

MT- ULTRA

Installation Manual



(c) Copyright 

Moving Terrain Air Navigation Systems GmbH
Bunzlauerstr. 23
D-80992 Munich

Table of Contents

1.	<u>General</u>	3
1.1	Cables and Connectors	3
1.2	Fuses and Power Consumption	4
1.3	Recommended Place of Installation for the Integral GPS	4
2.	<u>Assembling the quick-release Chassis</u>	6
2.1	Installation Tips	6
2.2	Cockpit Cut-out	7
2.3	Mounting Depth	8
3.	<u>Inserting MT-ULTRA into the quick-release Chassis</u>	10
4.	<u>Rear Connections (not accessible when equipment is installed)</u>	10
5.	<u>Connections</u>	11
5.1	Pin Assignment (mains supply, GPS)	11
5.2	Connection Preferences for MT-ULTRA	12
5.3	Connecting MT-ULTRA to Mains Outlet via a Power Supply Unit	12
5.4	Connecting the Dataloader	13
6.	<u>System Components</u>	14

1. General

MT-ULTRA is suitable for use as a mobile unit, and is at the same time suitable for panel installation in the quick release chassis.

For certification purposes the device is to be treated as a mobile/removable unit, since it can quickly be released at any time

The quick-release chassis is permanently installed in the panel. MT-ULTRA is inserted into the panel and can be removed if required (for flight planning, updates of the Nav data and charts, etc.).

Weight and balance is not affected by the installation of MT-ULTRA.

After installation an EMI test must be conducted in the aircraft. Activate the device and scan for abnormal indications on the ACFT's NAV/COM units.

1.1 Cables and Connectors

The components comply with Standard Do 160.

Cable	–	Standard: Air 4524 MIL – W – 5086 BAA 600 V / 105° C
Connectors	–	DIN 40040 GPE –40° to +85° C / 75 % rel. hum.

1.2 Fuses and Power Consumption

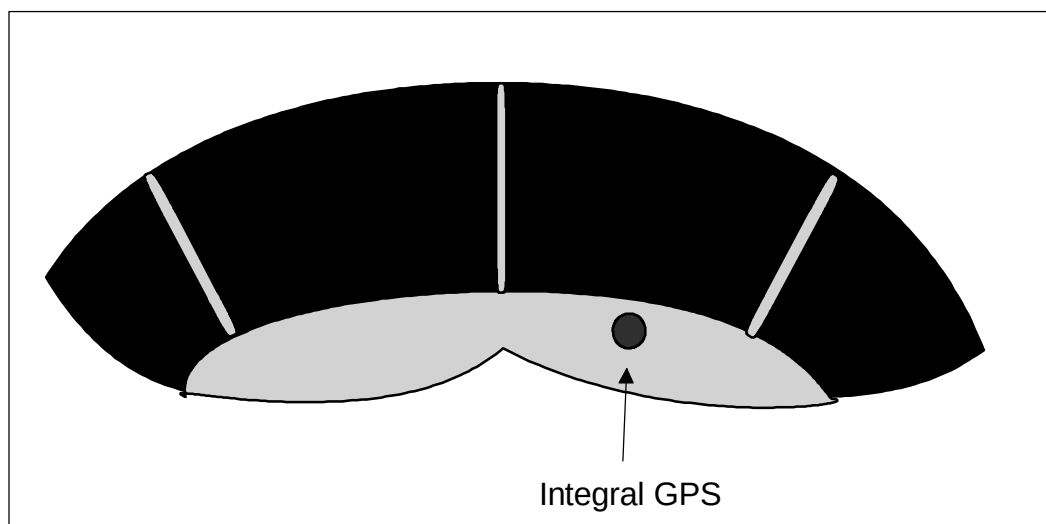
Recommended fuse: – 6 ampere/slow (higher starting current)
Power consumption: – 16 W

Please note: In aircraft with separate bus systems, MT-ULTRA is to be connected to the non-essential bus.

