

delta70t

**VIRTUAL TERMINAL ISOBUS
WITH INTEGRATED GPS NAVIGATOR**

CE

46752XX

INSTALLATION

 = Generic danger

 = Warning

ECU = IBX100 remote control unit

VT = Virtual Terminal

OP = Object Pool

TC = Task Controller

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This manual is an integral part of the equipment to which it refers and must accompany the equipment in case of sale or change of ownership. Keep it for any future reference; ARAG reserves the right to modify product specifications and instructions at any moment and without notice.

MANUAL USE MODES

This manual contains information for installers. For this reason we have used technical terms without providing any explanations.



THE INSTALLATION MUST BE CARRIED OUT BY AUTHORIZED AND SKILLED PERSONNEL ONLY. ARAG IS NOT RESPONSIBLE FOR ANY INSTALLATION CARRIED OUT BY UNAUTHORIZED OR UNSKILLED PERSONNEL.

LIMITATIONS

The descriptions of the assembly phases refer to a "general" computer, so specific models will not be mentioned, unless a certain installation procedure concerns exclusively one computer type.

RESPONSIBILITY

The installer must carry out workmanlike installations and ensure to the end user the perfect operation of the whole system both with ARAG components only and other brands' components.

ARAG always recommends using its components to install control systems. The installer will be held responsible for any malfunction if he decides to use other brands' components even without actually changing the system parts or harness.

The compatibility check with components and accessories of other manufacturers shall be carried out by the installer.

If the computer or the ARAG components installed together with other brands' components get damaged because of what stated above, no direct or indirect warranty will be provided.

1 RISKS AND PROTECTIONS BEFORE ASSEMBLY

All installation works must be done with battery disconnected, using suitable tools and any individual protection equipment deemed necessary.



Use ONLY clean water for treatment tests and simulations: using chemicals during simulated treatment runs can seriously injure persons in the vicinity.

2 INTENDED USE

The device you have purchased is a Virtual Terminal which – when connected to an adequate remote control unit (ECU) compatible with the ISOBUS system according to ISO11783 – makes it possible to control all phases of treatment in agricultural applications directly from the cabin of the farming machine it is installed in.

Delta70t features a satellite navigator that – through the external GPS receiver – can be used for agricultural applications and navigation.



Delta70t is not designed for use on public roads and should only be used on farmland.

This device is designed to work on agricultural machinery for spraying and crop spraying applications.

The equipment is designed and built in compliance with UNI EN ISO 14982 standard (Agricultural and forestry machinery - Electromagnetic compatibility - Test methods and acceptance criteria), harmonized with EMC Directive - 2014/30/EU.

3 PRECAUTIONS



- Do not aim water jets at the equipment.
- Do not use solvents or fuel to clean the case outer surface.
- Do not clean equipment with direct water jets.
- Comply with the specified power voltage (12 VDC).
- In case of voltaic arc welding, remove connectors from Delta70t and disconnect the power cables.
- Only use ARAG genuine spare parts and accessories.
- **WHEN CONNECTED TO A SUITABLE ISOBUS CONTROL UNIT, THE DEVICE CAN CARRY OUT ELECTROMECHANICAL CONTROL OPERATIONS.**

THE PRODUCT DOES NOT FEATURE EMERGENCY STOP DEVICES: THE MACHINE MANUFACTURER MUST PROVIDE ALL NECESSARY SAFETY DEVICES FOR THE EQUIPMENT. IT IS THE MANUFACTURER'S RESPONSIBILITY TO ENSURE THAT THE MACHINE IS SAFE TO USE, ALSO BY MEANS OF ACOUSTIC AND/OR VISUAL SIGNALING DEVICES.

