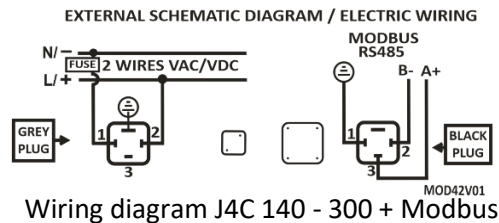
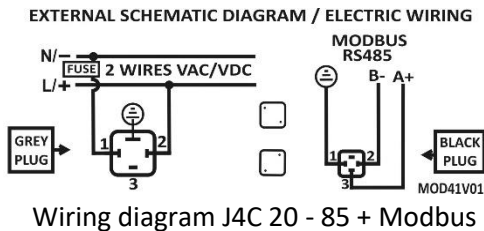




SET-UP & WORKING INSTRUCTIONS OF JJ ACTUATORS WITH MODBUS

Electric Actuator with Modbus - Connections:



Modbus configuration:

Select direction and signal in baud:

Program the **Direction**:

Set up the direction in the bus, by using the Holding Register 0x00.

The device has a factory setting value of (1). Nevertheless, this value could be changed by writing a new value on this register. Mind not to duplicate the mentioned value.

Select Speed in baud:

Set up of the Modbus communication, by using the Holding Register 0x01

- Type Modbus: RTU
- Bauds: 9600bps
- Data Bits: 8
- Parity: Even
- Stop Bits: 1

Possible Configurations:

- 0: 9600, 8, E, 1 (factory settings)
- 1: 19200, 8, E, 1
- 2: 9600, 8, N, 2
- 3: 19200, 8, N, 2
- 4: 9600, 8, N, 1
- 5: 19200, 8, N, 1

Actions to be executed by Modbus:

Execute the action by using Preset Single Register 0x10:

Type of actions:

- 1: Remote Set.
- 2: Local Set.
- 3: On/Off Actuator go to Open direction.
- 4: On/Off Actuator go to Close direction.
- 5: On/Off Actuator stop the motor.
- 6: 3 position Actuator go to middle position.
- 7: Actuator + DPS, open/close regulation with values from 0 to 1000. (*5)



(*5) Actuator + DPS, open/close regulation with values from 0 to 1000.

To regulate an actuator with values between 0 and 1000, the actuator should be set-up from the factory as an actuator with positioner.

Steps to follow:

-Write the requested value (between 0 and 1000) on 0x11 Holding register. Please note that in a standard actuator setting, 0 = close and 1000= open.

-Write “7” value on the 0x10 register and the actuator will start moving.

*Different value table – examples of a 0°-90° Actuator.

Values	Degree	Position
0	0	CLOSE
50	4,5	4,5°
100	9	9°
150	13,5	13,5°
200	18	18°
250	22,5	22,5°
300	27	27°
350	31,5	31,5°
400	36	36°
450	40,5	40,5°
500	45	45°
550	49,5	49,5°
600	54	54°
650	58,5	58,5°
700	63	63°
750	67,5	67,5°
800	72	75°
850	76,5	76,5°
900	81	81°
950	85,5	85,5°
1000	90	OPEN

Read status with Modbus:

Read the Status by using Read Holding Registers.

Read status through 0x21: Status_lo

- Bit 0: “close” Micro switch activated, (physical confirmation).
- Bit 1: “open” Micro switch activated, (physical confirmation).
- Bit 2: “close” Digital Confirmation.
- Bit 3: “open” Digital Confirmation.
- Bit 4: “Middle position” Digital Confirmation.
- Bit 8: The DPS is controlling the actuator.
- Bit 9: The BSR is controlling the actuator.
- Bit 10: Local Set activated.
- Bit 11: Actuator set up as a “3 position actuator”.

**Read Registers with Modbus:**

Read Registers by using Read Input Registers.

Register List:

Actuator Status Registers:

Register 0x20: Status_hi
Register 0x21: Status_lo
Register 0x22: Periode_hi
Register 0x23: Periode_lo
Register 0x24: Frequence_hi
Register 0x25: Frequence_lo
Register 0x26: Temperature_hi
Register 0x27: Temperature_lo
Register 0x28: Voltage_hi
Register 0x29: Voltage_lo

Actuator Counter Registers :

Register 0x2A: Version_hi
Register 0x2B: Version_lo
Register 0x2C: Operations_hi
Register 0x2D: Operations_lo
Register 0x2E: Limitations_hi
Register 0x2F: Limitations_lo
Register 0x30: Time_Error_hi
Register 0x31: Time_Error_lo
Register 0x32: Power_On_hi
Register 0x33: Power_On_lo
Register 0x34: BSR_hi
Register 0x35: BSR_lo

Actuator Configuration Parameters:

Register 0x36: Limit_Close_hi
Register 0x37: Limit_Close_lo
Register 0x38: Limit_Open_hi
Register 0x39: Limit_Open_lo
Register 0x3A: Filter_RPM_hi
Register 0x3B: Filter_RPM_lo
Register 0x3C: Time_Unlock_hi
Register 0x3D: Time_Unlock_lo
Register 0x3E: Invert_Time_hi
Register 0x3F: Invert_Time_lo
Register 0x40: Operation_Time_hi
Register 0x41: Operation_Time_lo
Register 0x42: Input_Mode_hi
Register 0x43: Input_Mode_lo
Register 0x44: Max. PWM_hi
Register 0x45: Max. PWM_lo
Register 0x46: Temperature_hi
Register 0x47: Temperature_lo



Register 0x48: Non_Stop_hi
Register 0x49: Non_Stop_lo
Register 0x4A: BSR_Operations_hi
Register 0x4B: BSR_Operations_lo
Register 0x4C: Input_Discrimination_hi
Register 0x4D: Input_Discrimination_lo
Register 0x4E: BSR_Protection_Time_hi
Register 0x4F: BSR_Protection_Time_lo
Register 0x50: Limit_Function_Retry_hi
Register 0x51: Limit_Function_Retry_lo
Register 0x58: DPS output Feedback (Value between 0 and 1000)