

Data logger controller



WiKeeper

Installation and Connection Manual

Manual

Change log



Review	Date	Reason for the amendment
1	11/06/2025	Initial issue of the document
2	17/08/2026	Content review

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1. Introduction

This manual describes the steps required to install, wire and commission a WiKeeper device.

Before starting the installation, read all the safety instructions and check that you have the appropriate materials, tools and power supplies.

2. Installation and wiring precautions

The WiKeeper's inputs and outputs incorporate safeguards against certain connection or configuration errors.

However, the interior of the device contains sensitive electronic components that may be damaged by an incorrect connection, moisture or an electrostatic discharge.

Before handling the equipment, please follow these instructions:

- ✓ Disconnect the power supply before opening or handling the equipment.
- ✓ Do not remove the electronic components from their housing.
- ✓ Avoid touching the electronic components or internal circuit boards directly.
- ✓ Check that all cables are connected to the correct terminal before powering up the equipment.
- ✓ Ensure that the cables are correctly inserted and secured in the terminals.
- ✓ Close and tighten all cable glands correctly.
- ✓ Check that the enclosure cover is fully closed.

2.1. Installation recommendations

The device has an IP67 protection rating when the housing, cover and cable glands are correctly sealed.

To improve protection against water:

- Install the device in a vertical position.
- Avoid placing it in areas where it may become submerged.
- Position the cable glands facing downwards wherever possible.
- Check that there are no open cable entries.
- Use suitable plugs on any cable glands that are not in use.

The IP67 protection rating cannot be guaranteed if the cover, cable glands or any other sealing components are not correctly fitted.

3. Overview of the equipment

The **WiKeeper device is an irrigation controller** capable of managing up to 30 24VAC valves. Furthermore, the number of valves can be expanded to 60 using an expansion controller (WiKeeper Expansion (WiKeeper E)).

As well as acting as an irrigation controller, the unit allows the connection of up to 4 analogue inputs (voltage or current), SDI-12 sensors and up to 4 pulse counters.

The valves can be operated in three different ways: automatically via sequential irrigation programmes, manually via remote control (from the platform) or manually on-site using 3-position switches (auto, off and on).

Valve control modes

The valves can be activated in three ways:

Automatic mode

The valves are controlled by the irrigation programmes set up in the system.

Remote manual mode

The valves are activated or deactivated via the management platform, WiKeeper Cloud.

Local manual mode

Each valve can be controlled using its three-position switch:

- **AUTO:** the valve operates according to the programme or remote commands.
- **OFF:** the valve remains deactivated.
- **ON:** the valve is activated manually.

Note: Before putting the system into operation, check that all the switches are in the correct position.

Food and consumption

WiKeeper is designed to operate with a transformer with the following specifications:

- Output voltage: 24 VAC.
- Rated current: 5 A.

This power supply is sufficient to meet the equipment's power requirements and control up to 15 valves simultaneously, based on an average power consumption of approximately 250 mA per valve.

The maximum number of active valves and the current limit can be configured via the communications system.

The default settings are:

- A maximum of 15 valves active simultaneously.
- A current limit of 4,500 mA.

Note: These limits must be adjusted to reflect the actual consumption of the installed valves.

4. General connection diagram

Figure 1 shows the layout of the WiKeeper's connections and control elements. Each area is identified by a number to make it easier to locate during installation.

1. Local control of the valves

Each valve has a three-position switch:

- **AUTO:** the valve operates according to the programme or remote commands.
- **OFF:** the valve remains closed.
- **ON:** the valve is activated manually.

2. LED indicators

The LED indicators allow you to visually check the status of the equipment, the active programmes and any alarms:

- **Green LED:** Indicates that a programme is running.
- **Steady red LED:** Indicates that the limit on active outputs or the maximum current consumption has been exceeded.
- **Flashing red LED:** Indicates that the programme is blocked.

3. Programme buttons

This allows you to activate the associated programmes.

In the case of the controller, pressing both buttons simultaneously for more than 5 seconds locks the programme for one week. If the programmer is already locked, the same action unlocks it.

