

W30 Smart EC

Quick guide of operation
Frame IEC 132 / NEMA 210

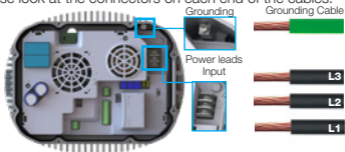


1. Power connections

1.1. How to connect power leads of W30 Smart EC Frame 132S (IEC) 213T (NEMA)

First, make sure you have all the necessary tools and always prioritize safety. Ensure that the power is turned off, and all necessary safety precautions are in place, including wearing appropriate personal protective equipment. We recommend the power is turned off when doing cables connections.

Take a close look at the connectors on each end of the cables.



Gently insert the cable connectors into their respective ports. Apply even pressure and avoid forcing them – they should slide in smoothly. Be cautious not to bend or break any connectors. Ensure that the grounding is correctly established. This may involve connecting a grounding cable from the drive to a suitable ground point.

Once the cables are plugged in, give them a slight twist to ensure a secure connection. This helps prevent accidental disconnection.

Before applying power, double-check your connections to ensure they are secure and properly seated. Once you're confident in your connections, you can proceed to power on the W30 Smart EC.

Note!

Consider labeling your cables. This makes it easier to identify each cable's purpose and destination.

Important!

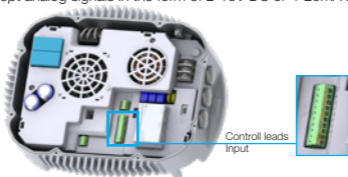
Always adhere to safety guidelines and manufacturer instructions when working with electrical equipment.

2. Speed Variation

2.1. How to adjust the speed of your W30 Smart EC motor.

The order to adjust the speed of the W30 Smart EC is given by the respective analog signal of DC voltage applied to pin 5 or analog DC current applied to pin 3.

VFDs accept analog signals in the form of 2-10V DC or 4-20mA DC.



Connect your external signal source, which could be a potentiometer, PLC, or other analog signal generator, to the analog input terminals on the VFD.

Using the VFD 10 V source
Using an external 2-10V source
Using an external 0-24 mA source

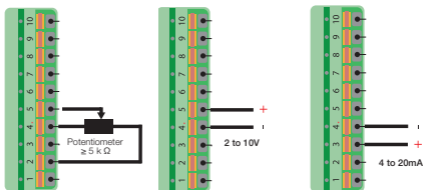


Figure 01 - Connection to adjust speed using DC voltage input

Pin Number	Name	Description
1	GND	0 V reference
2	+10V	+10V DC source (100 mA max.)
3	AI_I	Current analog input (4-20 mA)
4	GND	0 V reference
5	AI_V	Voltage analog input (0-10 V)
6	DO_T	Transistor digital output
7	GND	0 V reference
8	DI3	Digital input (PWM) for speed reference
9	DI2	Digital input for rotation direction
10	DI1	Digital input for Run/Stop

Table 01 - XC10 connector terminals.

Adjust the speed range or scaling factor to match your application's requirements. This step ensures that the VFD interprets the analog input correctly and scales it to the desired motor speed range.

The following table 02 show the reference for the input signals:

Signal type	Condition	Resulting speed value
DC voltage	Lower than 2V DC	20Hz
	From 2 to 10V DC	$((\text{Max}-\text{Min})/8) \times (\text{IS}-2) + \text{Min}$
DC current	Lower than 4mA DC	20Hz
	From 4 to 20V DC	$((\text{Max}-\text{Min})/16) \times (\text{IS}-4) + \text{Min}$

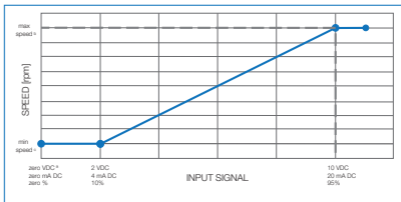
Table 02 - Reference for the input signal.

Notes: The DC voltage signal can be applied by an external power supply or using the built-in 10VDC source and an additional potentiometer (5kΩ to 10kΩ);

To convert the frequency and number of poles into RPM, use the following formula:

$$\text{RPM} = \frac{120 \times \text{frequency}}{\text{number of poles}}$$

- Max = Maximum frequency adjusted in P134 (standard value -> motor nominal frequency)
- Min = Minimum frequency adjusted in P133 (standard value -> 20Hz)
- IS = the value of the signal applied to the control connection in order to define the speed reference, for example, 5V, 13mA, etc.



Finally, you can control the motor speed by adjusting the external analog signal source, such as turning a potentiometer knob or sending the appropriate analog value from your PLC.

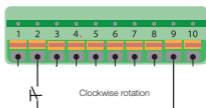
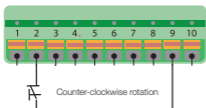
3. Change of rotation direction

3.1. How to forward/reverse your W30 Smart EC motor.

The order to start and stop the W30 Smart EC is given by the respective digital signal applied to input DI2.

The order to determine rotation direction is given by a switch between terminals 2 and 9 (DI2). The switch must be ON for counter-clockwise rotation and OFF for clockwise (CW) rotation. Rotation direction is defined as looking from the motor drive end (shaft).

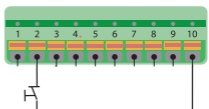
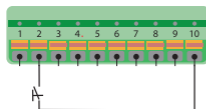
If the rotation direction is changed while the product is running, the motor will decelerate, reverse the direction and accelerate to the same speed that was running before.



4. ON & OFF

4.1. How to Start / Stop your W30 Smart EC motor.

The order to start and stop the W30 Smart EC is given by the respective digital signal applied to input DI1.



For further information, get the user manual for the W30 Smart EC, available for download at the site: www.weg.net.



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