



AQUA 700

7-Way Section Control Box

including **AQUA 700 AIR** · AIR ECU wireless version

Installation & User Manual

TAQU700.01 · TAQU700.02

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About this Document

Document Information

Document Type	Installation & User Manual
Document Abstract	Overview and detailed instructions for the installation and use of the AQUA 700 7-Way Section Control Box and the AQUA 700 AIR wireless version
Products	AQUA 700 (TAQU700.01) · AQUA 700 AIR (TAQU700.02)
Document Status	V.0.1
Document Prepared By	Timdigitize Documentation Team

Document Revision History

Sr.	Version	Date	Comments
1.	0.1	30-Sep-2026	First Release
2.			
3.			

This manual is an integral part of the product and must accompany it in case of sale or change of ownership. Keep it for future reference. Tim reserves the right to modify product specifications and instructions at any time without notice. Sections marked **AIR** apply only to the AQUA 700 AIR version; sections marked **WIRED** apply only to the standard AQUA 700.

1. Symbols & Abbreviations



The installation tasks described in this manual must be performed by qualified technicians only.

1.1 Symbols Used

The following types of safety instructions and general information appear in this document:

Symbol	Type of Hazard	Description
	DANGER	Indicates a hazardous situation that needs immediate attention. If not avoided, serious injury or even death may occur.
	WARNING	Indicates a hazardous situation that could lead to death or serious injury if precautions are not taken.
	CAUTION	Indicates a situation that might result in minor injury or damage to the product if not avoided.
	NOTE	Provides tips that are valuable for the optimal operation of your product.

1.2 Abbreviations

Term	Meaning
Section	A part of the boom that is switched on and off by its own section valve
W (way)	Number of controlled sections – AQUA 700 controls 7 sections (7W)
Main valve	Valve that opens or closes the liquid supply to all sections at once
Proportional valve	Motorized valve that regulates the spraying pressure (and therefore the dose)
AIR ECU	Electronic Control Unit mounted on the sprayer; receives the switch commands from the cab wirelessly and drives the valves (AIR version only)
LED	Light-emitting diode (status indicator)
VDC	Volts, direct current

2. Before Using the Product



Carefully read all the safety instructions. Otherwise, there is a risk of accident, injury or damage to the product.



Never clean the control box, the AIR ECU or the valves with direct high-pressure water jets.



Do not use solvents or fuel to clean the outer surfaces.



Comply with the specified supply voltage: **12 VDC**.



Before any electric arc welding on the tractor or sprayer, disconnect all cables from the control box and the AIR ECU.



Only use genuine Tim cables, spare parts and accessories.

2.1 Intended Use

AQUA 700 is a manual 7-section control box for agricultural wide-boom field sprayers. From the tractor cab the operator switches the main valve and 7 section valves on and off and adjusts the spraying pressure. AQUA 700 AIR has the same box, but the valves are connected to the AIR ECU on the sprayer, which receives the commands wirelessly.

Any other use is considered improper. Tim is not liable for damage resulting from improper use or failure to observe this manual.

2.2 Important Safety Instructions

2.2.1 Liquid pressure and plant protection products



The sprayer circuit is under pressure (up to 20 bar). Never loosen fittings, hoses or valves while the pump is running or the circuit is pressurized. Liquid jets can cause serious injury.

- Wear the personal protective equipment prescribed on the label of the plant protection product.
- Carry out all installation work and the first tests with **clean water only**.
- Rinse the sprayer circuit with clean water before any maintenance on the valves.

2.2.2 Electrical safety

- Connect the box and the AIR ECU only to a fused 12 VDC supply using the supplied Tim cables.
- Do not route cables near hot parts, sharp edges or moving components; protect them from chemicals.
- Do not open the control box or the AIR ECU. There are no user-serviceable parts inside.
- Electronic components are sensitive to electrostatic discharge (ESD). Touch a grounded metal part before handling connectors.

