24V DC Greenhouse Roll Up Motor Controller (DMC-1) User Manual

OVERVIEW

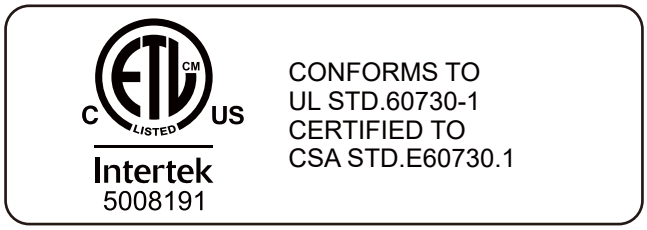
The DMC-1 is an advanced agricultural greenhouse curtain motor driver that facilitates both manual and automated control of curtain motors. Designed for seamless integration with the GCS-1 (Green-X Greenhouse Controller), the DMC-1 allows for precise motor control, including open and close operation, stopping functions, timeout shutoff, and overcurrent protection. This integration enhances greenhouse management by enabling centralized monitoring and control, which optimizes environmental conditions for plant growth and improves operational efficiency.

PACKAGE CONTENTS

- 1x 24V DC Greenhouse Roll Up Motor Controller (DMC-1)
- 1x 12ft RJ12 to 4-pin IP65 Connector Cable
- 1x Cross Screwdriver
- 1x Power Cable

SPECIFICATIONS

Input Voltage	100-240 V~, 50/60 Hz
Maximum Output Current	10A
No-load Power Consumption	< 2W (at 240 V input)
American Wire Gauge (AWG)	Output Cannot less than 16AWG
Communication Method	RS-485 (4-pin waterproof connector)
Waterproof Rating	IP 44
Ambient Temperature	32~104°F (0~40°C)
Relative Humidity	≤90%RH



INSTALLATION INSTRUCTIONS

Preparation:

- Ensure all components are available and undamaged.
- Read all safety precautions before installation.

Mounting:

- Securely mount the DMC-1 in a dry, accessible location.
- Ensure the unit is properly aligned with the motor it will control.

Wiring:

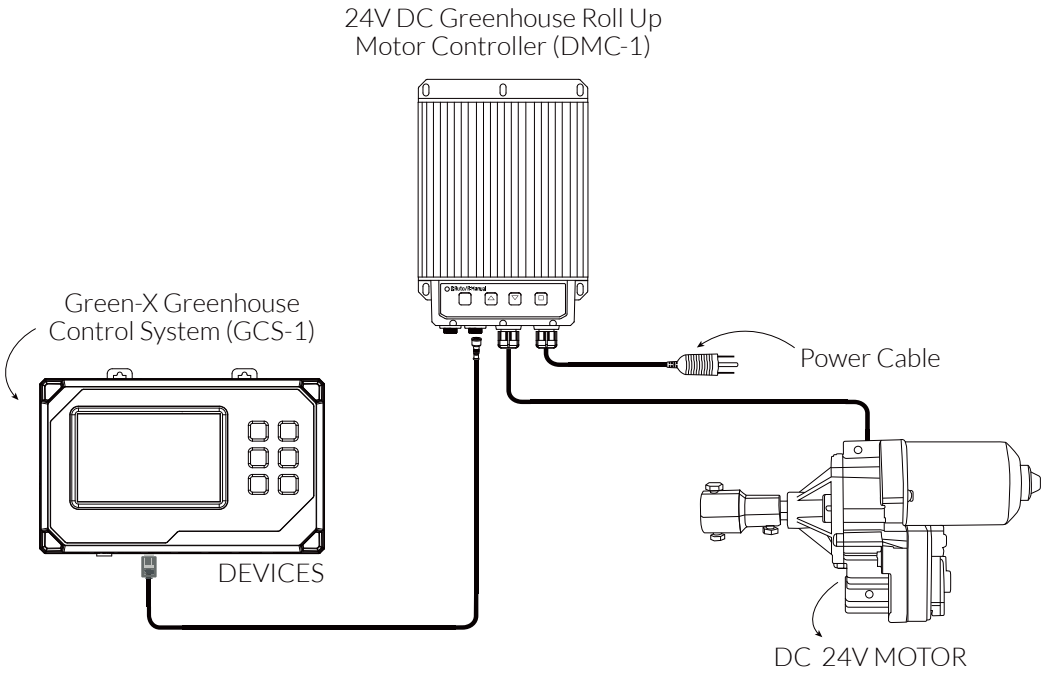
- Connect the input power supply to the designated terminals.
- Connect the output terminals to the motor.

***CAUTION:** output wires cannot less than 16AWG.

Testing:

- Before powering on, double-check all connections.
- Power on the unit and verify that the motor operates correctly.