4. Valve outlets

The terminals labelled V01 to V30 are used to connect 24 VAC valves.

Each valve must be connected:

- To its corresponding output, for example V01.
- To one of the common terminals labelled COM.

The first four blocks include six valve outputs and two common terminals.

5. 24 VAC power input

In the fifth block, the last two terminals are used to power the equipment and are labelled INPUT 24 VAC.

Connect the output of the 24 VAC transformer to these terminals.

6. SDI-12 port

It allows probes compatible with the SDI-12 protocol to be connected via the power, data and earth terminals.

7. Expansion bus

This allows the controller to communicate with a WiKeeper Expansion unit via the BUS+ and BUS- terminals.

8. Analogue inputs

They allow you to connect up to four sensors with a voltage or current output.

9. Meter readings

They allow up to four meters with pulse outputs to be connected

Note: Before making any connections, check that the equipment is disconnected from the mains supply and identify the number in the diagram corresponding to the component you are going to wire.

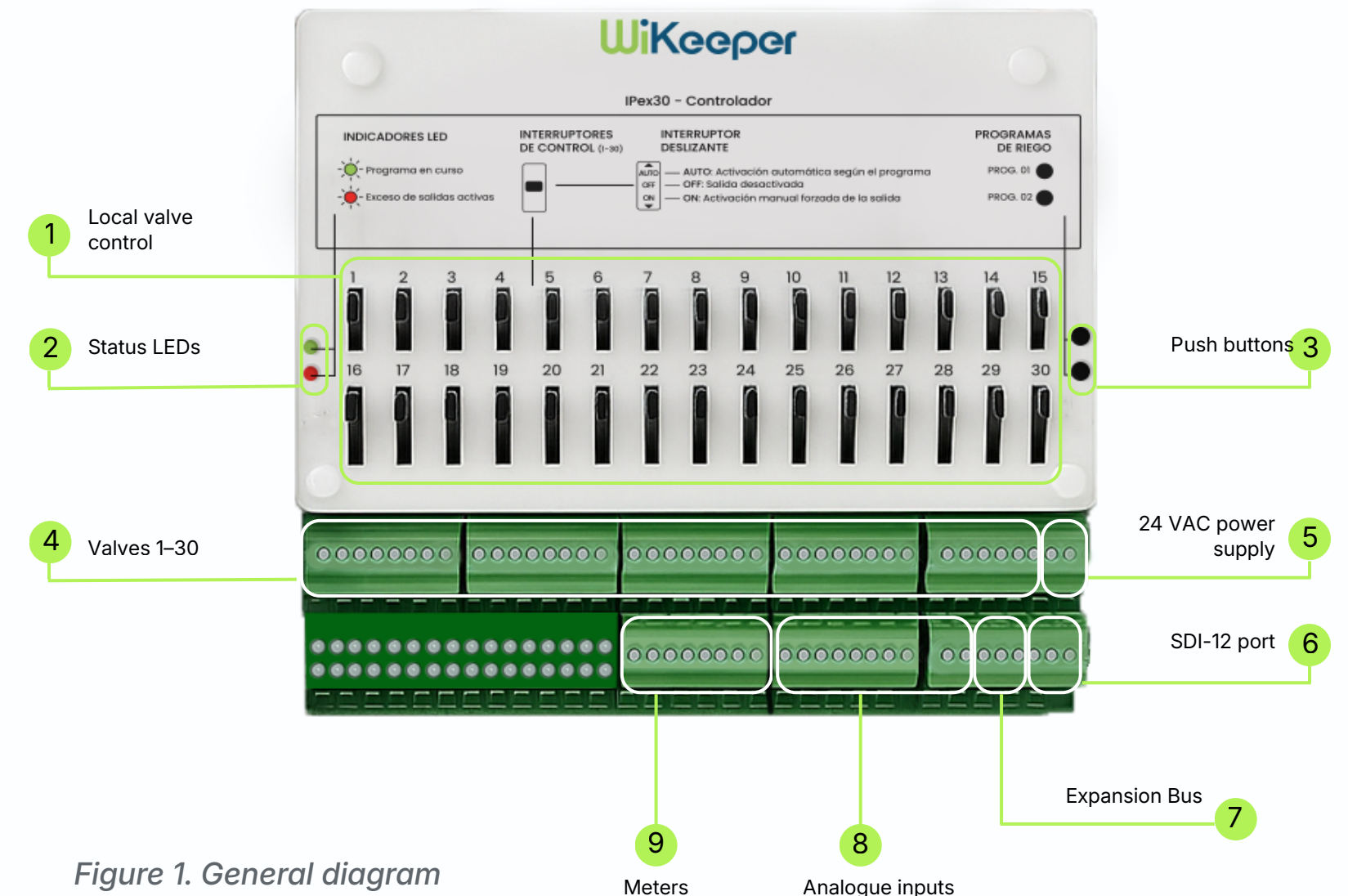


Figure 1. General diagram

5. Installation and connections

Before making any connections:

1. Disconnect the transformer from the mains supply.
2. Check that the transformer meets the specified requirements.
3. Identify the relevant connection terminals.
4. Check the wiring diagram for the sensor, valve or device to be installed.
5. Connect all cables to the equipment whilst it is switched off.