2.3 Installation Pre-requisites

1. The tractor is switched off and the sprayer is parked safely on level ground.
2. The sprayer tank is empty or filled with clean water only, and the circuit is depressurized.
3. There are no flammables or explosives stored nearby; the area is dry and clean.
4. All federal, state and local site safety requirements are in place.

3. About the Product

3.1 About AQUA 700 and AQUA 700 AIR

AQUA 700 gives the operator simple, reliable control of the sprayer from the cab: the main valve, 7 section valves and the spraying pressure are operated with rugged toggle switches, and each function has its own LED. No chemical hose enters the cab, and the constant-pressure section valves prevent pressure deviation when sections are opened or closed.

AQUA 700 is available in two versions:

Version	Code	Connection to the valves
WIRED	TAQU700.01	SIM026 valve cable (4.5 m 7W Valve Cable) runs from the box in the cab to the valve kit on the sprayer.
AIR	TAQU700.02	The valve harness plugs into the AIR ECU on the sprayer; box and ECU communicate wirelessly – no valve cable through the cab.

Key capabilities include:

- **7-section in-cab control:** main valve and 7 section valves open / close from the cab.
- **Manual pressure regulation:** increase or decrease the pressure to adjust the spraying dose during operation.
- **Safe operation:** no chemical hoses inside the cabin.
- **Constant pressure:** easy section control prevents pressure deviation when sections are opened or closed.
- **AIR version:** wireless link between box and sprayer – ideal when the sprayer is often uncoupled or used with different tractors.
- **Hydra ready (AIR):** a Hydra 500 / 700 hydraulic boom box can share the same AIR ECU (socket 4).
- **Upgrade path:** the same valve kit can later be used with a Tim NOVA computer for automatic rate and section control.

3.2 Product Overview

The front panel is identical on AQUA 700 and AQUA 700 AIR.



Fig. 1 – AQUA 700 front panel

Sr. #	Part Name	Function
1.	Main valve switch	Opens / closes the liquid supply to all sections (spraying ON / OFF).
2.	Section switches 1-7	Open / close the 7 boom sections individually. Section 1 is the first switch from the left.
3.	Pressure switch (+ / -)	Increases (+) or decreases (-) the spraying pressure through the proportional valve.
4.	Status LEDs	One LED above each switch shows the state of that function.
5.	Model plate	Product name and Tim logo.
6.	Mounting points	Fixing points for the triple suction cup mount (KYP029) or the screw mount (KYP037).

Note: The final product may differ from the illustration depending on the production batch and customer specifications. The power cable and the valve cable (wired version) are connected on the rear side of the box.

3.3 System Overview

WIRED AQUA 700 (TAQU700.01)

