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## **Motor Controller Jumper Pin and Switch Options**

Configure Motor Controllers for Specific Applications

# Motor Controller Jumper Pin and Switch Options

Turntide motor controllers are designed for several applications. The jumpers and switches are used to configure the motor controller for a specific application. Before connecting the controller to the Turntide motor, verify the controller configuration.



Jumper Pins (P04, P05, and SL120 Motor Controllers)



SL121 Motor Controller Switches



P06 Motor Controller Switches

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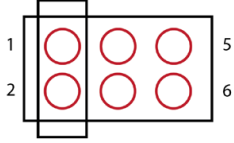
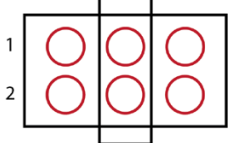
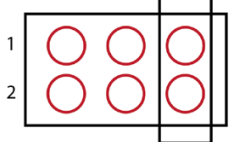
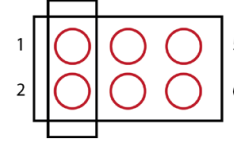
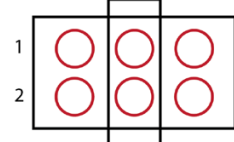
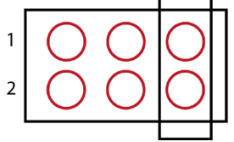
# Jumper Pins (P04, P05, and SL120 Motor Controllers)

<b>Digital Input Mode</b> jumpers	Determine the inputs the motor controller recognizes.
<b>Universal Input (UI)</b> jumpers	Define the connected device type. <ul style="list-style-type: none"><li>• Currently <b>UI1 and UI2</b> are used in applications with Supply and Return Air sensors.</li><li>• Setting the respective jumpers across pins 1 &amp; 2 configure the control to respond to the resistive load of the thermistor.</li></ul>



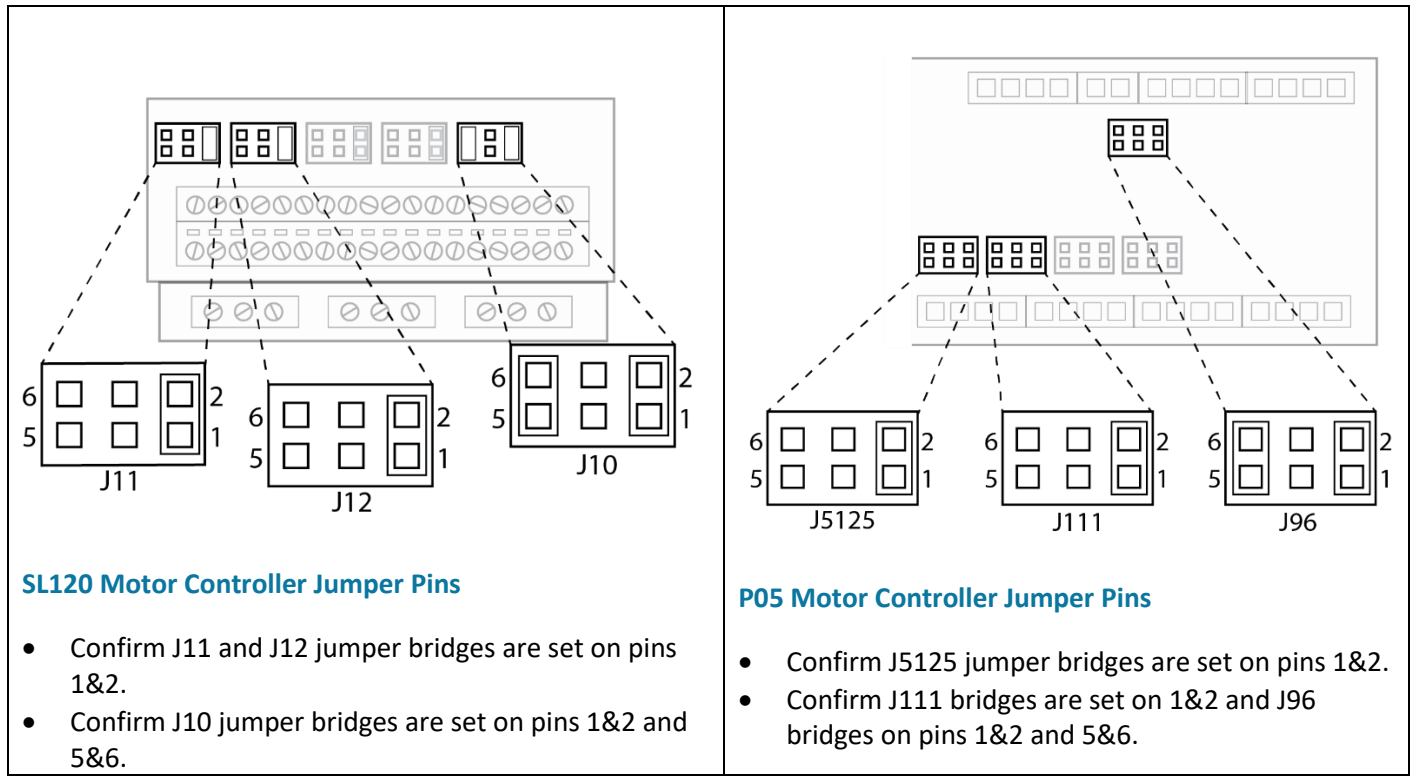
Input mode selection must be jumpers 1&2 and 3&4 or 1&2 and 5&6.