6. Check the wiring before switching on the system.

5.1. Connecting the power supply transformer

WiKeeper requires a **24 VAC, 5 A power supply**.

The transformer output must be connected to the terminals labelled: INPUT 24 VAC

These terminals are located on the fifth terminal block in the top row.

Installations with WiKeeper Expansion

When the installation includes a WiKeeper Expansion unit, each unit must have its own **24 VAC transformer**.

Therefore:

- The controller must have its own transformer.
- The expansion unit must have another independent transformer.

This ensures that both units are powered and that the relevant valves are activated simultaneously.

Phase-matching of transformers

When the controller and the expansion unit share common terminals, both transformers must be connected in such a way that the same correspondence is maintained between their output terminals.

An incorrect connection may result in:

- Communication faults between the controller and the expansion unit.
- Unstable operation.
- Possible damage to the electronics.

Warning: this connection must be carried out by qualified personnel. Before sharing common terminals, check that the outputs of both transformers correspond.

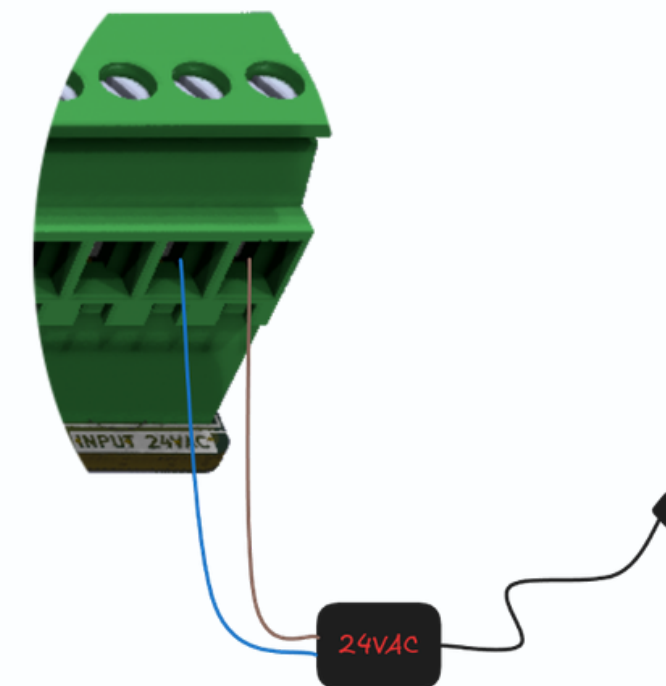


Figure 2. Power supply connections

5.2. Connecting the valves

The valves are connected to the top row of terminals via the outputs labelled **V01 to V30**.

Each valve requires two connections:

- One cable connected to the corresponding output (V01–V30).
- The other cable connected to one of the common (COM) terminals.