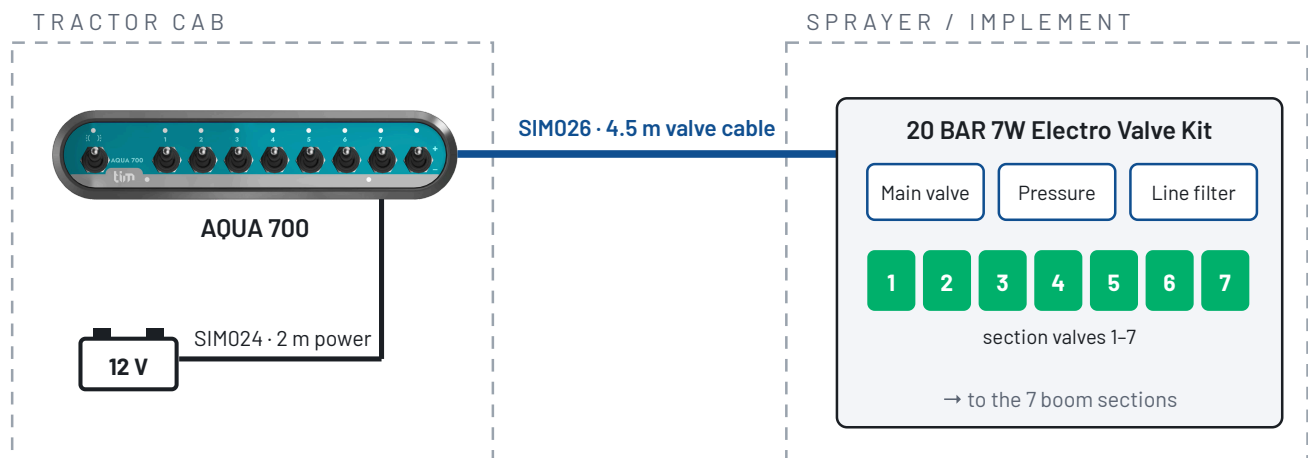


Fig. 2 – Wired system: box in the cab, valve cable to the valve kit on the sprayer

AIR AQUA 700 AIR (TAQU700.02)

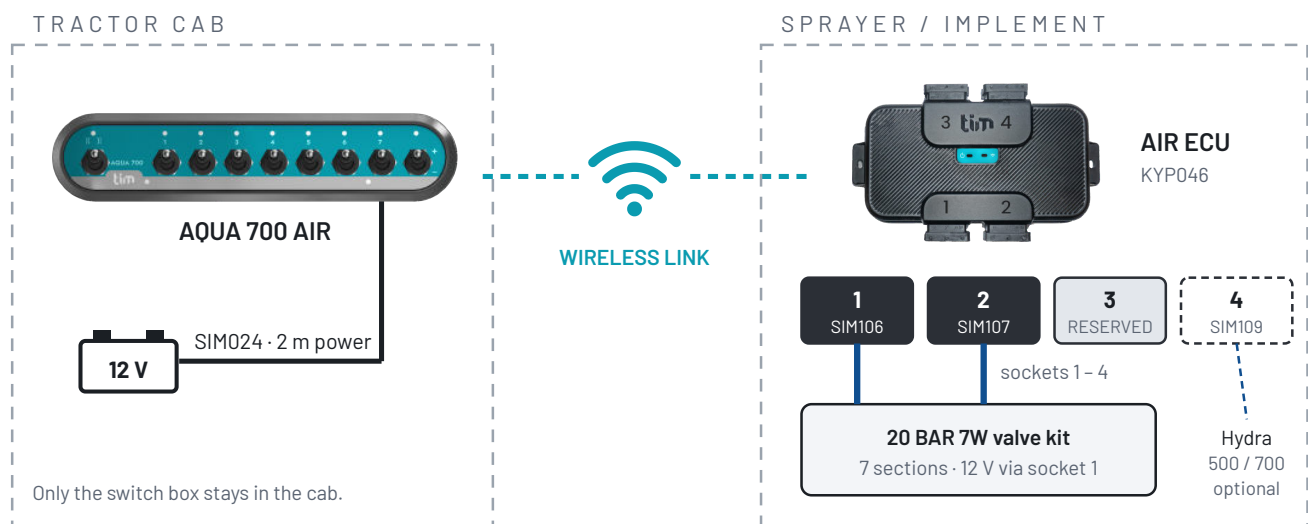


Fig. 3 – AIR system: box in the cab, wireless link to the AIR ECU next to the valves

3.4 AIR ECU AIR



The AIR ECU (KYP046) is mounted on the sprayer, next to the valves. The valve harness plugs straight into its sealed, numbered sockets and the ECU talks to the AQUA 700 AIR box in the cab wirelessly – no thick valve cable has to be pulled into the tractor cab. Power and wireless-link LEDs on the front plate show the status at a glance.