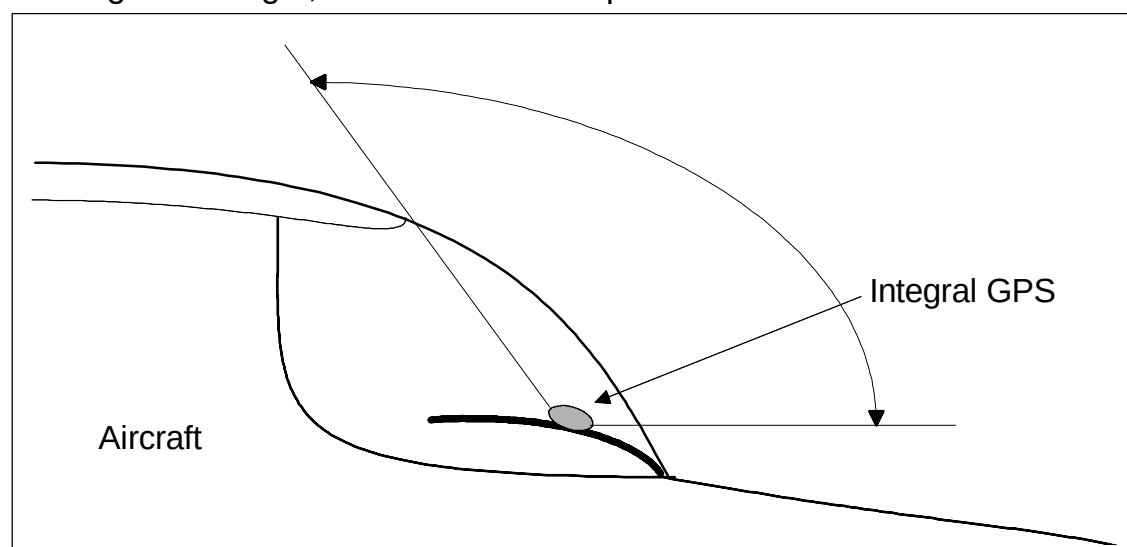
1.3 Recommended Place of Installation for the Integral GPS

The manufacturer recommends installation of the integral GPS on the dashboard.

The segment of open sky above the antenna (integrated in the integral GPS!) must be as large as possible.

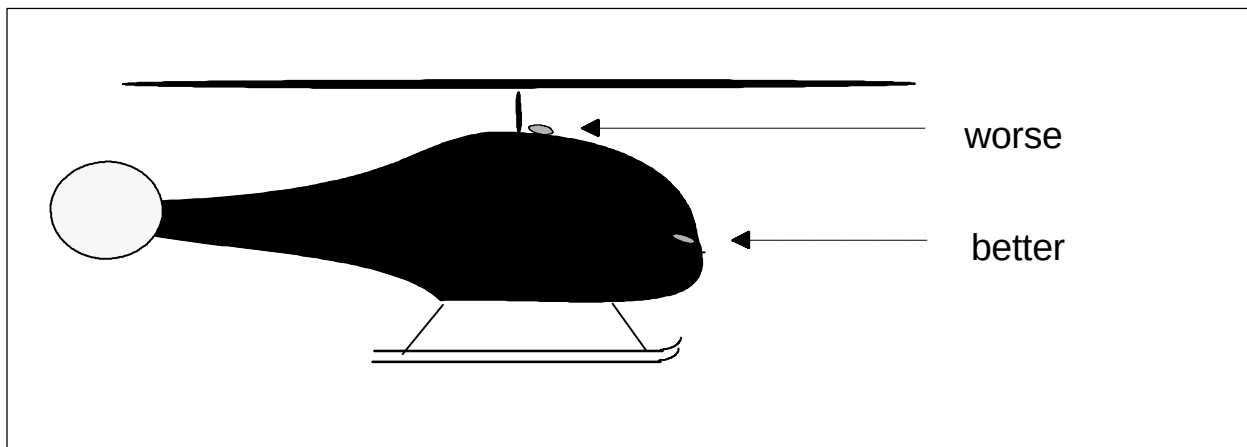


The larger the angle, the better the reception:



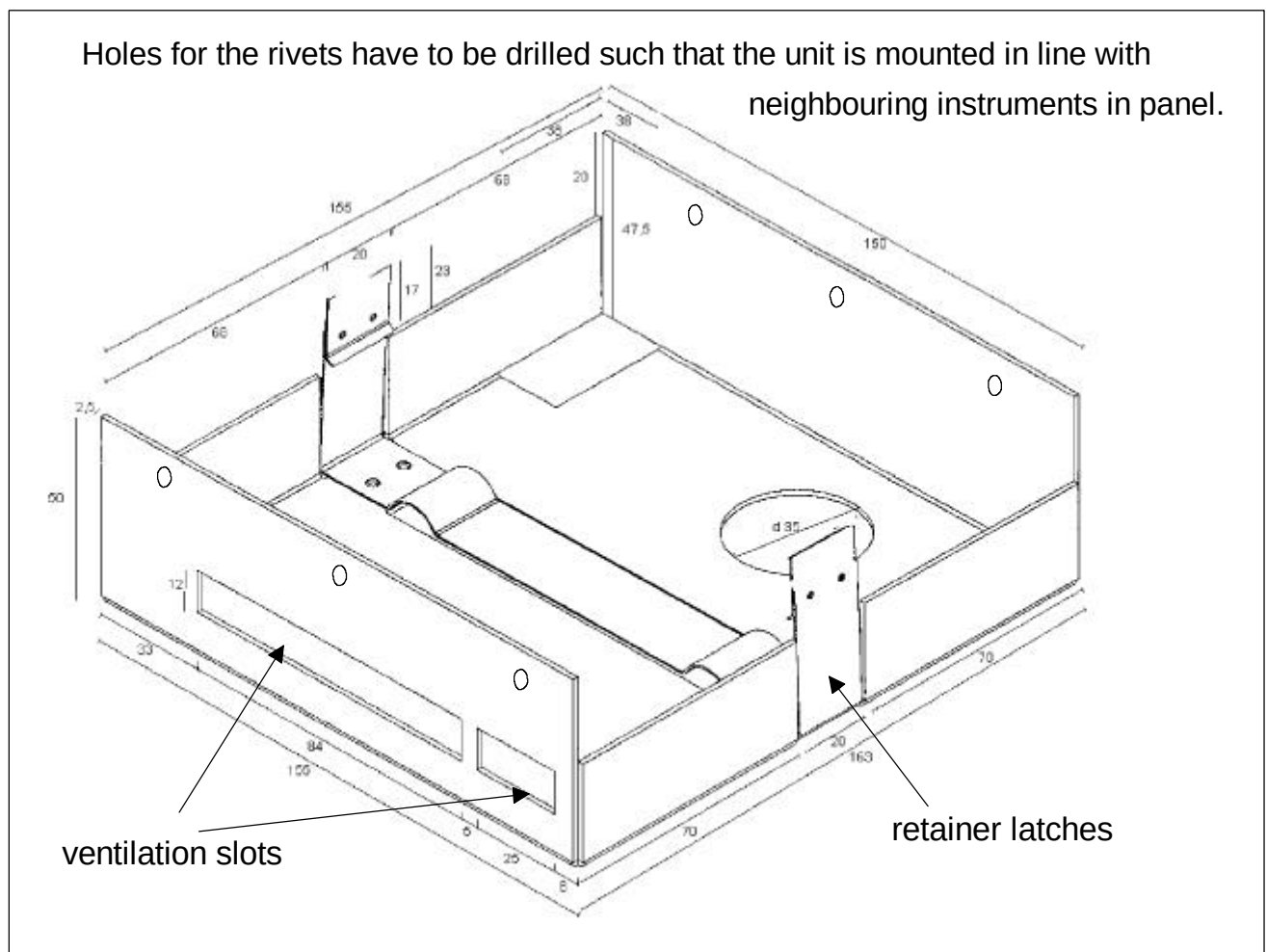
Installing the integral GPS in a Helicopter:

Please take into consideration the interference caused by the rotor blades and possible ignition box interference.



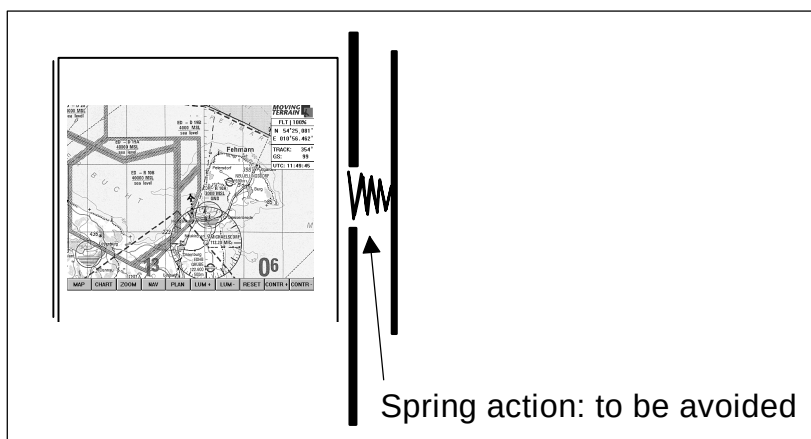
Please note: The integral GPS may be mounted on the outside of the aircraft. In this case please observe the temperature limit of -20°C .