LINKING DIAGRAM



DMC-1 can link :

- 4 X TPS-1
- 1 X GREEN-X CONTROLLER
- 1 X DC 24V MOTOR

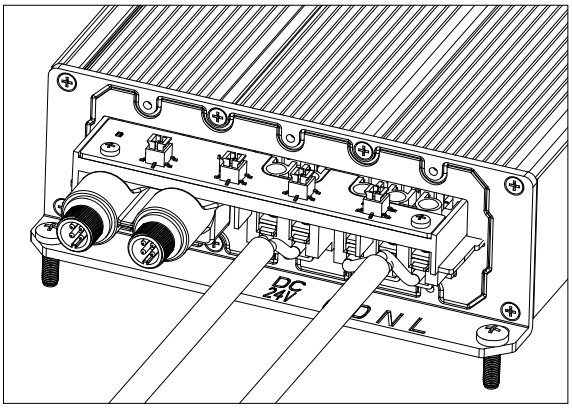
INSTRUCTIONS

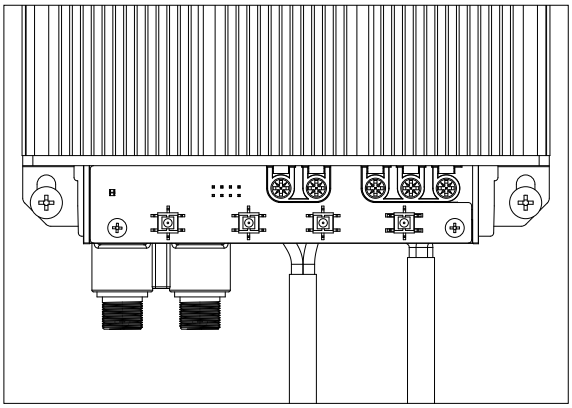
To successfully link the DMC-1 (Device Motor Driver) to the GCS-1 (Green-X Greenhouse Controller), please follow these detailed instructions:

1. Power Off

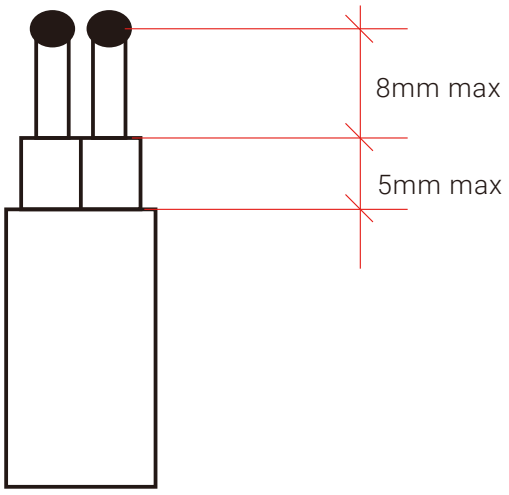
- Ensure that both the DMC-1 controllers are powered off before making any connections to prevent electrical damage.

2. Wiring Connections





a) Please use SPT-2 wires with temperature rating ≥167°F / 75°C or higher rating wires to suit the actual application. The conductor should not exceed 8mm. Measures like end soldering or entire copper wrapping should be taken to ensure that the conductor does not dispersed. Do NOT cover entire conductor with tin soldering as the tin will deform under stress and lead to poor contact.



b) The conductor need to insert into the terminal completely to avoid the possibility of touching other parts it the conductor is loosen.

c) The touque required to lock up the terminal need to larger than 1.2Nm. Pay attention to check if the connection is compacted and firm.

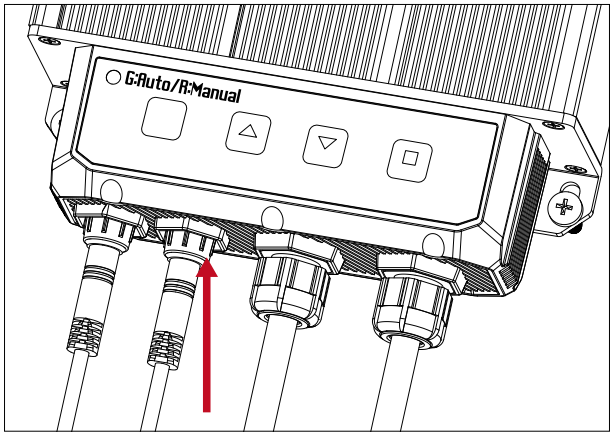
d) The wire inside the connecting box should not be too long. The distance between the split point of the outer rubber and the terminals should be less than 5mm.

e) Use the tool to lock power supply lock nut, the torque should NOT be less than 3Nm. Confirm the power cable cannot be pulled out with 156N force.