# Jumper Pins Options P04, P05, and SL120 Motor Controllers

Motor Controller Model	Modbus EOL Jumper	Digital Input Mode Jumper	Universal Input Mode Jumpers			
			UI1	UI2	UI3	UI4
P04W	J96	J96	J5125	J111	J112	J113
P05	J96	J96	J5125	J111	J112	J113
SL120	J10	J10	J11	J12	J13	J14
Modbus EOL Selection						
Pin Selections		Mode		Examples		
<b>1 &amp; 2</b> 		Installed: Enables EOL Resistor (End of line) Removed: Disables EOL Resistor (End of line)		Install if wiring to terminals D+/D is end of daisy chain.		
Digital Input Mode Selection						
Pin Selections		Mode		Examples		
<b>3 &amp; 4</b> 		Enables digital inputs LOGIC or dry contact mode.		Install if S1 through S7 will be used to receive contact closures for control.		
<b>5 &amp; 6</b> 		Enables digital inputs 24VAC signaling mode.		Install if S1 through S7 will be used to receive 24VAC input signal from existing BMS or thermostat.		
Universal Input Mode Selection						
Pin Selections		Mode		Examples		
<b>1 &amp; 2</b> 		Resistive/LOGIC: Returns resistance of connected element or ON/OFF if declared as resistive or LOGIC mode respectively.		Resistive: 2 wire 10K $\Omega$ thermistor  LOGIC: Dry contact closure = ON Dry contact open = OFF		
<b>3 &amp; 4</b> 		Voltage: 0-10V signal ended voltage input.		3-wire device with external power source that provides 0-10V signal. (1 signal, 1 common, 1 power)		
<b>5 &amp; 6</b> 		Current: 0-20mA current input.		3-wire device with external power source that provides a 0-20mA signal. (1 signal, 1 common, 1 power)		

To ensure the motor controller jumper pins are set correctly for an RTU installation, consult the following:

**Table 1 Motor Controller Jumper Pins (Image rotated 90 degrees)**





# SW1 for Modbus Termination Resistor and Digital Input Mode

SW1 is used for both the Modbus Termination Resistor and Digital Input Mode settings selection. Digital or Discrete Inputs initiate a programmed response of the motor controller based on parameter settings.

## UI1 to UI4

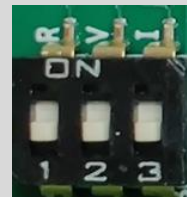
Universal inputs define the connected device type. The Universal inputs may be configured in one of **three modes (I, V, R)** via DIP Switches.