Socket map – AQUA 700 AIR

Socket	Cable	Use
1	SIM106	Main cable · 12 V power in + 2 way
2	SIM107	5 way cable · 7 way in total
3	RESERVED	Kept free for future expansion
4	SIM109	Hydra 500 / 700 cable · optional

3.5 Specifications

Specifications	AQUA 700	AQUA 700 AIR
Product code	TAQU700.01	TAQU700.02
Controlled sections	7 section valves + main valve + pressure regulation	
Controls	Toggle switches with status LEDs	
Supply voltage	12 VDC	
Power cable	SIM024 · 2 m	
Connection to the valves	SIM026 · 4.5 m valve cable	Wireless to AIR ECU (KYP046) on the sprayer
Valve kit	20 BAR 7W Electro Valve Kit (max. 20 bar)	
Mounting in the cab	KYP029 Triple Suction Cup Mount or KYP037 Screw Mount (optional)	
Hydraulic boom control	Separate Hydra box	Hydra 500 / 700 on AIR ECU socket 4 (optional)

4. Installation



The installation must be carried out by a skilled professional only – normally your Tim dealer. Plumbing work on the sprayer requires a depressurized, clean-water-rinsed circuit.

4.1 Mounting the Control Box

Step 1. Choose a position in the cab where the operator can reach all switches from the driver's seat and see the LEDs, without blocking the view or the tractor controls.

Step 2. Fit the mount to the mounting points of the box:

- **KYP029** – Triple Suction Cup Mount · 6 cm short arm: press the suction cups firmly onto a clean, smooth glass or panel surface and lock them.
- **KYP037** – Screw Mount · 6 cm short arm: screw the base to a rigid part of the cab.

Step 3. Tighten the arm so that the box cannot move during field work.



If the mount is not securely fastened, the box may move or fall during operation and cause damage or injury.

4.2 Power Connection

Step 1. Connect the power cable **SIM024** (2 m) to the rear side of the box.

Step 2. Connect the other end to a **fused 12 VDC** supply of the tractor (preferably directly to the battery or to a 12 V power socket). Observe the polarity.

Step 3. Route the cable along the cab frame and fix it with cable ties, away from pedals, doors and moving parts.



Reverse polarity or a supply other than 12 VDC may damage the electronics.



For the AIR version, the AIR ECU on the sprayer needs its own 12 V supply through the main cable SIM106 (socket 1) – see section 4.5.

4.3 Installing the Valve Kit on the Sprayer

AQUA 700 and AQUA 700 AIR work with the **20 BAR 7W Electro Valve Kit**. Install the kit on the sprayer frame, close to the pump and the boom feed lines:

Item code	Description	
TA 871T502	20 BAR Main Control Valve	
TA 863T024S	Proportional Valve (pressure regulation)	
TA 32621M3	Line Filter	
TA 863T0150	5W Section Valve	
TA 863T0120	2W Section Valve	

Step 1. Mount the valve group vertically on a rigid part of the sprayer frame, protected from impacts and from the spray.

Step 2. Connect the pump delivery line to the **line filter (TA 32621M3)** and the filter outlet to the **main control valve (TA 871T502)**. The return (by-pass) outlet goes back to the tank.

Step 3. Connect the section valve outlets to the 7 boom sections with the **13 mm hose connectors (TA 1091313)** and gaskets (**TA G11058V**), section 1 to the left end of the boom.

Step 4. Fit the **manometer (TA 911025)** so that the operator can read it from the cab.

Step 5. Tighten all fittings, then check the whole circuit for leaks with **clean water** (section 5.1).



Use only fittings and hoses rated for the maximum pressure of the kit (20 bar). Do not exceed the maximum pressure.



The complete list of fittings supplied with the kit is given in section 7.3.

4.4 Valve Cable Connection WIRED

Step 1. Connect the valve cable **SIM026** (4.5 m 7W Valve Cable) to the rear side of the box.

Step 2. Route the cable out of the cab through a cable opening, along the tractor and the drawbar to the valve kit. Leave enough slack for turning.

Step 3. Connect the labelled plugs of the cable to the corresponding valves (main valve, pressure valve, section valves 1–7).

Step 4. Fix the cable with cable ties every 30–40 cm, away from moving parts and hot surfaces.