2. Assembling the quick-release Chassis

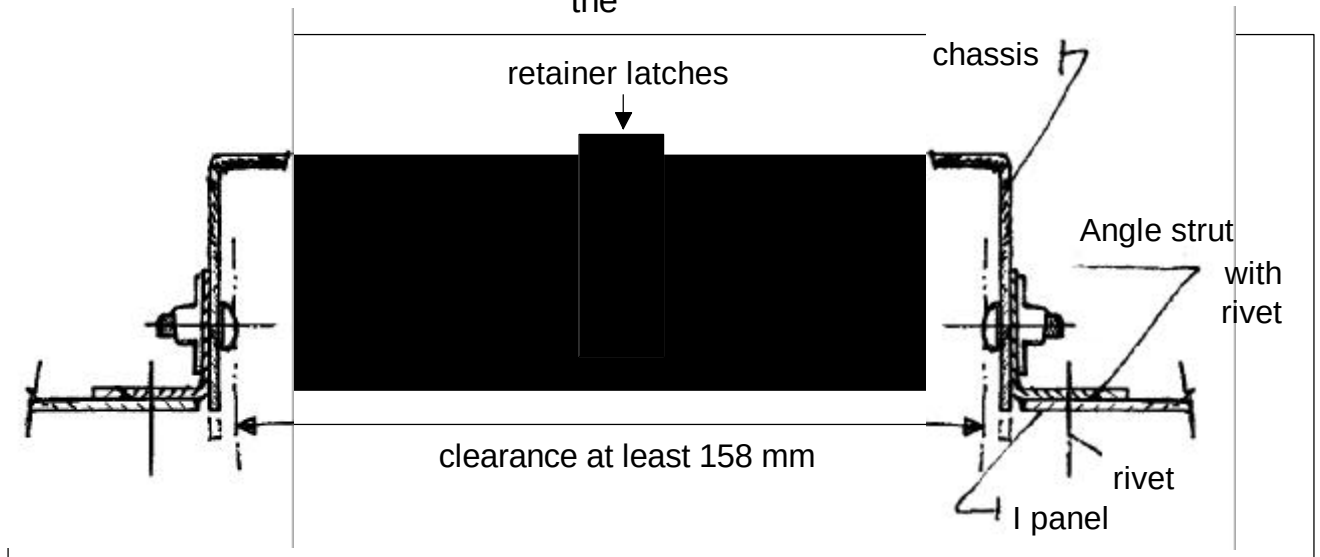


2.1 Installation Tips

The device/built-in chassis must be securely mounted in the cockpit panel. It should not vibrate – as shown in the diagram below – and knock against rigid panel parts.



When mounting the chassis on the dashboard (or on angle brackets), allow a clearance of at least 158 mm for the device including rivet heads. The four corners of the



chassis are not welded together and can be easily extended for the purpose.

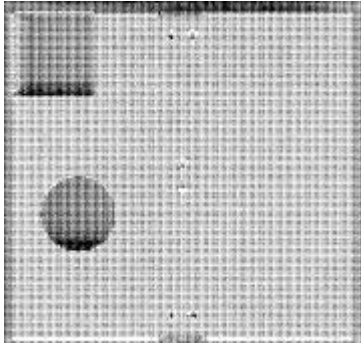
Rivet heads should be countersunk if possible.

2.2 Cockpit Cut-out

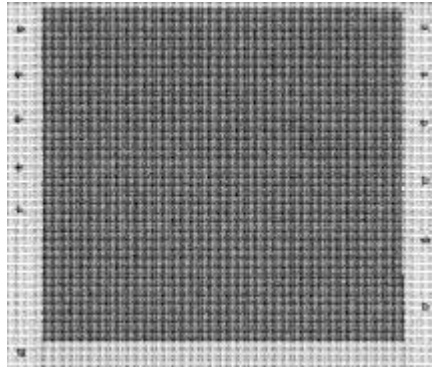
The rear side of the quick-release chassis must be screwed onto the supporting plates of the panel with the aid of angle brackets. No pre-drilled holes have been provided in the quick-release chassis, since the dimensions of the plates vary from one panel to another.

The cockpit cut-out is 158 x 150 – 155 mm.

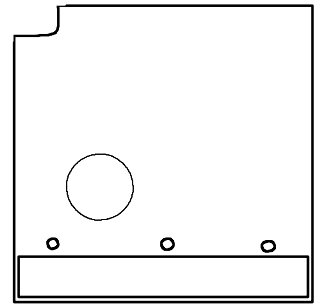
**The cut-out must not impair the stability of the panel.
The cut-out has to be reinforced, the angle strut may serve as such reinforcement.**