- **OUTPUT** 24V 10A:

a) Remove the Control Panel Cover: Begin by twisting or unscrewing the Control Panel of the device. Then take out the cover.

b) Open the control panel to connect the motor wires. Insert the cable into the terminal screws. The terminal screws do not tighten; they need to be tightened here to prevent poor contact.



- **CONTROLLER** (For GCS-1):

a) Begin by plugging in the 4pin connection cable to the controller port. Take the 12ft RJ12 to 4-pin IP65 Connector Cable and insert them into the designated ports (CONTROLLER). Twist lock the water proof cover.

3. Connecting to the GCS-1 Controller

- Power Supply Connection:
  Once the power supply is plugged in, the left side light of the DMC-1 will turn red.

- Address DMC-1 to the GCS-1 Controller:
  Press the Add button to register the DMC-1 to the GCS-1 Controller.

- Successful Connection:
  When the light turns green, it indicates that the GCS-1 controller has been successfully added.

By following these steps, you can successfully link the DMC-1 with the GCS system, enabling enhanced automation and control within your greenhouse operations.

4. Operation Instructions

- LED Indicator Status

Green	Operates in Auto Mode, controlled by the GCS-1 Controller
Red	Operates in Manual Mode, controlled by the DMC-1 interface buttons

Once you have connected the DMC-1, there will be 4 connection port:

- Switch
- Controller
- Output: 24V, 10A
- Input: 100-240V~

On the top side there's 4 control buttons:

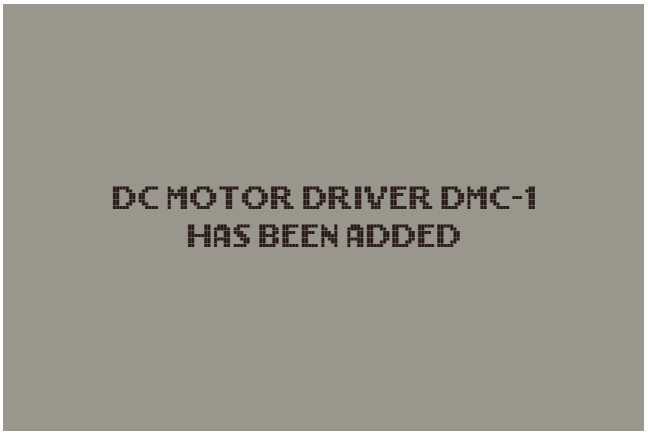
Add

Open

Close

Stop

Once you have connected with DMC-1. There will be an interface shown like this:



Use 

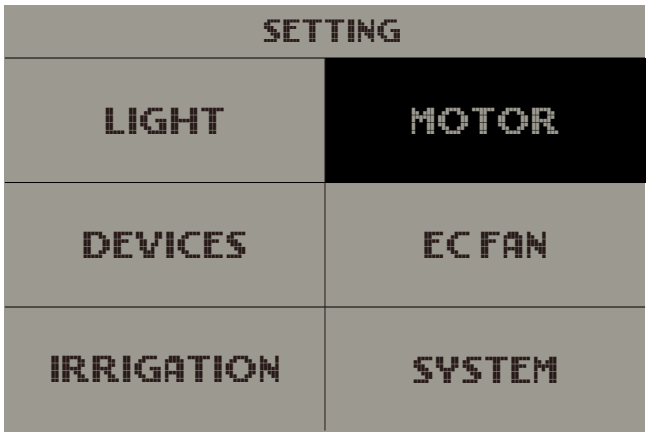
or 

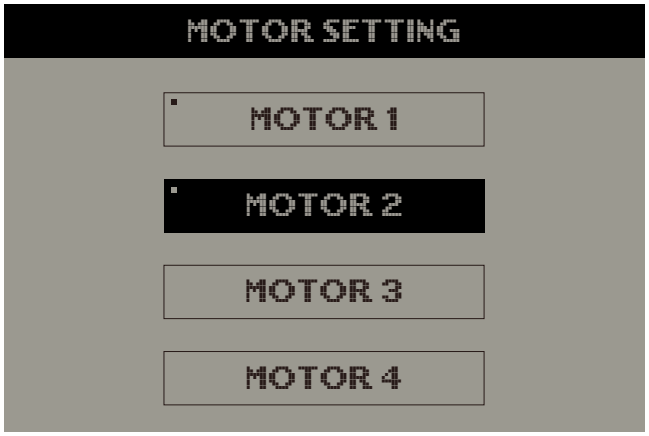
to operate the motor.