4.5 AIR ECU Installation AIR

Step 1. Mount the **AIR ECU (KYP046)** on the sprayer next to the valve kit, using its fixing lugs. Mount it with the sockets pointing downwards or sideways so that water cannot collect in the connectors.

Step 2. Plug the main cable **SIM106** into **socket 1**. It supplies the ECU with 12 V and drives 2 ways. Connect its power lead to a fused 12 VDC supply of the tractor.

Step 3. Plug the 5-way cable **SIM107** into **socket 2** – 7 ways in total.

Step 4. Connect the labelled plugs of the cables to the valves of the valve kit.

Step 5 (optional). To control a hydraulic boom from the same ECU, plug the Hydra cable **SIM109** into **socket 4** and install a Hydra 500 / 700 box in the cab. Socket 3 is reserved – keep its protective cap on.

Step 6. Push each connector fully home until it locks; do not force or bend the connectors.



No valve cable has to be pulled into the cab: the box communicates with the AIR ECU wirelessly. Keep the ECU in the open – large metal covers between the cab and the ECU can weaken the wireless link.



Keep the protective caps on unused sockets. An open socket lets water and chemicals into the connector.

5. Operating Instructions

5.1 First Operation – Test with Clean Water

Step 1. Fill the tank with clean water only. Set all switches of the box to **OFF**.

Step 2. Switch on the tractor. The box is powered through SIM024. **AIR** Check that the power and wireless-link LEDs of the AIR ECU are on.

Step 3. Start the pump at low speed. Switch the **main valve** ON and switch the sections ON one by one – each section must start and stop spraying with its switch, and its LED must follow the switch.

Step 4. Hold the **pressure switch** on + and on – and check on the manometer that the pressure rises and falls.

Step 5. Check all fittings and hoses for leaks. Switch the main valve OFF and stop the pump.

5.2 Controls

Switch	Operation
Main valve (left)	Up / ON: liquid is supplied to the switched-on sections. Down / OFF: spraying stops on all sections at once, the liquid returns to the tank.
Sections 1–7	Up / ON: the section sprays (when the main valve is ON). Down / OFF: the section is closed. Use them to close sections at field edges, wedges and already sprayed areas.
Pressure + / –	Hold on + to increase or on – to decrease the pressure; release when the manometer shows the required pressure.
LEDs	The LED above a switch lights when that function is active.



Higher pressure = higher dose and finer droplets. Adjust the pressure only within the working range of your nozzles, and keep a constant forward speed while spraying.

5.3 Section Pressure Compensation

When a section is closed, its liquid is returned to the tank through a calibrated return, so the pressure – and the dose – on the remaining sections stays constant. The returns must be set once for your nozzles:

Step 1. With clean water, main valve and all sections ON, set the working pressure with the pressure switch. Note the manometer reading.

Step 2. Switch section 1 OFF. Turn the compensation (return) adjuster of section 1 until the manometer shows the noted pressure again.

Step 3. Switch section 1 back ON and repeat step 2 for every section (1–7).

Step 4. Repeat the setting whenever you change the nozzle size.



If your valve kit has no compensation adjusters, the pressure may rise slightly when sections are closed; correct it with the pressure switch.

5.4 Spraying

1. Switch ON the sections you need, then switch ON the main valve at the start of the pass.
2. Adjust the pressure with the pressure switch and keep a constant forward speed.
3. Close sections at field edges and in already sprayed areas; close the main valve at the headland.
4. **AIR** Keep an eye on the link: if the wireless link is lost, stop spraying and see section 6.2.

5.5 After Work

- Rinse the tank, the pump and all sections with clean water: run the pump with the main valve and all sections ON.
- Switch all switches OFF and switch off the tractor.
- In frost periods, drain the circuit completely or fill it with antifreeze solution.