4 PACKAGE CONTENT

The table below indicates the components that you will find in the Delta70t monitor package:

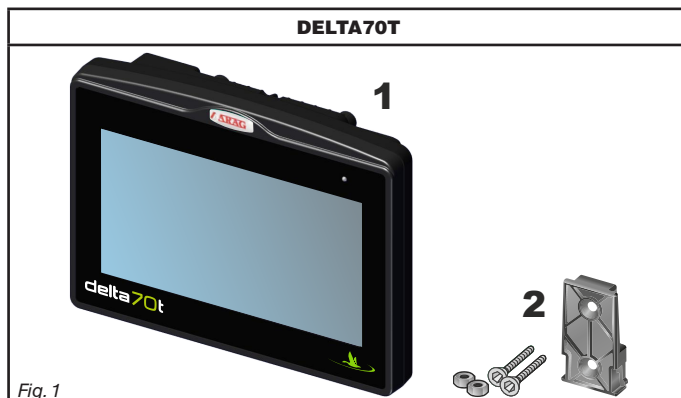


Fig. 1

Legend:

1 Delta70t

2 Fixing kit



Harnesses must be ordered separately (Ref. ARAG general catalog).

5 POSITION ON FARMING MACHINE

5.1 Monitor position

• The Delta70t series monitor must be placed in the control cabin of the farming machine. Observe the following precautions:



- Do NOT install the monitor in areas where it would be subjected to excessive vibrations or shocks, to prevent any damage or accidental use of the control keys;
- Install the device in a visible position within easy reach by hand; bear in mind that the monitor should not obstruct the operator's freedom of movement or block his view.



Consider all necessary connections of the monitor (Fig. 2), the cable length, and make sure there is enough space for connectors and cables.

An identification symbol is located next to each connector to indicate its function.

NO.	CONNECTION POINTS
1	USB (2)
2	GPS receiver
3	VT MODE: ECU / Battery



* For any reference to the system configuration refer to the manual attached to the ECU.

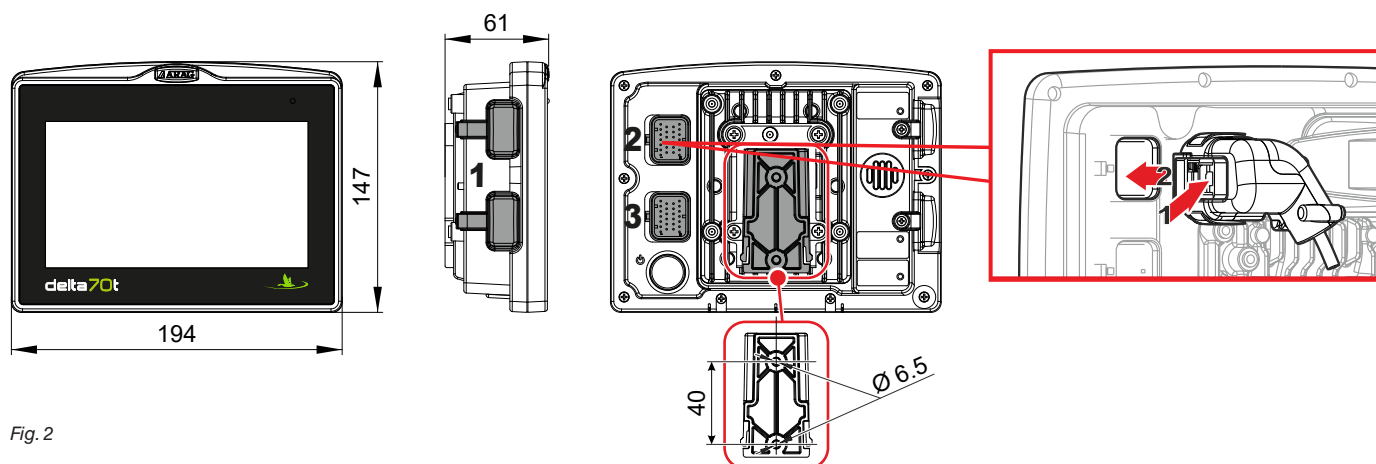


Fig. 2

5.2 Bracket fixing

The monitor must be mounted after having fixed the bracket at the desired location (the previous paragraph shows the bracket drilling template). The bracket must be slid out of the monitor seat (A, Fig. 3) and fixed using the supplied screws (B). Make sure the bracket is securely mounted, fit the monitor on it, and push it until it locks in place (C).