Automatic Control:

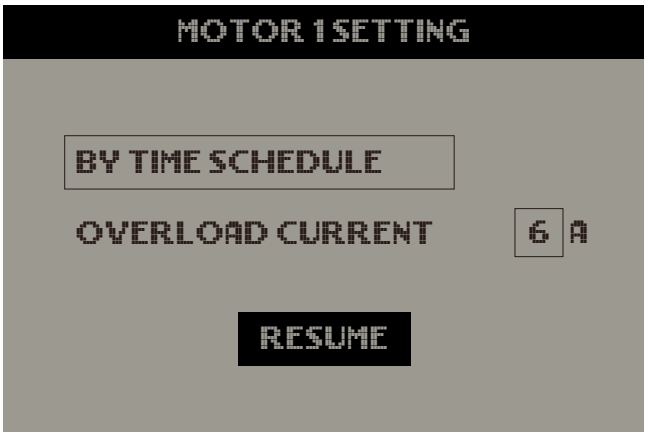
Connect the DMC-1 to a compatible controller for automatic operation.
Follow the controller’ s instructions for setup and programming.

MOTOR SETTING



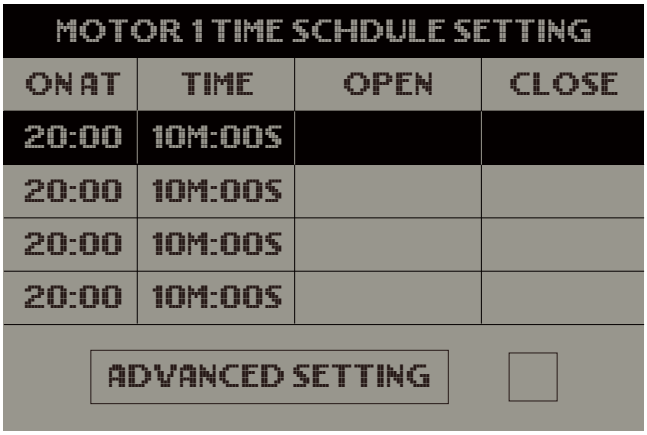


The Motor Setting page on the GCS-1 controller allows you to schedule motor operations to control curtains based on specific environmental conditions.

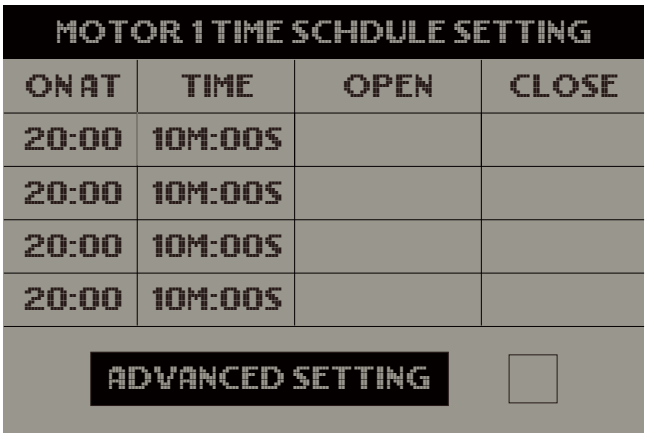


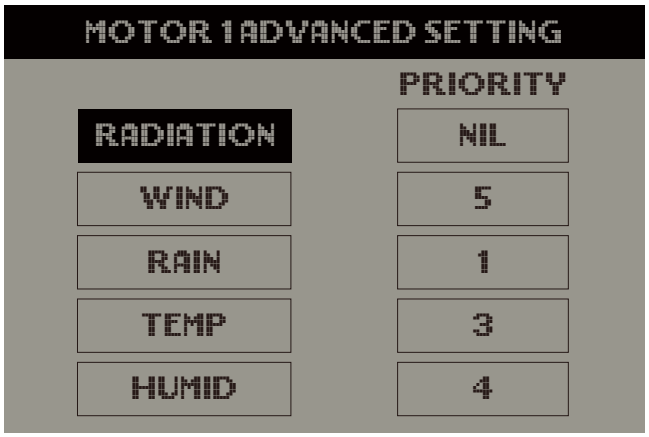
Motor Setting Options:

SYNC MOTOR 1/2/3/4	Synchronize the same schedule with a specific motor (Only available when multiple motors are addressed)
BY TIME SCHEDULE	Setup the time schedule for the motor
OVERLOAD CURRENT	Assign current amperage to the motor (2-10 amps)
RESUME	Manually resume control after overcurrent offload



- **BY THE SCHEDULE :** User can be set up the schedule time for open and close, by press the ENTER button to adjust the ON AT & TIME and selecting the OPEN & CLOSE slot for ✓