Chassis (rear view)
with angel brackets
screwed on from back



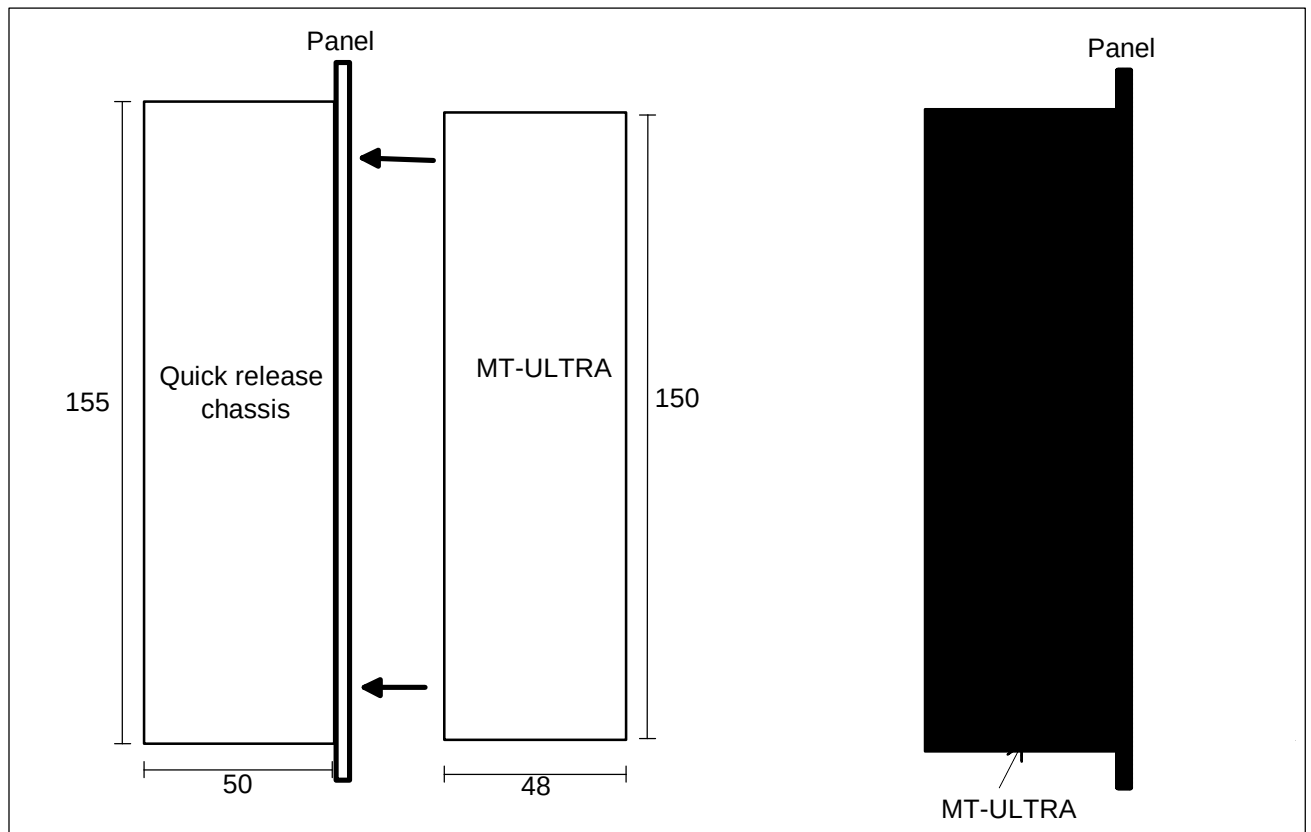
Panel cut out (rear view)



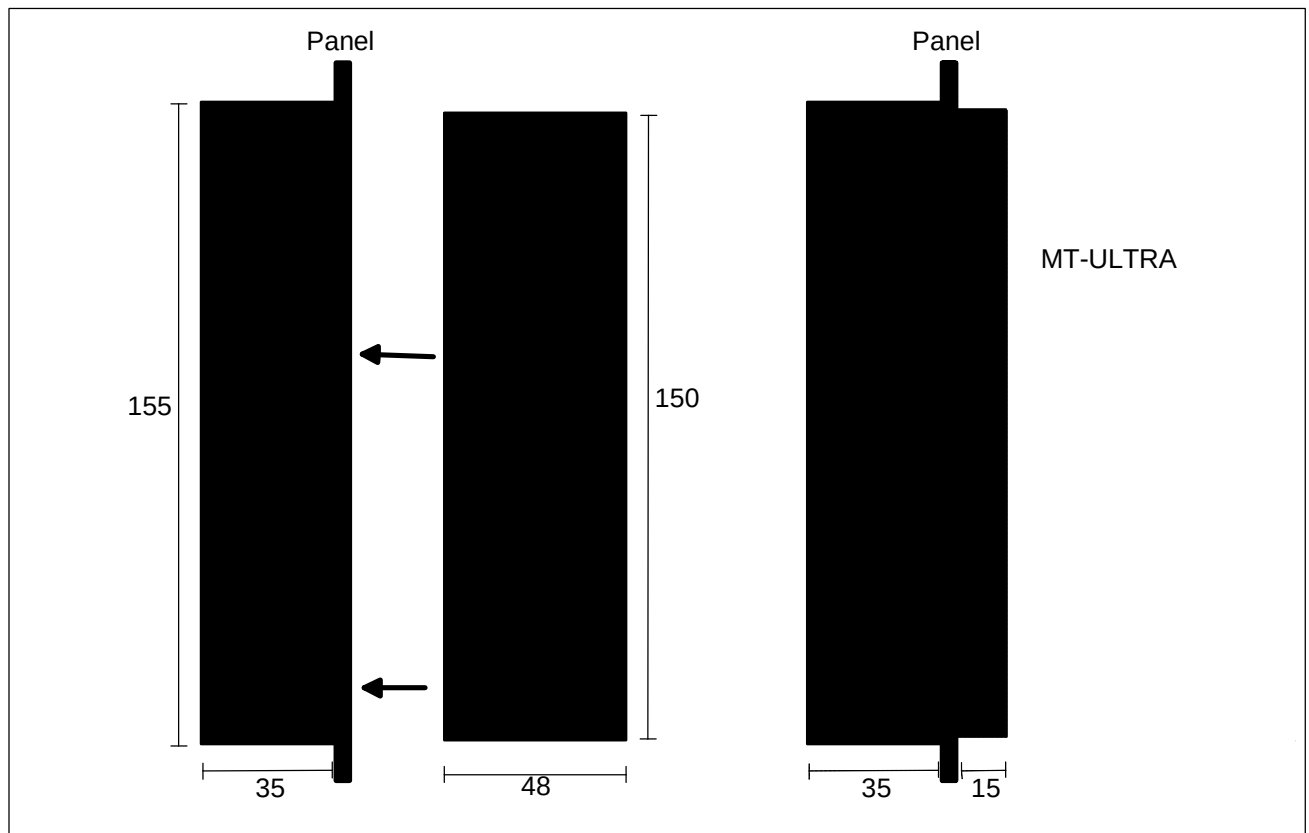
MT-ULTRA (rear view)
inserted into panel
from pilot's side