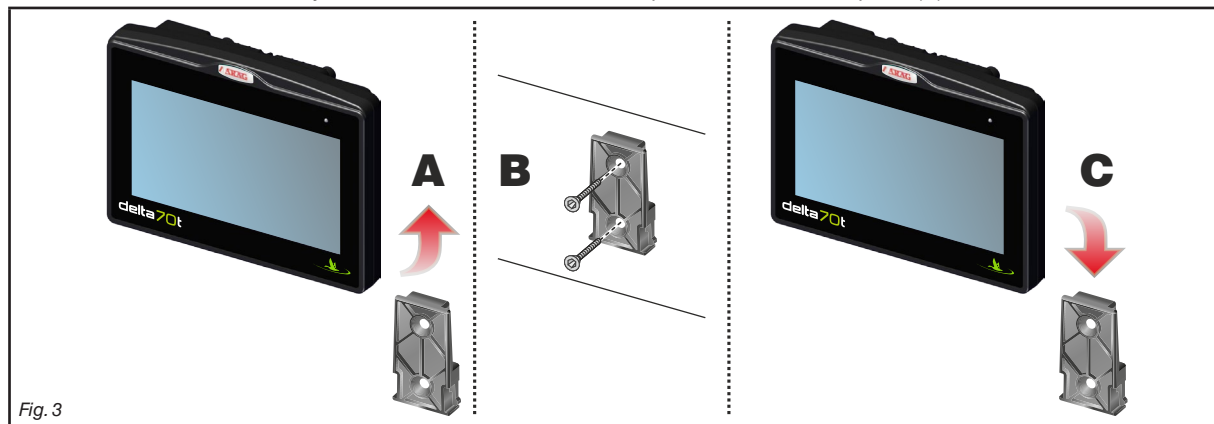


Fig. 3



WARNING: the Delta70t monitor must be fastened by means of the supplied bracket only, using suitable screws. OTHER FASTENING METHODS ARE NOT ALLOWED. ARAG is not liable for any damage to the equipment, persons or animals caused by failure to observe the above instructions.

6 WIRING CONNECTIONS



- Only use ARAG harnesses suitable for Delta70t monitor.
- Take care not to break, pull, tear or cut the cables.
- Use of unsuitable cables not provided by ARAG automatically voids the warranty.
- ARAG is not liable for any damage to the equipment, persons or animals caused by failure to observe the above instructions.



WARNING: to avoid short circuits, do not connect the power cables to the battery before the installation is completed. Before powering up the monitor, make sure the tractor battery voltage is as specified (12 VDC).

6.2.1 POWER SUPPLY CONNECTION - VT MODE WITH ISOBUS SOCKET AND AUXILIARY INPUT

The power source must be connected as indicated in Fig. 4.



Connect the power cable directly to the battery (12 Vdc) using the suitable eyelets.