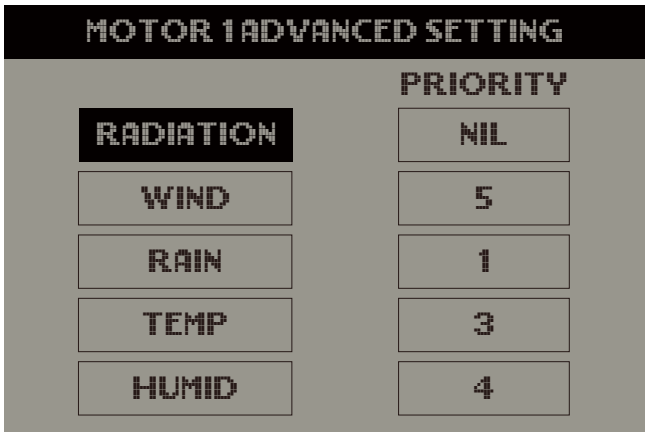


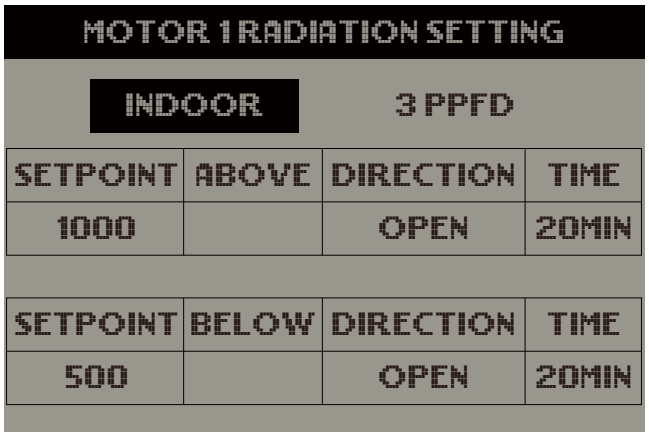
ADVANCED SETTING

To access advanced settings, press **ENTER**. You will see five options on the left side :

- **RADIATION**
- **WIND**
- **RAIN**
- **TEMP**
- **HUMID**

On the right side, you can set the **PRIORITY** from 1 to 5, where 1 is the highest priority and 5 is the lowest.





RADIATION Settings

Press ENTER to select **RADIATION**.

You can set:

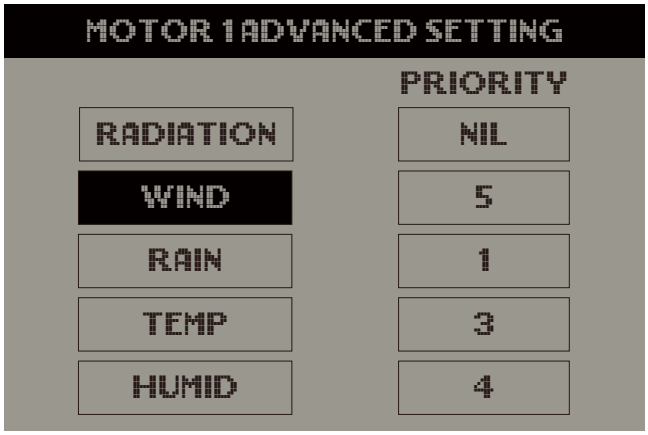
INDOOR / OUTDOOR: View PPFD / LUX levels inside and outside the greenhouse. Press ENTER to switch between indoor and outdoor settings.

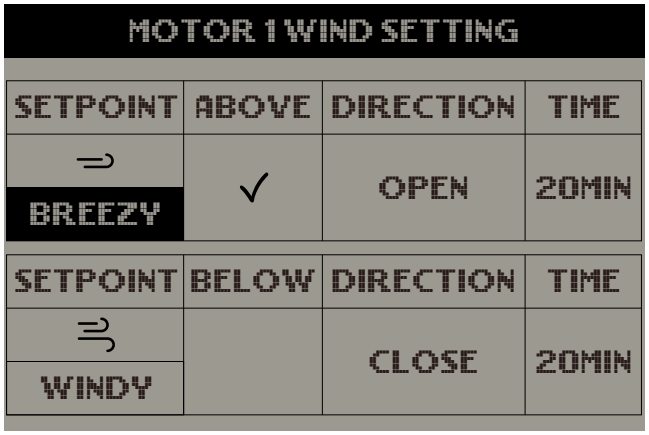
SETPOINT for **INDOOR / OUTDOOR**: Set up to a maximum of 1000 PPFD. Press ENTER , use ◀ ▶ to select **SETPOINT**, then press ENTER again. Use ▲ ▼ to adjust your optimal PPFD settings, then press ENTER to confirm.