- **Voltage (V):** 0-10V (may be used to control the inverter directly or used to monitor CO2 or other sensors in HVAC systems)
- **Current (I):** 0-20mA or 4-20mA (may be used for direct current loop control of the motor controller)
- **Resistive (R):** Thermistor temperature sensors (may be used to monitor ambient air, return air, and supply air temperatures in HVAC systems)

### Notes:

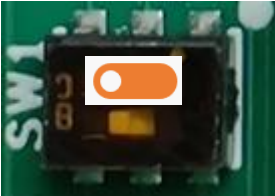
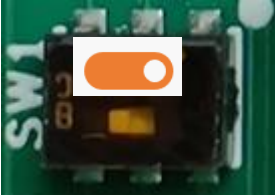
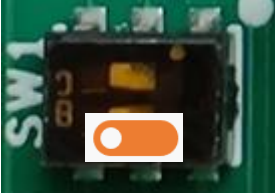
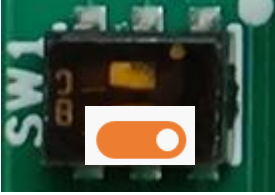
- Position 1 ON is the **resistive mode**
- Position 2 ON is the **voltage mode**
- Position 3 ON is the **current mode**.




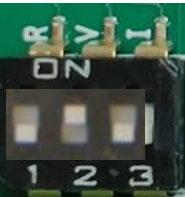

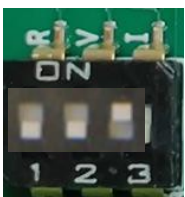
**ONLY one switch position should be ON at a time.**



# SL121 Motor Controller User-Selectable Switch Options Usage & Example

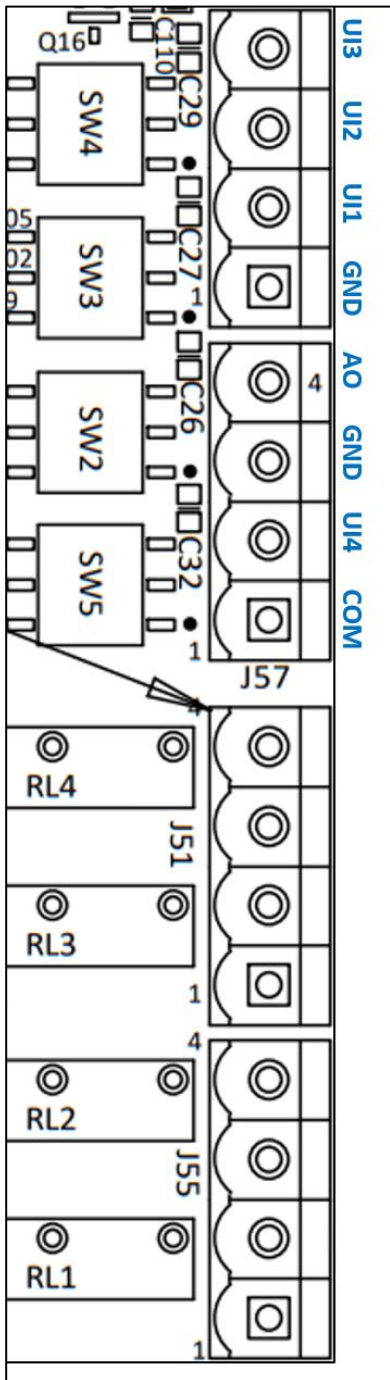
Table 2 Switch Options SL121

Motor Controller Model	Modbus Termination Resistor Switch	Digital Input Mode Switch	Universal Input Mode Switches			
			UI1	UI2	UI3	UI4
SL121	SW1	SW1	SW2	SW3	SW4	SW5
Modbus Termination Resistor Selection						
Switch Position		Mode		Examples		
<b>Top LEFT position</b> 		Modbus termination resistor is <b>enabled</b>		Set if wiring to terminals D+/D is end of daisy chain.		
<b>Top RIGHT position</b> 		Modbus termination resistor is <b>disabled</b>				
Digital Input Mode Selection						
Switch Position		Mode		Examples		
<b>Bottom LEFT position</b> 		Enables digital inputs LOGIC or dry contact mode.		Set if <b>DI1</b> through <b>DI7</b> will be used to receive contact closures for control.		
<b>Bottom RIGHT position</b> 		Enables digital inputs 24VAC signaling mode.		Set if <b>DI1</b> through <b>DI7</b> will be used to receive 24VAC input signal from existing BMS or thermostat.		

