

MCU-9201MT22

venetian blind controller

It is strongly recommended to read and follow the instructions in this manual carefully, before you start installing or programming a system. Installation, configuration and servicing are to be carried out only by trained technicians. Failing to do so, can void guarantee and may cause permanent system damage to controllers and/or blinds.

These instructions is intended for trained technicians only, and does not contain user information. Do not try to install, configure or to carry out service on a system or single controllers, unless you have received the necessary training.

The system consists of a range of controllers and accessories, designed to fulfill every demand in operation and features. The system is built up by modules and can easily be extended with more blinds or new accessories, like infrared remote control, timer systems etc., in order to add new features or functionality.

The system is data bus based, meaning that operational groups, height of blinds etc. is programmed into each controller from a PC, and that the controllers during operation is exchanging different communication on the data bus – making the system easy extendable.

This results in a highly flexible system, but in order to make system service and overview as easy as possible, it is recommended that all controllers throughout a building or apartment are connected together on the same data bus connection.

After finalizing installation, the system has to be configured by using the PC configuration software, in order to ensure proper and correct functionality.

On smaller projects the controllers will normally be configured and numbered by the supplier, before installation. On larger projects it may be more convenient to program the controllers on site, as a fully system test and run-in can be achieved at he same time.

The blind controllers are intended for installation on a 35 mm DIN rail, while remote control receivers and other accessories are designed for wall mounting. Before mounting cabinets or controllers, the accessibility to the controllers must be considered, and it is recommended that all controllers are mounted in a switchcabinet(s). Mounting over lowered ceiling is NOT recommended due to inaccessibility afterwards.

Operational voltage for the complete system, is 24VDC, a regulated +/-5% power supply is necessary. Depending on the size of the blinds a current of about 0,5A pr. blind is required, meaning that for example 10 blind will consume a total maximum of 5 amps, which the power supply should be able to supply. More power supplies can be used for a system, make sure that the minus output of each power supply is connected together, but DO NOT connect the + output between the more power supplies.

Use of one power supply pr. Cabinet is recommended. If several power supplies are used it is recommended that they are connected to a separate fuse group.

INSTALLATION

This document includes the most widely used blind controller, the MCU-9201MT22. This version is specific for use with encoded Somfy motors, using three wires between the MCU and the motor inside the blind. Two wires are for connection to the DC motor, while the third wire is used for speed regulation and electronic positioning of the blind. Do not connect any other motor type to this controller.

Always switch off the power when wiring the system. Start by making the interconnections on a few controllers to the power supply and the data bus as shown in the figure below. Then put power to the system to see that everything works as expected. This way it is prevented to do a serial mistake on larger systems. The pushbuttons integrated in the front panel of the controller will operate the blind (or the group of blinds).

Take care that there are no shorts or bad connections, and check that the 24 volt from the power supply or any of the motor wires is not by accident connected to the data bus as this may damage a series of controllers. When connecting the power supply, it is important that + and – is connected correct on all controllers. Even though the controller is protected, a wrong connected power supply, can damage the controller. Power must NOT be supplied to the controller before all wires are correctly connected.

If the controllers are supplied by the same power supply the data bus ground between controllers can be neglected inside cabinets, but should be connected in between different cabinets. If the controllers are supplied by different power supplies the data bus ground MUST be connected.

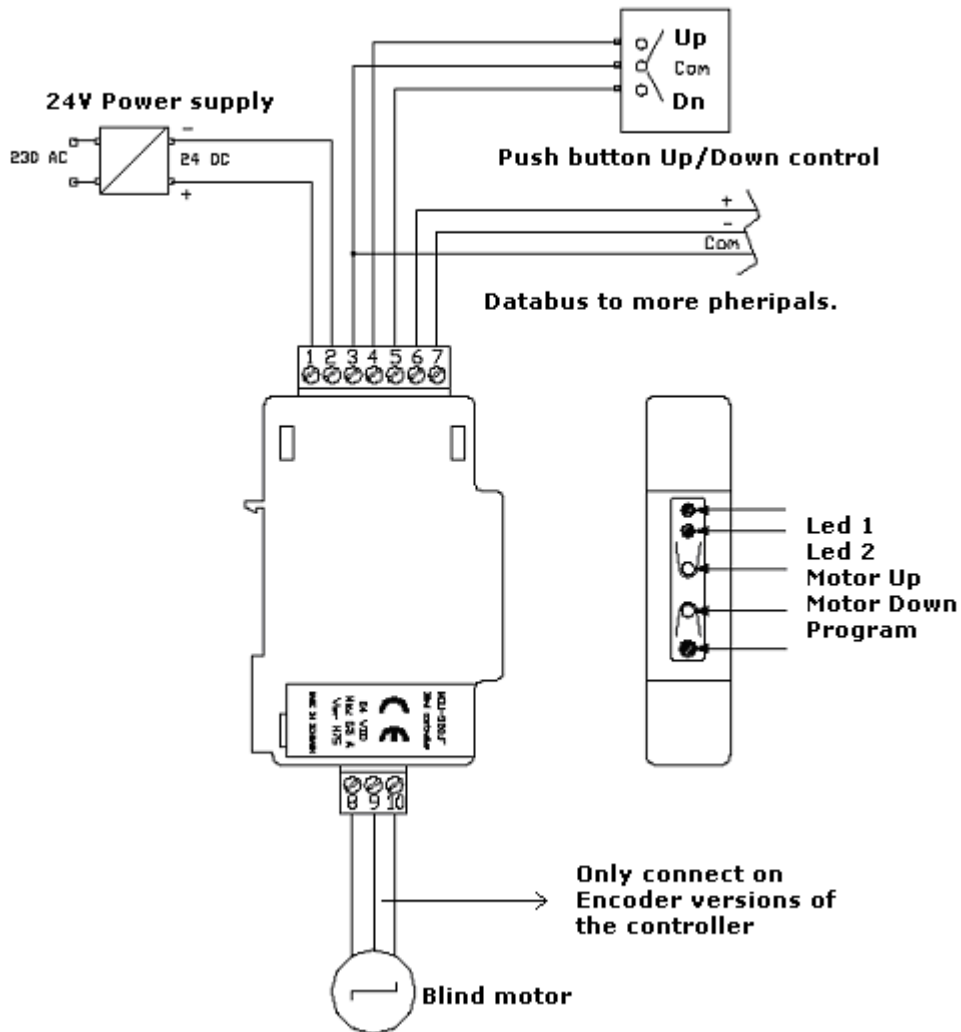
Wire dimensions for the power supply must be at least 0.75mm². For Power supply wires longer than 2 meters and more than 10 MCU's connected to the power supply, cable diameter of 1.5 is required. If the cables to the motors have to be extended the wire dimension should be not less than 0.75 mm².