ABOVE and **BELOW**: Press ENTER **(✓)** these options to control the motor. Press ENTER to confirm.

DIRECTION: Press ENTER , then use ▲ ▼ to choose **OPEN** or **CLOSE**. Press ENTER to confirm.

TIME: Press ENTER , then use ▲ ▼ to choose a time in __MIN. Press ENTER to confirm.





WIND Settings

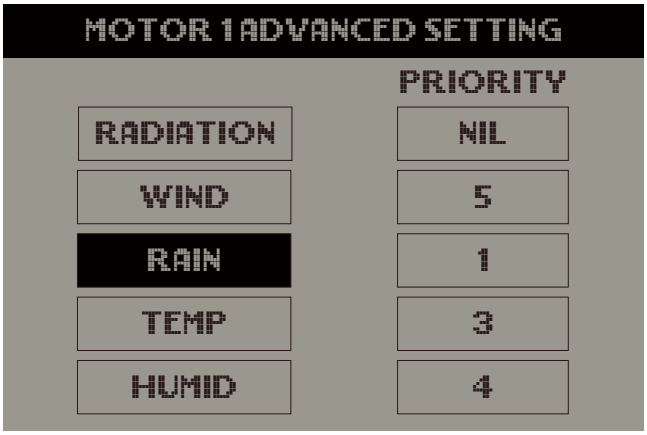
Press ENTER to select **WIND**.

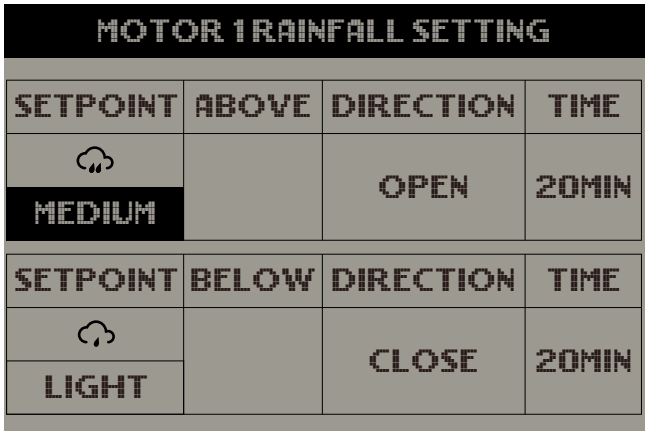
You can set:
SETPOINT for **ABOVE**: Choose from 4 modes: **MILD / BREEZY / WINDY / STRONG**. Press ENTER, use ◀ ▶ to select SETPOINT, then press ENTER again. Use ▲ ▼ to adjust your wind settings, then press ENTER to confirm.

SETPOINT for **BELOW**: Same as **SETPOINT** for **ABOVE**.

DIRECTION: Press ENTER, then use ▲ ▼ to choose **OPEN** or **CLOSE**. Press ENTER to confirm.

TIME: Press ENTER, then use ▲ ▼ to choose a time in __MIN. Press ENTER to confirm.



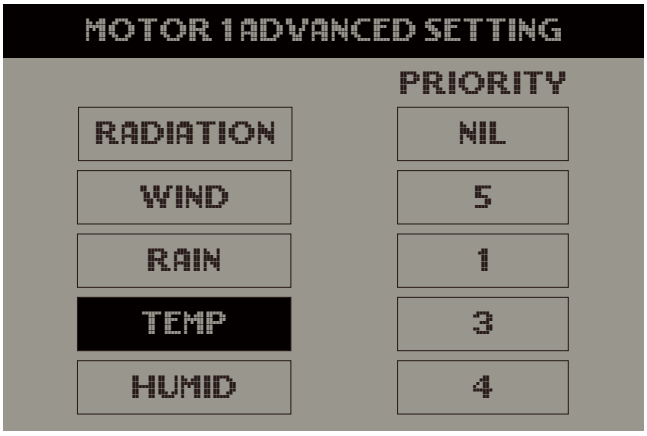


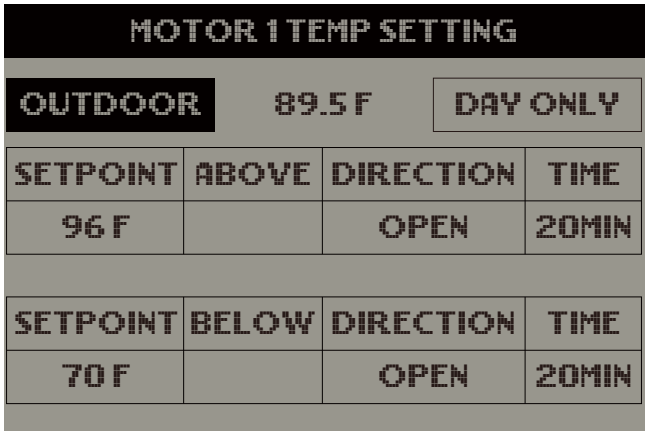
RAIN Settings
Press ENTER to select **RAIN**.