2.3 Mounting Depth

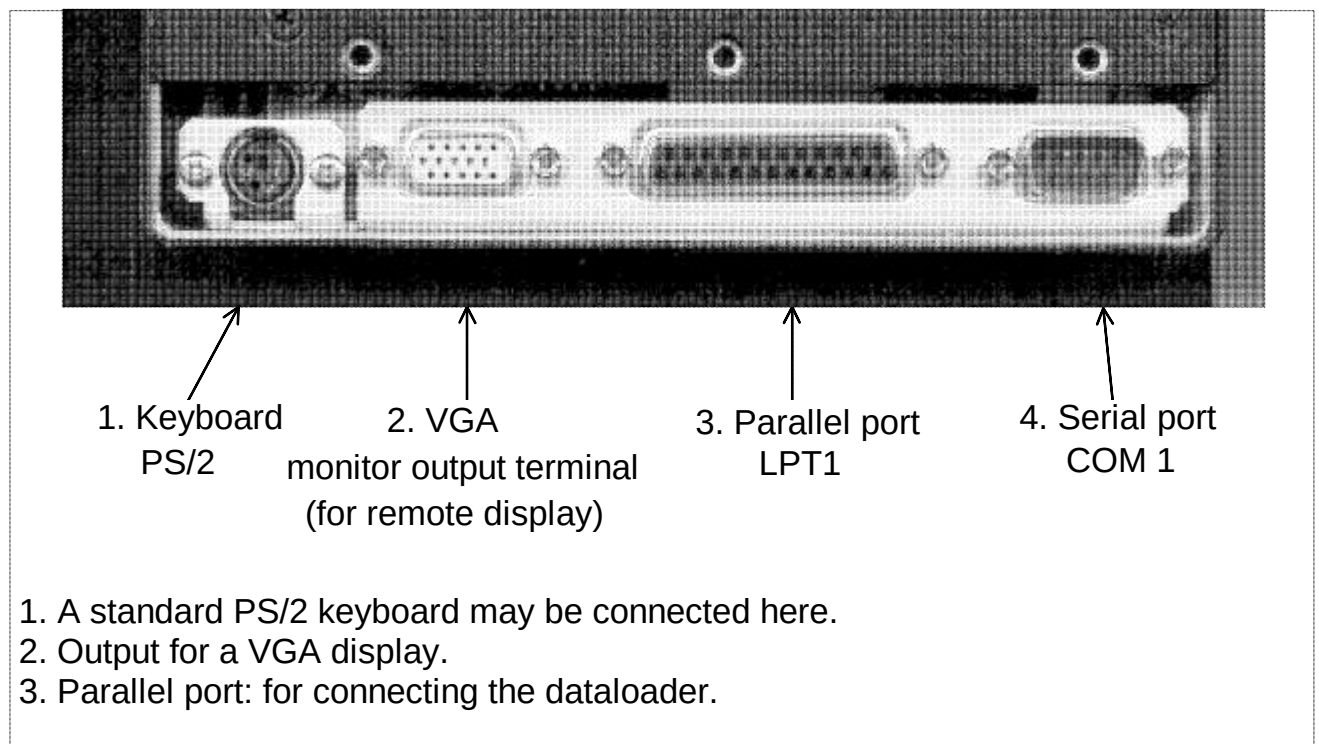
As delivered, the quick-release chassis can be mounted so that the MT-ULTRA Moving Map is flush with the surface of the panel (helicopter).



