency noises generated by the device and improve the filtering efficiency of internal electronic components (see "Pneumatic, GPS and Ground chassis connections" figure below).

PNEUMATIC AND GPS ANTENNA CONNECTION

The pneumatic circuit functionality is very important in order to obtain correct avionic data. Please observe normal safety rules by connecting rubber pipes to the STATIC and PITOT inlet. Contact vendor for any questions regarding the right way to setup the aircraft plant. See below a diagram of pneumatic and GPS antenna connections.



IMPORTANT NOTES ON PITOT/STATIC CONNECTION

Ensure that during installation the PITOT and STATIC tubes don't develop any twist and/or kinks, otherwise the IAS and Baro-Altitude indications will not work correctly. A bad airspeed reading may also affect the reliability of the attitude indication.

When fixing the PITOT/STATIC pipes to the instrument, please be especially careful to not twist the 1/8 NPT female adapters on the back of the unit.

If a too strong torque is applied, these adapters may rotate and twist the internal silicon pipes, causing a malfunction.

We suggest to use pipe hose adapters with rubber o-ring in order to avoid pressure leaks, and in any case don't lock it too strongly.

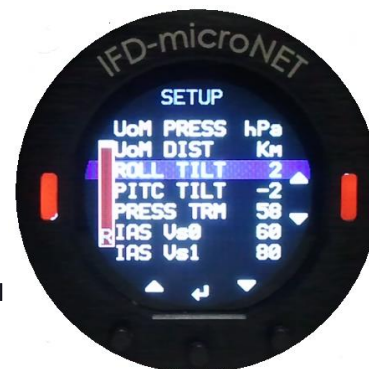
The hose adapters should be locked by hands and not by wrench. Otherwise, during screw operation, hold the 1/8NPT units adapter with a second wrench to avoid that they rotate and twist the internal pipes.

ARTIFICIAL HORIZON CALIBRATION

The gyroscopes and accelerometers are already factory calibrated and don't need further adjustments during installation.

It is however possible to compensate for a mounting orientation that is not perfectly aligned with the aircraft axes using the following procedure:

- Park the aircraft on a flat and level surface
- Enter the SETUP menu and adjust the parameters: ROLL TILT, PITC TILT
- When one of these parameters is highlighted, a vertical bar will appear on the left of the screen
- Change each of the parameter values in a way that the corresponding vertical bar becomes fully red
- Select EXIT to leave the SETUP menu and save the calibration



The system then computes the actual pitch and roll, and creates a compensation value in order to zero the mounting errors. This procedure is even possible during a flight but will be less accurate.

There is another setting for pitch adjustment in the main menu (**PITCH ADJ**, described previously) which is intended as a pilot preference adjust. This is only a graphical setting which is remembered and restored on the next power-up.

Please refer to your aircraft instruction manual in order to obtain information regarding the attitude angle during cruise at different speed or about best attitude condition to obtain a zero pitch indication.

MAGNETIC COMPASS CALIBRATION

The compass is usually calibrated and tested at the factory; however, we strongly advise to recalibrate the instrument after installation in the panel due to the specific electromagnetic environment of each aircraft.

Please note that outside the compass calibration page (described below) the magnetic compass is used if the heading source is set to "MAG" or "AUTO". Otherwise the instrument will only use the GPS track when available (see paragraph **SETUP** above, **HDG TYPE**)

The EFIS compass is designed to be calibrated automatically in flight.

STEP 1: Activate the calibration mode

We suggest starting the engine and turn on avionics and radios, so that the electromagnetic field of the aircraft will be in a condition similar to normal cruise flight.

Enter the **SETUP** menu, then select "**COMPASS >>**" to enter the compass page.

If calibration mode is off ("Calibrate OFF"), select "Calibrate" and press the central button; the text will change to "**Calibrate ON**".

The calibration mode works in background, so if desired you can leave the COMPASS screen by selecting "EXIT".

STEP 2: Taxi around and/or fly to calibrate the compass

The compass calibrates **automatically**, both on the ground and in flight, as long as the aircraft performs at least a turn through 360 degrees or more.