You can set:
SETPOINT for **ABOVE DIRECTION**: Choose from 3 modes: **MEDIUM / LIGHT / HEAVY**. Press ENTER, use ◀ ▶ to select **SETPOINT**, then press ENTER again. Use ▲ ▼ to adjust your rain settings, then press ENTER to confirm.

SETPOINT for **BELOW DIRECTION**: Same as **SETPOINT** for **ABOVE DIRECTION**

TIME: Press ENTER, then use ▲ ▼ to choose a time in __MIN. Press ENTER to confirm.





RADIATION Settings

Press [ENTER] to select **TEMP**.

You can set:

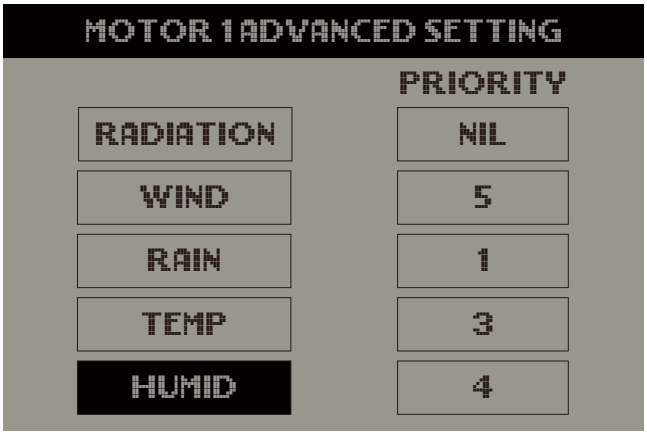
Choose from **DAY ONLY**, **NIGHT ONLY**, or **ALWAYS** by pressing [ENTER], then using [▲] [▼] to select an option. Press [ENTER] to confirm.

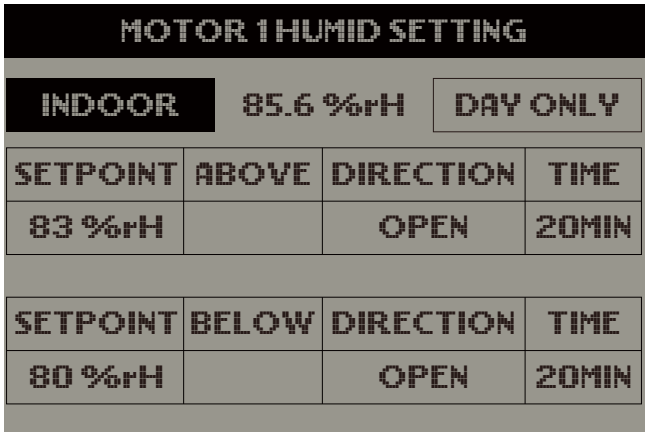
For **SETPOINT** for **OUTDOOR**: Press [ENTER], use [◀] [▶] to select **SETPOINT**, then press [ENTER], and use [▲] [▼] to adjust your temperature settings **(__F)**. Press [ENTER] to confirm.

Press [ENTER] **(✓) ABOVE / BELOW** by pressing [ENTER] and confirming.

For **OUTDOOR DIRECTION**: Press [ENTER], use [◀] [▶] for **SETPOINT**, then press [ENTER] and use [▲] [▼] for **OPEN** or **CLOSE**. Press [ENTER] to confirm.

TIME: Press [ENTER], then use [▲] [▼] for **__MIN.** Press [ENTER] to confirm.





HUMID Settings

Press [ENTER] to select **HUMID**.

There are two types of **HUMID** settings: **INDOOR / OUTDOOR**.

You can set:
Choose **DAY ONLY**, **NIGHT ONLY**, or **ALWAYS** by pressing ENTER and using ▲ ▼ for selection. Confirm with ENTER .

For **SETPOINT** for **OUTDOOR**: Press ENTER , use ◀ ▶ for **SETPOINT**, then press ENTER and use ▲ ▼ for adjusting humidity settings **(__%rH)**. Confirm with ENTER .

Check **(✓) ABOVE / BELOW** by pressing ENTER and confirming.

For **OUTDOOR DIRECTION**: Press ENTER , use ◀ ▶ for **SETPOINT**, then press ENTER and use ▲ ▼ for **OPEN** or **CLOSE**. Confirm with ENTER .