Example: connecting a valve to output V01

- Connect one of the valve's cables to terminal V01.
- Connect the other cable to one of the available COM terminals.
- Check that both connections are securely fastened.

Installations with multiple valves

When connecting multiple valves, distribute the common connections amongst the various available COM terminals.

Important: Do not connect all valves to a single COM terminal.

Distributing the connections amongst the various COM terminals allows you to:

- Distribute the current amongst the terminals.
- Prevent the terminals from overheating.
- Reduce the risk of damage to the terminals.
- Improve the reliability and safety of the installation.

Each output supports a **maximum current of 500 mA**. The unit allows up to **15 outputs to be activated simultaneously**, provided that the total current draw does not exceed the configured current limit or the transformer's capacity. **By default, the total limit is set at 4,500 mA**.

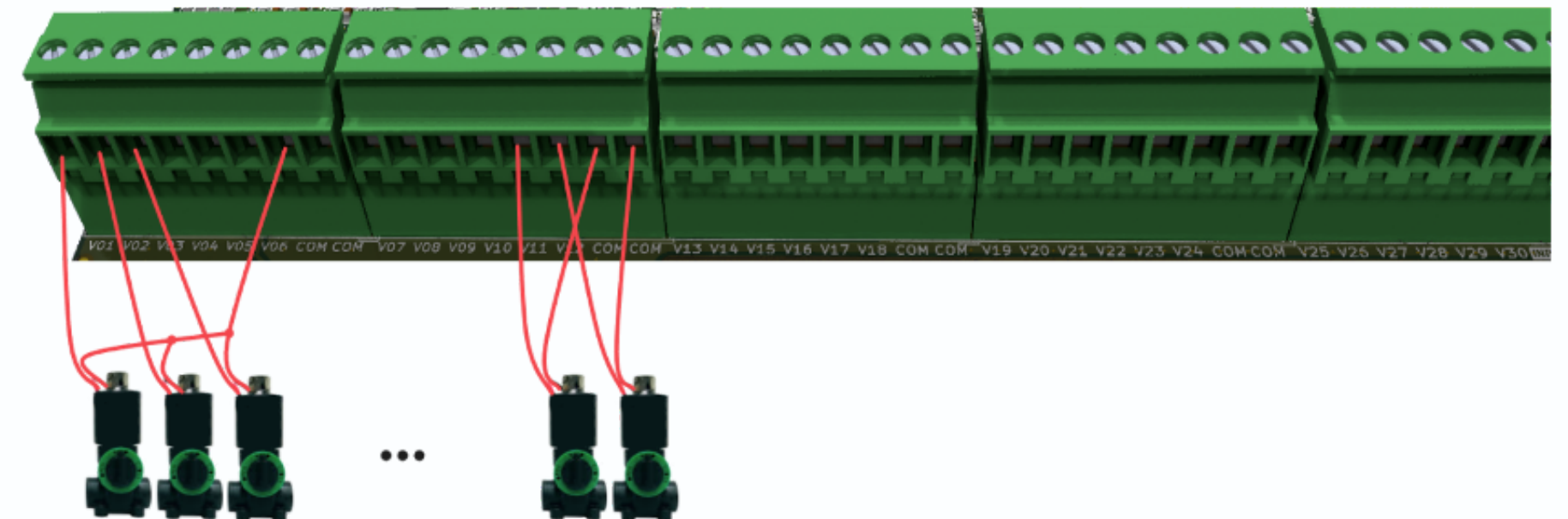


Figure 3. Valve connections.

5.3. Meter connections

The counter inputs are located on the bottom row of the unit.

WiKeeper supports pulse counters using potential-free contacts, equivalent to an NPN-type output.

To register a pulse, the counter must close the contact between the two corresponding terminals.

Supported specifications

- Maximum resistance of the closed contact: 2 k Ω .
- Maximum reading frequency: 10 Hz.

The counter inputs are labelled as:

CNT3

CNT4

CNT5

CNT6

Connection steps

1. Check that the meter has a compatible output.
2. Identify the two wires on the pulse output.
3. Connect the wires to the corresponding meter input.
4. Check that the meter does not apply an external voltage to the input, unless its documentation expressly states that the output is compatible.
5. Verify operation by generating several test pulses.