If a projection is desired, e.g. to make it flush with other avionics instruments, the quick-release chassis must be shortened as required (e.g. 15 mm). Please modify the side walls of the quick-release chassis and the two tabs.



The ventilation slots (rectangular apertures at sides and round opening at rear) should not be obstructed.



Insert the connecting cable through the rectangular opening in the top.

The MT integral GPS must be firmly mounted in an appropriate position, preferably on the dashboard (cf. Section 1.3) and connected to the aircraft's electrical system.

You may also connect another GPS, e.g. already installed in the aircraft, to the GPS socket.

3. Inserting MT-ULTRA into the quick-release Chassis

MT-ULTRA is factory-fitted with four rubber feet to ensure adequate ventilation when used as a mobile device. They do not need to be detached for permanent mounting if the chassis has appropriate holes.

If the quick-release chassis is permanently installed, MT-ULTRA must be pushed into the frame with a pressure of about 4 kg until it locks into the top and bottom retainer latches. The appropriate recesses are visible on the top and bottom narrow sides of the MT-ULTRA device.

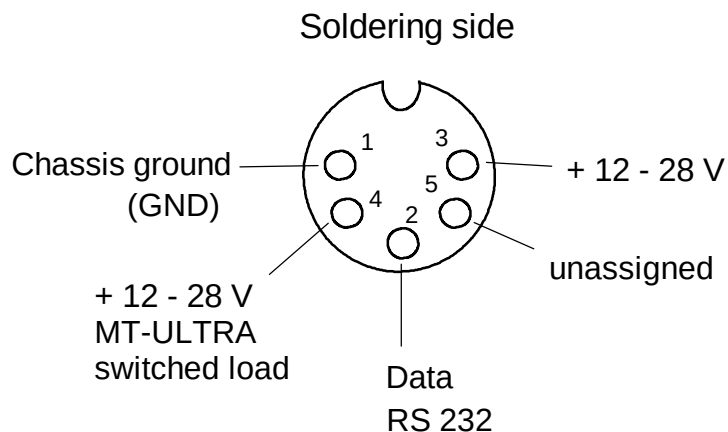
To remove MT-ULTRA, the unit is pressed against the panel, the retainer latches appear and are being pressed outboard to release the unit. Before carrying the device away, the screw-type connector must be detached from the GPS and the electrical supply.

4. Rear Connections (not accessible when equipment is installed)



Only the interface cover at the rear side of the device (secured with three blank screws) may be removed.

Jack for direct connection of MT-ULTRA to power supply unit (without Y adapter)



5. Connections

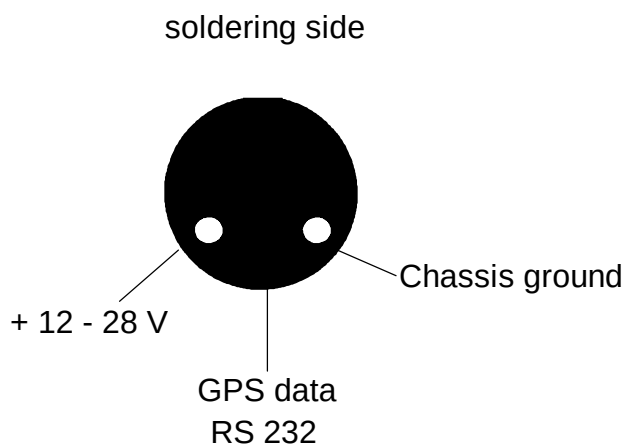
5.1 Pin Assignment (mains supply, GPS)

Power consumption: 16 W

Recommended fuse: 6 ampere slow (higher starting current).

Please refer to the following diagram for connector pin assignment:

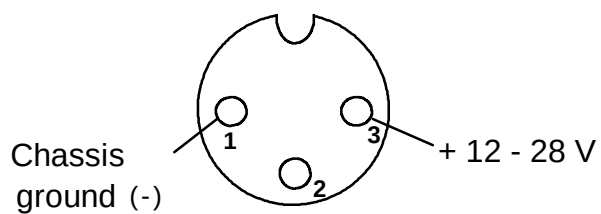
DIN 40040 connectors for 5-pole GPS pins