TIME: Press ENTER , then use ▲ ▼ for **__MIN**. Confirm with ENTER .

5. Safety Precautions

- General Safety:
  Always turn off the power and unplug the unit before performing maintenance.
  Avoid physical impacts and sharp objects that may damage the unit.

- Installation:
  Do not modify the unit or create new openings.
  Ensure the operating environment does not exceed 40°C to prevent damage.

6. Maintenance and Troubleshooting

- Regular Checks:
  Inspect the unit regularly for any signs of wear or damage.
  Ensure that connections remain secure and free from corrosion.

GENERAL INFORMATION

TrolMaster Agro Instruments Co., Ltd. will occasionally release updated firmware for the 24V DC Motor Controller (DMC-1). By registering your 24V DC Motor Controller (DMC-1) on our website **www.trolmaster.com** we can notify you when an update is available. We will not sell, rent or share your personal information.

WARRANTY

TrolMaster only uses high quality components Under normal. operating conditions, the mechanical and electronic components are covered by a three-year warranty from the original date of purchase. For service, return the 24V DC Motor Controller (DMC-1) in the original packaging to your shop with the original sales receipt.

Components that are excluded from warranty are components that have failed due to abnormal usage.

In the case of defects of the 24V DC Motor Controller (DMC-1), the Controller will either be replaced or repaired using new or reconditioned products or parts. If the Controller will be replaced this limited warranty shall apply to the replacement product for the remaining initial warranty period, i.e. (three) 3 years from the date of purchase of the original product.

RETURNS

All returns need to be done in the original packaging in order to avoid. Damages of the product during transport. Defective products need to be returned to factory or service shop for repair. Non-professionals DO NOT open the cabinet to prevent electric shock or damage to the equipment.

RETOURS

Pour tout retour, le produit doit être replacé dans son emballage d'origine afin d'éviter qu'il soit endommagé pendant le transport. Les produits défectueux doivent être renvoyés à l'usine ou à l'atelier d'entretien pour réparation. Avis aux non professionnels: n'ouvrez pas l'armoire afin d'éviter tout risque de choc électrique ou de dommages matériels.

REGISTRATION

TrolMaster Agro Instruments Co., Ltd. will occasionally release updated firmware for the 24V DC Motor Controller (DMC-1).

By registering your 24V DC Greenhouse Roll Up Motor Controller (DMC-1) on our website www.trolmaster.com we can notify you when an update is available.

We will not sell, rent or share your personal information.

TROUBLESHOOTING

If the DMC-1 does not function as expected, use the following guidelines to diagnose and resolve the issue:

Some of the most common issues or problems can be found within this section. Before returning the unit for service, please consult the troubleshooting points below, additional information can be found online at www.trolmaster.com

ISSUE	POSSIBLE CAUSE	SOLUTION
DMC-1 does not receive signals	Loose or damaged connector	Check and secure the 4-pin connector
Device not triggering properly	Misaligned or damaged mechanical system	Realign or repair the system being monitored
Green light on DMC-1 does not flash	Signal interference or excessive cable length	Ensure the cable length does not exceed 500 meters and check the RS485 connection

If the motor does not respond, check power connections and ensure the unit is powered on.
Consult the controller manual for issues related to automatic operation.
This user manual provides essential information for the installation, operation, and maintenance of the DMC-1 Greenhouse Curtain Motor Driver. For further assistance, please contact the manufacturer.

WARNING: **DO NOT** allow the DMC-1 to be exposed to water or excessive heat, DO NOT open orattempt to repair or disassemble the controller, as there are no user-serviceable parts inside. Opening thecontroller will void the warranty. If the surface of DMC-1 is dirty, wipe it with a dry towel. The DMC-1 operatesunder natural ventilation conditions.
DMC-1 requires time-delay fuse or time-delay breaker to operate.
The operation time for DMC-1 CANNOT exceed 18 minutes.

AVERTISSEMENT: **NE PAS** exposer le DMC-1 à l'eau ou à une chaleur excessive. NE PAS ouvrir, essayer de réparer ou de démonter le contrôleur, car il n'y a aucune pièce réparable par l'utilisateur à l'intérieur. L'ouverture du contrôleur annulera la garantie. Si la surface du DMC-1 est sale, essuyez-la avec une serviette sèche. Le DMC-1 fonctionne dans des conditions de ventilation naturelle.

Le DMC-1 nécessite un fusible à retardement ou un disjoncteur à retardement pour fonctionner.
Le temps de fonctionnement du DMC-1 NE DOIT PAS dépasser 18 minutes.

For any issues or concerns with our products, DO NOT return them to the store. Please contact our tech support department at **support@trolmaster.com** or call **877-420-9876**.

November 2025