6. Maintenance & Troubleshooting

6.1 Maintenance

- Clean the line filter regularly (daily in intensive use) and replace damaged gaskets.
- Clean the box and the AIR ECU with a damp cloth only; keep connectors and protective caps clean and closed.
- Check cables, connectors and fittings for damage and leaks at the start of every season.
- Check the manometer: with the pump stopped it must show 0 bar.

6.2 Troubleshooting

Problem	Possible cause	Remedy
No LED lights on the box	No power supply	Check SIM024, the fuse and the 12 V supply; check the polarity.
A section does not open / close	Connector loose or on the wrong valve	Check the labelled plugs on the valves / ECU sockets.
	Section valve blocked	Rinse the circuit; contact your dealer if the valve still does not move.
Pressure cannot be adjusted	Pressure valve not connected, filter clogged, pump worn	Check the pressure-valve plug, clean the line filter, check the pump.
Pressure changes when a section is closed	Compensation not set	Set the section returns (section 5.3).
Manometer shows pressure but nozzles do not spray	Main valve OFF or clogged nozzles / filters	Switch the main valve ON; clean the nozzle filters.
AIR Box works, valves do not react	AIR ECU without power or no wireless link	Check the ECU power LED and SIM106 supply; check the link LED; reduce metal obstacles between cab and ECU; switch both units off and on again.
AIR Only some sections work	SIM107 not connected	Check SIM107 on socket 2 and its plugs on the valves.



If the problem persists, contact your Tim dealer or write to info@timdigitize.com with the product code (TAQU700.01 / TAQU700.02) and a description of the problem.

7. Package Contents

7.1 AQUA 700 WIRED

Item Code	Description	
Standard package		
TAQU700.01	AQUA 700 Control Box	
SIM024	2 m Power Cable	
To be ordered		
SIM026	4.5 m 7W Valve Cable	

7.2 AQUA 700 AIR AIR

Item Code	Description	
Standard package		
TAQU700.02	AQUA 700 AIR Control Box	
SIM024	2 m Power Cable	
To be ordered		
KYP046	AIR ECU Box	
SIM106	AIR ECU Main Cable · 12 V + 2 way	
SIM107	AIR ECU Cable · 5 way	

7.3 Required Products – Valve Kit & Fittings

Required for both versions.

Item Code	Description	Qty	
20 BAR 7W Electro Valve Kit			
TA 871T502	20 BAR Main Control Valve	×1	
TA 863T024S	Proportional Valve (pressure regulation)	×1	
TA 32621M3	Line Filter	×1	
TA 863T0150	5W Section Valve	×1	
TA 863T0120	2W Section Valve	×1	
Fittings & Manometer			
TA 1091313	Hose Connector 13 mm	×7	
TA G11058V	Gasket (Viton®)	×7	
TA 1190425	Elbow Fitting	×1	
TA 010004	Fitting Set	×1	
TA 911025	Manometer	×1	

7.4 Optional Accessories

Item Code	Description	
KYP029	Triple Suction Cup Mount · 6 cm short arm	
KYP037	Screw Mount · 6 cm short arm	
THYD500.01	Hydra 500 Control Box AIR	
THYD700.01	Hydra 700 Control Box AIR	
SIM109	AIR ECU Hydra Cable AIR	

8. Disposal of Used Product & Packaging



This symbol on the product or its packaging indicates that the product must not be treated as household waste. Hand it over to an applicable collection point for the recycling of electrical and electronic equipment, or return it to your dealer when buying an equivalent new product. Rinse valves and parts that were in contact with plant protection products before disposal, and dispose of the rinsing water according to the product label. Dispose of the packaging in accordance with the regulations of the country of use.

9. Warranty

Every Tim product is covered by a **2-year warranty** from the date of purchase. The warranty does not cover damage caused by improper installation or use, use of cables or accessories not supplied by Tim, opening of the housing, frost damage, chemical damage caused by insufficient rinsing, accidents, or failure to observe this manual. For warranty claims contact your Tim dealer.

Changes to the text, design and technical specifications may occur without prior notice; we reserve the right to make these changes.



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