To obtain a good calibration we suggest to take off and **fly at least two 360° turns**, first to the left and then to the right, keeping a good bank angle (between 30° - 45°).

The more maneuvers you fly (especially turns), the better the compass calibration should become. You can also fly some pitch up/down maneuvers in several directions, so the instrument has more data to refine the calibration.

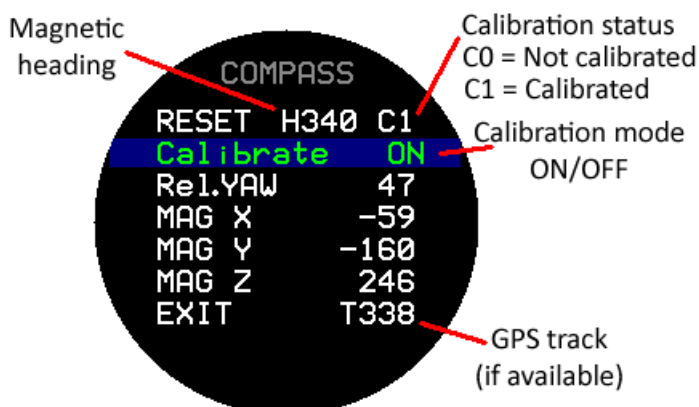
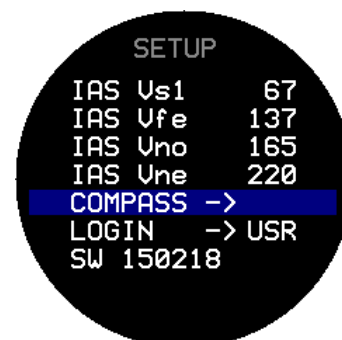
If you choose to calibrate the compass only on the ground, it will still work but the heading indication will probably be inaccurate when the aircraft attitude is not level.

STEP 3: Optionally, switch off automatic calibration when done

The automatic compass calibration can remain always on, but if you prefer to keep the current calibration because you are happy with it, you can switch it off.

Enter again the COMPASS screen and set "**Calibrate: OFF**"

NOTE THAT THE INSTRUMENT WILL REMEMBER WHETHER THE AUTOMATIC CALIBRATION IS ACTIVE OR NOT, EVEN AFTER THE ELECTRICAL POWER IS CYCLED OFF/ON.



Tip: The GPS track can be compared to the magnetic heading to check the accuracy of the compass while taxiing on the ground

MAGNETIC INTERFERENCE

Once your instrument has been installed on the panel and the magnetic compass is calibrated, pay special attention to avoid strong magnetic fields and/or magnets near the instrument. Some parts of the panel or the IFD-NET itself may become magnetized if exposed to a magnet, for example the one that may be contained in the GPS antenna. We do not provide any more GPS antennas containing a magnet, precisely for this reason.

If metallic components near the EFIS become magnetized, it may be necessary to re-calibrate the compass.

NON-CALIBRATED COMPASS

When you press “RESET” in the compass calibration page, and then don’t complete the calibration, the magnetic heading will remain unavailable outside this page.

The item on the top-right of the page reads either “C0” (compass is not calibrated) or “C1” (compass is calibrated).

When the compass is not calibrated, the heading indicator in the PFD/MAP/NAV pages will always show “---” unless in the SETUP menu you set “HDG TYPE” to either “AUTO” or “GPS”.



ORDERING INFORMATION

IFD-microNET is available in three models (BASIC/BARO/PLUS). Because of their differing internal electronic configuration, is not possible to switch between the different models after final testing. Please select the model keeping in account your exact needs or talk to our technical department for guidance to meet your aircraft configuration.

Below you'll find the ordering codes for different versions of the EFIS and its optional tools/spare:

- IFD-microNET EFIS BASE (57mm)
- IFD-microNET EFIS PLUS (57mm)
- IFD-microNET BARO (57mm)
- GPS ANTENNA
- 1/8 NPT MALE to RUBBER PIPE HOSE ADAPTERS

Note:

- Please contact vendor for more information about this product and other commercial offers.
- This equipment is not certified and was developed for ultralight and experimental aircraft. Must observe VFR policy during your flight.