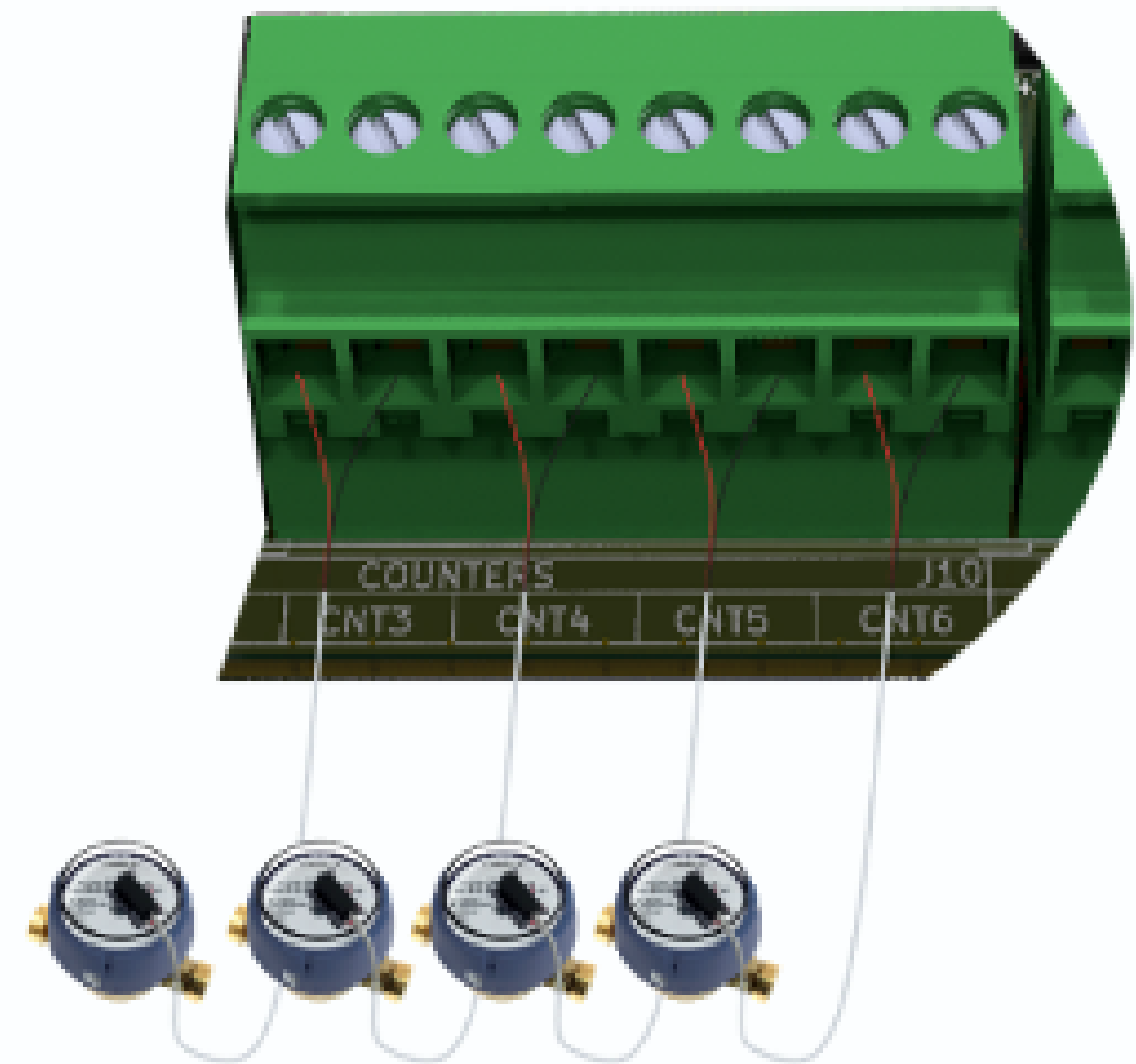


Figure 4. Meter wiring

5.4. Connecting analogue inputs

WiKeeper has 4 analogue inputs.