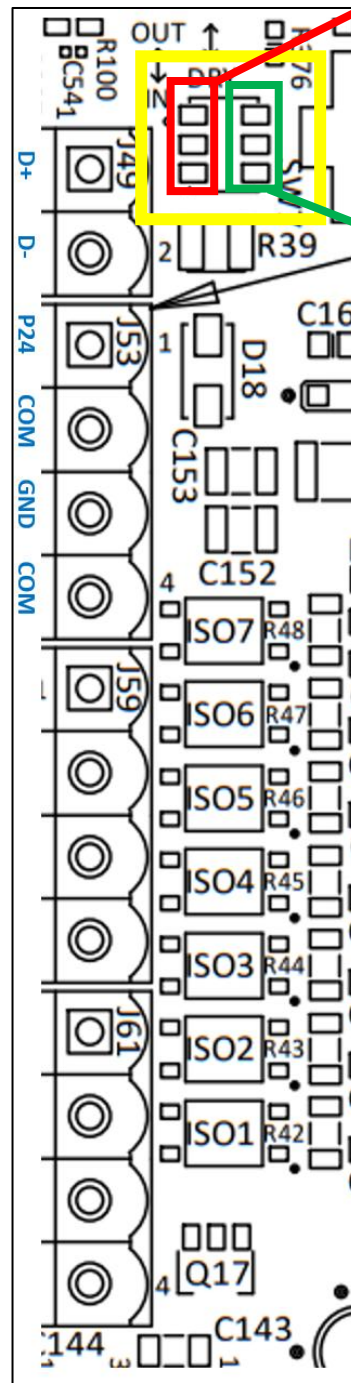
Motor Controller Model	Modbus Termination Resistor Switch	Digital Input Mode Switch	Universal Input Mode Switches			
			UI1	UI2	UI3	UI4
SL121	SW1	SW1	SW2	SW3	SW4	SW5
Universal Input Mode Selection						
UI1 to UI4 DIP Switch ON	Mode			Examples		
<p> <b>Caution:</b> ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller.</p> <p><b>R</b></p> 	<p><b>Resistive/LOGIC:</b> Returns resistance of connected element or ON/OFF if declared as resistive or LOGIC mode respectively.</p>			<p><b>Resistive:</b> 2 wire 10K <math>\Omega</math> thermistor</p> <p><b>LOGIC:</b> Dry contact closure = ON Dry contact open = OFF</p>		
<p> <b>Caution:</b> ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller.</p> <p><b>V</b></p> 	<p><b>Voltage:</b> 0-10V signal ended voltage input.</p>			<p>3-wire device with external power source that provides 0-10V signal. (1 signal, 1 common, 1 power)</p>		
<p> <b>Caution:</b> ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller.</p> <p><b>I</b></p> 	<p><b>Current:</b> 0-20mA current input.</p>			<p>3-wire device with external power source that provides a 0-20mA signal. (1 signal, 1 common, 1 power)</p>		

# P06 Motor Controller Switches

Figure 2 User-Selectable Switches P06



- UI3 (SW4)
- UI2 (SW3)
- UI1 (SW2)
- UI4 (SW5)



SW7: Modbus  
Termination Resistor  
Mode

SW7: Digital Input  
Mode

Figure 3 P06 Image



# Switch Options

Universal inputs define the connected device type. The Universal inputs may be configured in one of **three modes (I, V, R)** via DIP Switches.