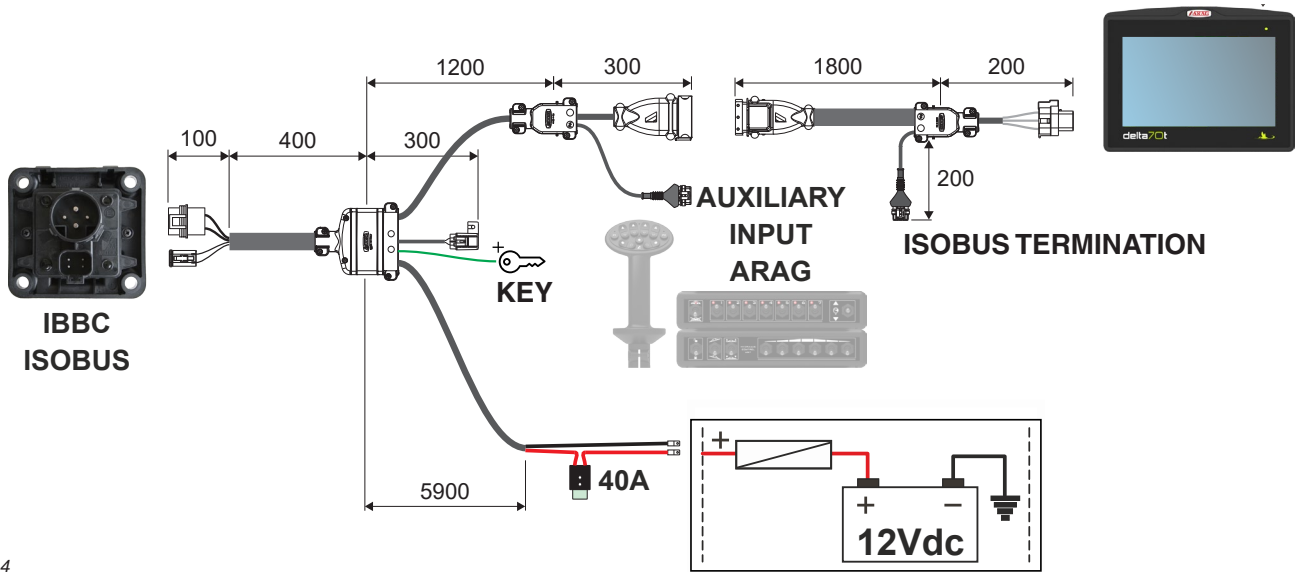


Fig. 4



CONNECTION USING A KEY IS OPTIONAL: THE TYPE OF CONNECTION INFLUENCES HOW THE DEVICE IS SWITCHED ON AND OFF (Fig. 5 - Fig. 6).

If the Delta70t remains on for a long time with machine off, the tractor battery could run flat: in case of prolonged breaks of the machine with engine off, make sure the monitor is off, too.