These inputs allow sensors to be connected with:

- Voltage output.
- Current output.

Each input has terminals for:

- Sensor power supply.
 - Ground or reference.
 - Analogue signal.
- The power supply for each sensor can be set between 0 and 12 V.
 - The power supply setting is independent for each input.
 - The maximum current the unit can supply to power the sensors is 500 mA.
 - The inputs are identified by a number from 1 to 4.

5.5. Connecting analogue sensors with voltage output

A sensor with a voltage output usually has **three wires**:

- **Power supply.**
- **Ground or GND.**
- **Signal.**

Connecting the power supply

Connect the sensor's power supply cable to the **VANx terminal**.

The letter x represents the number of the analogue input being used.

For example, to use analogue input 1:

- **Power supply:** VAN1
- **Signal:** AN1
- **Ground:** GND

External power supply

The sensor can also be powered by an external source.

In this case:

- Do not connect the power cable to the VANx terminal.
- Connect the signal to the ANx terminal.
- Ensure that the sensor and WiKeeper use a compatible ground reference.

Earth connection

Connect the sensor's earth lead to one of the GND terminals.

Signal connection

Connect the signal cable to the corresponding ANx terminal.

The power supply and the signal must use the same input number.

Supply

VAN1

Signal

AN1

Do not connect the power supply to one input and the signal to a different one.

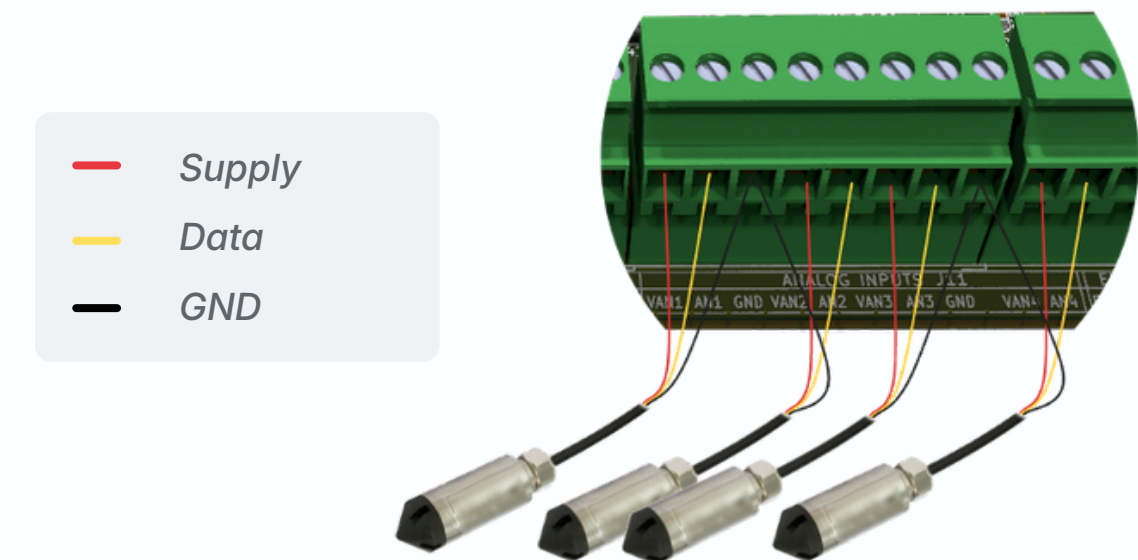


Figure 5. Wiring of sensors with voltage output.

5.6. Connecting current-output sensors

Sensors with a current output can be:

- Two-wire.
- Three-wire.

The connection method depends on the type of sensor.

Important: Before wiring it, refer to the manufacturer's documentation to correctly identify each wire.

5.6.1. Two-wire current sensors

A **two-wire sensor** uses the same circuit to receive power and transmit the signal.