- **Voltage (V):** 0-10V (may be used to control the inverter directly or used to monitor CO2 or other sensors in HVAC systems)
- **Current (I):** 0-20mA or 4-20mA (may be used for direct current loop control of the motor controller)
- **Resistive (R):** Thermistor temperature sensors (may be used to monitor ambient air, return air, and supply air temperatures in HVAC systems)

## Notes:

- Position 1 ON is the **resistive mode**
- Position 2 ON is the **voltage mode**
- Position 3 ON is the **current mode**.

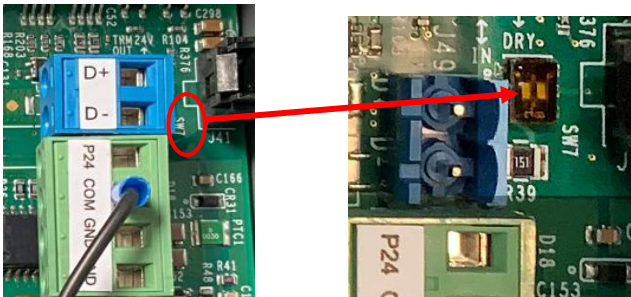


**ONLY one switch position should be ON at a time.**

## SW7 for Modbus Termination Resistor and Digital Input Mode


SW7 is used for both the Modbus Termination Resistor and Digital Input mode settings selection. Digital or Discrete Inputs initiate a programmed response of the motor controller based on parameter settings.







The blue D+ D- cap is easily removed to improve access to SW7.



# P06 Motor Controller User-Selectable Switch Options Usage & Examples

Table 3 P06 User-Selectable Switch Options

Motor Controller Model	Modbus Termination Resistor Switch	Digital Input Mode Switch	Universal Input Mode Switches			
			UI1	UI2	UI3	UI4
P06	SW7	SW7	SW2	SW3	SW4	SW5
Modbus Termination Resistor Selection						
Switch Position		Mode	Examples			
<b>Left DOWN position</b> 		Modbus termination resistor is <b>enabled</b>	Set if wiring to terminals D+/D is end of daisy chain.			
<b>Left UP position</b> 		Modbus termination resistor is <b>disabled</b>				
Digital Input Mode Selection						
Switch Position		Mode	Examples			
<b>Right DOWN position</b> 		Enables digital inputs LOGIC or dry contact mode.	Set if <b>DI1</b> through <b>DI7</b> will be used to receive contact closures for control.			
<b>Right UP position</b> 		Enables digital inputs 24VAC signaling mode.	Set if <b>DI1</b> through <b>DI7</b> will be used to receive 24VAC input signal from existing BMS or thermostat.			

Motor Controller Model	Modbus Termination Resistor Switch	Digital Input Mode Switch	Universal Input Mode Switches			
			UI1	UI2	UI3	UI4
P06	SW7	SW7	SW2	SW3	SW4	SW5
Universal Input Mode Selection						
UI1 to UI4 DIP Switch ON		Mode	Examples			
 <b>Caution:</b> ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller. <b>R</b> 		<b>Resistive/LOGIC:</b> Returns resistance of connected element or ON/OFF if declared as resistive or LOGIC mode respectively.	<b>Resistive:</b> 2 wire 10K $\Omega$ thermistor  <b>LOGIC:</b> Dry contact closure = ON Dry contact open = OFF			
 <b>Caution:</b> ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller. <b>V</b> 		<b>Voltage:</b> 0-10V signal ended voltage input.	3-wire device with external power source that provides 0-10V signal. (1 signal, 1 common, 1 power)			
 <b>Caution:</b> ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller. <b>I</b> 		<b>Current:</b> 0-20mA current input.	3-wire device with external power source that provides a 0-20mA signal. (1 signal, 1 common, 1 power)			

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Turntide Technologies | 11720 Amber Park Drive, Suite 160, Alpharetta, GA 30009 | [turntide.com](http://turntide.com) | [support@turntide.com](mailto:support@turntide.com)