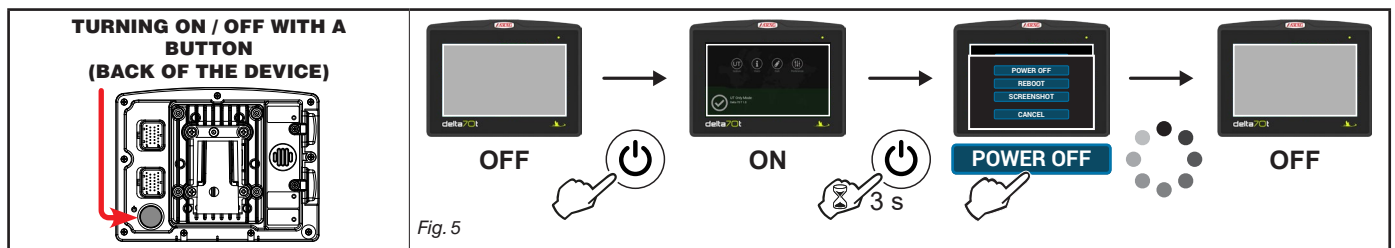


Fig. 5

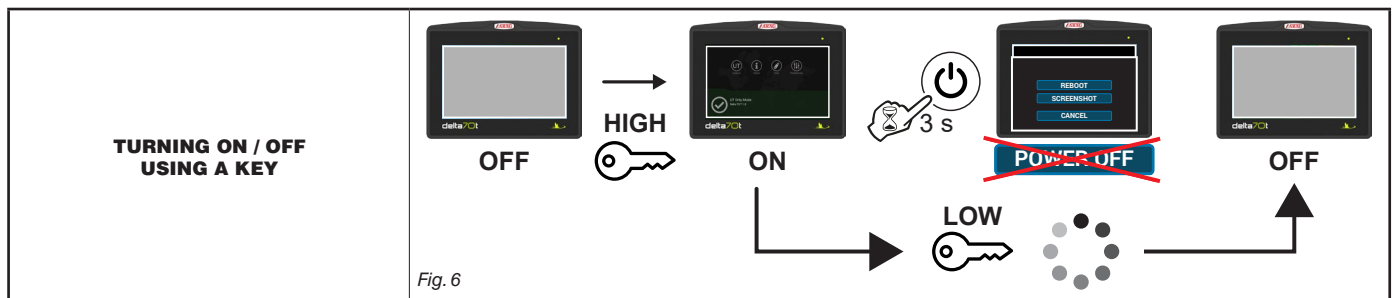


Fig. 6

6.2.2 DELTA 70t CONNECTION - EXPANSION MODE IN-CAB

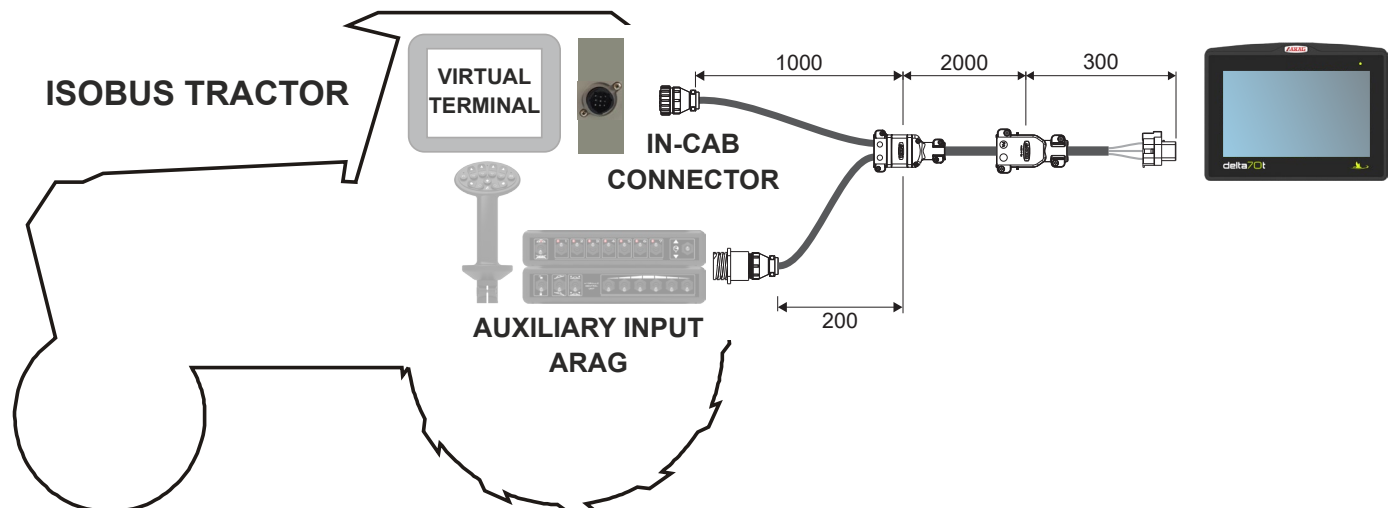


Fig. 7

7 ACCESSORIES

7.1 Pendrive

The pendrive may be used to exchange data with the Delta70t monitor.



Before use, format the pendrive in FAT 32 mode; make sure that it is not protected and can be read by the system. Most pendrives with up to 8 GB memory are compatible.

8 MAINTENANCE / DIAGNOSTICS / REPAIRS

8.1 Troubleshooting

PROBLEM	CAUSE	SOLUTION
The display does not switch on	No power supply	• Check power supply connection
	Monitor is OFF	• Press the ON key
Red LED always on	Application problem	• Restart the device (switch off/on) • If the problem persists, contact the Service Center

8.2 Cleaning rules

- Clean only with a soft wet cloth.
- DO NOT use aggressive detergents or products.
- DO NOT use direct water jets.