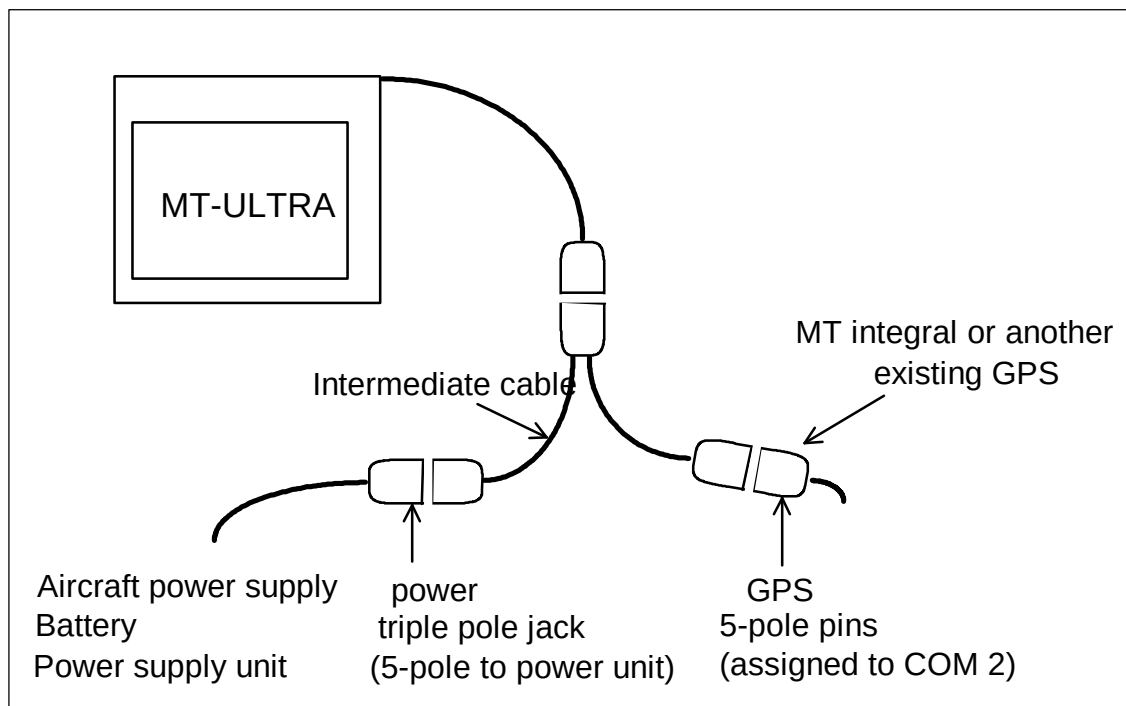
- 1 unassigned
- 2 NMEA data line
- 3 unassigned
- 4 Chassis ground (-)
- 5 + 12-28 V

**Power supply jack (for connecting to aircraft power supply)
triple pole pins**

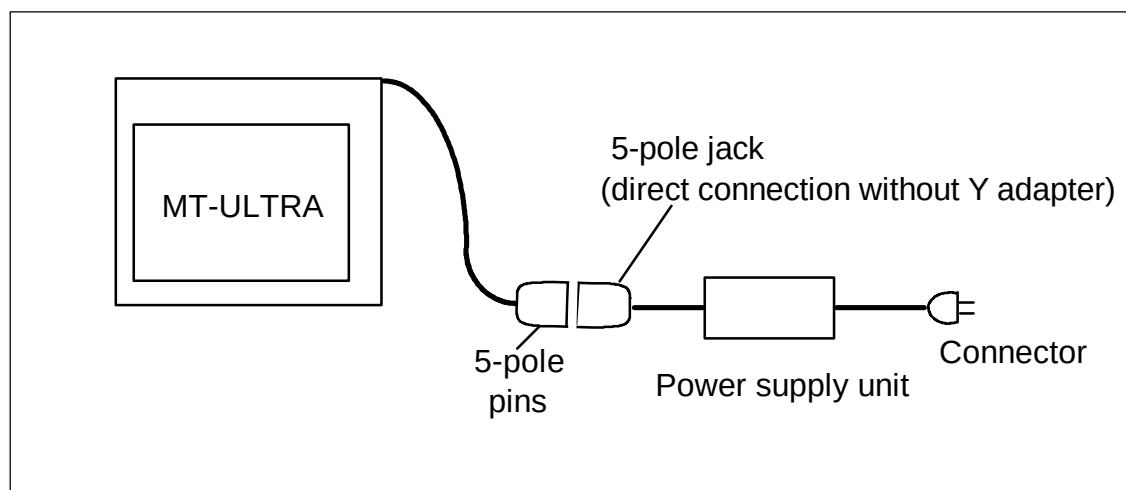
Soldering side



5.2 Connection Preferences for MT-ULTRA



5.3 Connecting MT-ULTRA to the mains outlet via a power supply unit



5.4 Connecting the Dataloader