Connection

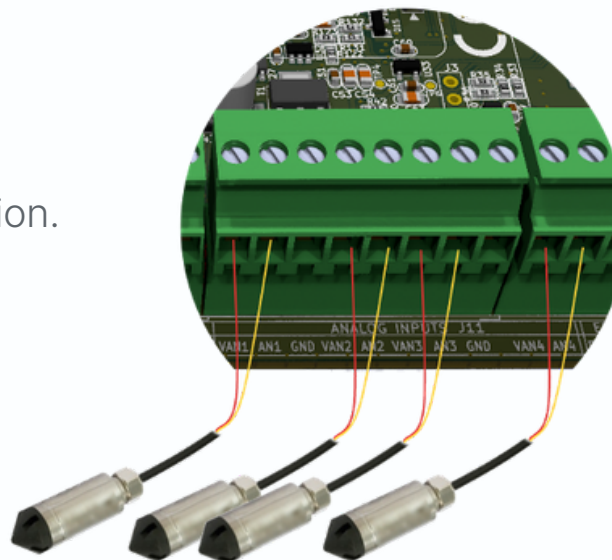
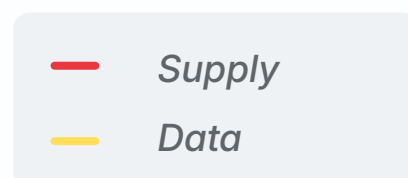
- Connect the power cable to the VANx terminal.
- Connect the return or signal cable to the ANx terminal.

The letter 'x' corresponds to the number of the analogue input used.

Example for input 1:

- Power: VAN1
- Return or signal: AN1

It is not necessary to use a third earth cable for this type of connection.



5.6.2. Three-wire sensors

A **three-wire** current sensor usually has:

- Power supply.
- Earth.
- Signal.

Connection

- Connect the power cable to the VANx terminal.
- Connect the earth cable to a GND terminal.
- Connect the signal cable to the ANx terminal.

It is also possible to power the sensor via an external power source.

In this case, check that:

- The supply voltage is suitable for the sensor.
- The current output is compatible with the WiKeeper's input.
- The ground reference is correct.
- The range supported by the equipment is not exceeded.

Figure 6. Wiring of a two-wire current-output sensor.

5.7. Connecting an SDI-12 probe

WiKeeper has a port compatible with the SDI-12 version 1.3 standard.

Up to **16 sensors** can be connected to this port.

The actual maximum number may depend on the sensors' power consumption, the cable length and the characteristics of the installation.

Connection terminals

SDI-12 probes use three connections:

- PWR: power supply.
- SDI: data.
- GND: earth.

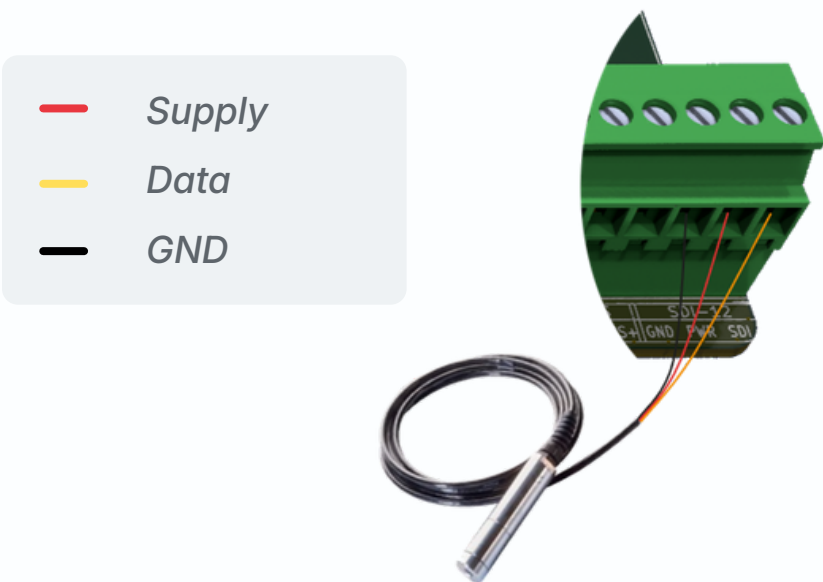


Figure 7. Wiring of an SDI-12 probe

5.8. Connecting a WiKeeper expansion unit

The controller supports one **WiKeeper Expansion device**.