9 TECHNICAL DATA

9.1 Electrical features

Nominal supply voltage 12 Vdc (9 ÷ 32 Vdc)
Protection against polarity inversion Yes
Protection against short-circuit Yes
Power monitor: 11 W
6 RS232 serial ports up to 115200 baud
2 CanBus ports up to 1 Mbit/sec
2 USB 2.0 ports HOST
Power supply for GPS receiver 12 Vdc (max 500 mA)

9.2 Environmental features

Operating temperature 0 °C ÷ 45 °C / +32 °F ÷ +113 °F
Storage temperature -20 °C ÷ 60 °C / -4 °F ÷ +140 °F

9.3 Physical features

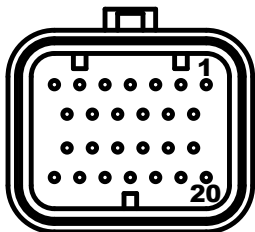
Display LCD 7", 500 cd/m2
Weight (without cables) monitor: 750 g

9.4 Materials

Lens cover Glass with anti-reflective coating
Casing PC + PBT
Heat sink Aluminum, inside the casing

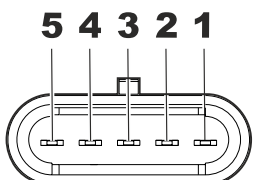
9.5 Connector pin-out

• Virtual Terminal



PIN	COLOR	SIGNAL
18	blue	GND
19	black	GND
20	green	CAN L
21	yellow	CAN H
24	white	Von
25	red	BATT_MONITOR
26	brown	BATT_MONITOR

• Auxiliary Input Arag



PIN	COLOR	SIGNAL
1	black	Power supply GND
2	red	Power supply +12V
4	green	CAN L
5	yellow	CAN H

10 END-OF-LIFE DISPOSAL

Dispose of the system in compliance with the established legislation in the country of use.

11 GUARANTEE TERMS

1. ARAG s.r.l. guarantees this apparatus for a period of 360 days (1 year) from the date of sale to the client user (date of the goods delivery note).
The components of the apparatus, that in the unappealable opinion of ARAG are faulty due to an original defect in the material or production process, will be repaired or replaced free of charge at the nearest Assistance Center operating at the moment the request for intervention is made. The following costs are excluded:
 - disassembly and reassembly of the apparatus from the original system;
 - transport of the apparatus to the Assistance Center.
2. The following are not covered by the guarantee:
 - damage caused by transport (scratches, dents and similar);
 - damage due to incorrect installation or to faults originating from insufficient or inadequate characteristics of the electrical system, or to alterations resulting from environmental, climatic or other conditions;
 - damage due to the use of unsuitable chemical products, for spraying, watering, crop sprayer or any other crop treatment, that may damage the apparatus;
 - malfunctioning caused by negligence, mishandling, lack of know how, repairs or modifications carried out by unauthorized personnel;
 - incorrect installation and regulation;
 - damage or malfunction caused by the lack of ordinary maintenance, such as cleaning of filters, nozzles, etc.;
 - anything that can be considered to be normal wear and tear;
3. Repairing the apparatus will be carried out within time limits compatible with the organizational needs of the Assistance Center.
No guarantee conditions will be recognized for those units or components that have not been previously washed and cleaned to remove residue of the products used;
4. Repairs carried out under guarantee are guaranteed for one year (360 days) from the replacement or repair date.
5. ARAG will not recognize any further expressed or intended guarantees, apart from those listed here.
No representative or retailer is authorized to take on any other responsibility relative to ARAG products.
The period of the guarantees recognized by law, including the commercial guarantees and allowances for special purposes are limited, in length of time, to the validities given here.
In no case will ARAG recognize loss of profits, either direct, indirect, special or subsequent to any damage.
6. The parts replaced under guarantee remain the property of ARAG.
7. All safety information present in the sales documents regarding limits in use, performance and product characteristics must be transferred to the end user as a responsibility of the purchaser.
8. Any controversy must be presented to the Reggio Emilia Law Court.

12 EU DECLARATION OF CONFORMITY

The declaration of conformity is available at the website www.aragnet.com, in the relevant section.

*Only use genuine ARAG accessories or spare parts to make sure manufacturer guaranteed safety conditions are maintained in time.
Always refer to the Internet address www.aragnet.com*

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