For the data bus cable it is recommended to use a screened twisted pair with app. 120 Ohm impedance. Belden type 9271 or similar is recommended.

Be careful to make good and stable connections throughout the system. Always connect GND (Ground) before you connect +24VDC or Data bus A/B to the controller to avoid ground-earth potential disturbances.

Common wire for the external pushbuttons is Ground. Internal and external pushbuttons are parallel, which means that they will have same functionality at any time. Do not connect +24VDC to the push button inputs.

Connection diagram



- Pin 1: + 24 VDC
- Pin 2: GND
- Pin 3: GND
- Pin 4: Motor Up (for external pushbutton connection)
- Pin 5: Motor Down (for external pushbutton connection)
- Pin 6: Data bus +
- Pin 7: Data bus -
- Pin 8: Motor +
- Pin 9: Encoder input.
- Pin 10: Motor -

STARTUP AND TEST

When power is supplied to the controller, it will always be flashing “double red” for the first 5 seconds; after that the motor will pull the blind or pleated curtain to top position, then go down 10 centimeters down and go back to top position. This is an electronic measuring of the blind size with preparation of end stop and overload. If the blind doesn't carry out this function, there's most likely an error in the wiring. If the blind or pleated curtain continues to go down when power is supplied, cut off the power immediately and switch the motor wires around. If the controller adjustment sequence is not performed, there is an error.

As a help to diagnose the problem, the controller will indicate the most common errors as follows:

Disconnected motor

The LED flashes RED after power is connected: there is not connected a motor or the wires to the motor is broken or cut, the plug in the end of the blind may not be correctly mounted. Unplug the motor wires and measure the resistance between the 2 motor wires with a meter – it should be about 20 ohms +/- 5 ohms.

Shorted motor/wires or external contact

The LED lights constant red after the power is connected: the motor wires are shorted – maybe they are squeezed or a screw is mounted through the cable somewhere in the construction. Unplug the motor wires and measure the resistance between the 2 motor wires with a meter – it should be about 25 ohms +/- 5 ohms.

Shorted pushbuttons

If the adjustment is not carried out, and the GREEN LED is flashing, one of the pushbutton wires is shorted to ground. Check the wiring, there should be 5 volts on terminal 4 and 5.

Encoder error (disconnected)

The adjustment is carried out ok, but when operating the blind it stops immediately: the encoder signal from the motor is missing. The encoder wire could be cut or shorted to one of the motor wires. Unplug the motor wires and measure the resistance between both of the 2 motor wires and the encoder wire with a meter – there shall be no connection (OL). Also check the encoder circuit by putting a meter in Diode test, put the red probe on the encoder wire and the black probe on one of the motor wires. Voltage readout shall be between 2.4 and 3.0 volts. Not all meters can perform this test even though they have diode test function. Try it on a working motor/blind. The encoder wire can also be shorted to the frame of the window. Try measuring ohm with a meter between the encoder wire and a good connection point on the window frame. There shall be no connection. This type of error can also cause that you can measure connection between the encoder wire and the ground connection in the cabinet, but most probably the encoder wire is then shorted to the window frame. If any encoder error occurs, switch of the power and analyze and fix the problem. The controller's internal protection may have shut down, meaning that you will have to take the power off the controller to make it work again – otherwise it will keep showing encoder error. If an encoder error occurs during operation (and not during startup-test), the blind will just stop and there will be no indication. This is according to achieve proper operation in combination with frame contacts and sliding doors or windows, which are opened during operation. If an encoder error occurs during operation, it will be visible in the behavior of the blind, which will just move a few centimeters each time it's operated.

FUNCTIONALITY

When applying power to the controllers, they will adjust. Once finished carrying out the adjust, the blinds are ready to operate.

Tilt: Push and hold one of the pushbuttons to tilt, if pushbutton released within 3 seconds, it stops in the actual position. If activated more than 3 seconds, the blind switches to high speed, and continues to end position, either top position or lower position.

Full up/down: Push and hold the pushbutton for more than 3 seconds, and the blind will continue to the end position.

STOP: To stop the blind while running, push any of the pushbuttons shortly.

Groups: The blinds will operate in groups, as programmed from the PC setup software, if unprogrammed all blinds connected on the databus will operate as one group.

Programming blind height from pushbuttons

The pushbuttons integrated in the front panel of the controller, can be used for programming the height of the connected blind into the controller. To do this – if needed – use a small screwdriver to push and hold the “program” button until the red LED lights up for a second. Use the up and down buttons to put the blind in the correct lower position and save the position by push and hold the program button till green LED flashes once. The new height is now programmed.