The expansion allows you to add:

- 30 valves.
- 4 meters.

With an expansion unit connected, the system can manage a total of:

- 60 valves.
- 8 meters.

Only one expansion unit can be connected per controller.

Expansion bus

Communication between the controller and the expansion unit takes place via the connector labelled:

- EXP. BUS

This bus has two terminals:

- BUS+
- BUS-

Note: For the expansion bus wiring, it is recommended that you use shielded twisted-pair cable to avoid potential interference issues; however, if the distance is very short (≤ 2 m), standard cable may be used.

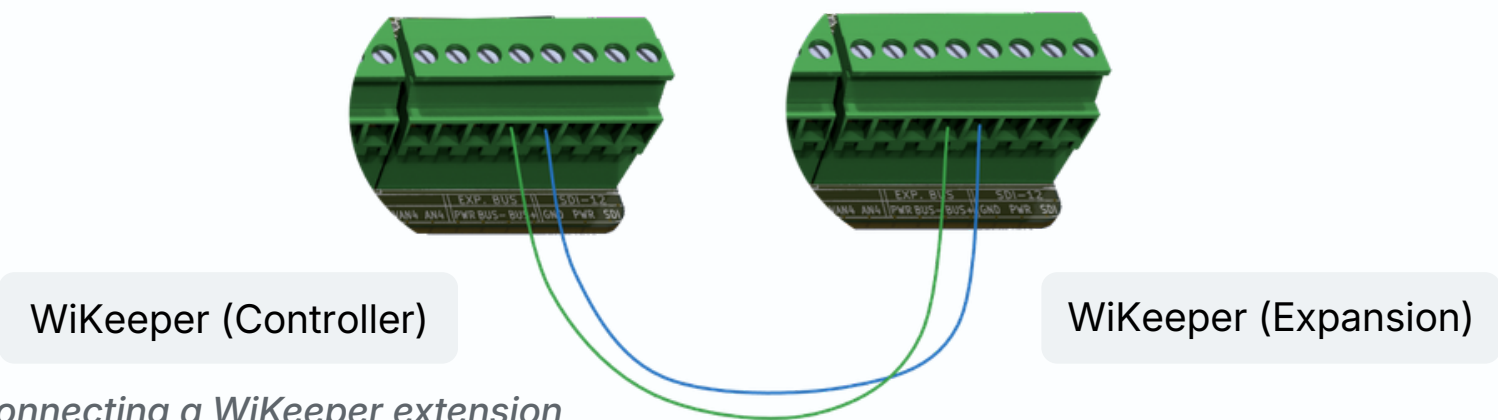


Figure 8. Connecting a WiKeeper extension

6. Checks to carry out before switching on the equipment

Before connecting the equipment to the mains, check the following points to ensure it is installed correctly and safely.

Supply

- Check that the power supply is 24 VAC and 5 A.
- Check that the power cables are connected to the INPUT 24 VAC terminals.
- Check that there are no loose cables or exposed copper wires outside the terminals.

Valves

- Check that each valve is connected to the correct output and to a COM terminal.
- Check that the common connections are distributed amongst the various COM terminals.
- Check that the valve switches are in the correct position.

Expansion unit

- Check that the expansion bus is connected with the correct polarity: BUS+ to BUS+ and BUS- to BUS-.
- Check that the controller and the expansion unit have separate transformers.

Switch off the equipment

- Check that all cable glands are properly sealed.
- Check that the device cover is correctly fitted.

Once all checks have been completed, switch on the power and check that the unit's LED indicators show the expected status.

7. References

- [1] Odin Solutions, WiKeeper – Technical Specifications
- [2] Odin Solutions, WiKeeper Expansion – Technical Specifications

WiKeeper Visual



➤ Go to Video Tutorial



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